OPEN ACCESS RESEARCH PUBLICATIONS AND SOUTH AFRICAN INSTITUTIONAL REPOSITORIES (IRs) IN THE CONTEXT OF INTELLECTUAL PROPERTY LAW AND PRACTICES:

AN INTERDISCIPLINARY STUDY

by
Leti (AJT) Kleyn

Submitted in fulfilment of the requirements for the degree M(Phil)
in the Faculty of Law, Department of Private Law,
University of Pretoria

Under the supervision of
Professor (Judge) LTC Harms

&

co-supervision of
Professor Maritha Snyman

2018

In memory of the open access activist
Hilton Gibson (1956–2017)

CONTENT

SUMMARY

The object of the research is to show the extent of legal challenges that South African librarians encounter with regard to support for public access to research-related information through open access practices such as institutional (research) repositories.

This study employs an interdisciplinary approach combining library and information science with intellectual property law. By making use of a social-legal approach the focus is on the legal challenges institutional repository managers face in managing online, publicly accessible platforms in a legally compliant manner.

The global flow of information through the concepts of “open science”, “open access”, “open data”, and the role these play in the broader development of a knowledge society is explored. Through a systemic approach the different role-players, legislation, regulations, regulatory bodies, institutional policies and copyright agreements with (largely international) academic publishers are taken into account. Legal challenges with regard to copyright restrictions, contracts with publishers, leasing of material and the use of Creative Commons licensing are categorised and explained in relation to the extent of repository services.

The study also takes into account the changes that might arise from the Copyright Amendment Bill, showing that open science initiatives require a combination of approaches (not just legal reform) if the current scholarly publishing system is to change.

A twofold practical component attempts to make the study a useful resource for information specialists by: (i) undertaking a case study of legal and institutional regulations and of repositories by exploring the different regulatory systems and the legal challenges faced in the running of the UPSpace repository (University of Pretoria); (ii) establishing basic guidelines for librarians and information workers on good legal practices for maintaining an institutional repository in South Africa, by balancing legal requirements and the drive for public access to scholarly knowledge.

KEYWORDS

intellectual property, copyright, scholarly publishing, institutional repository, open access

“The writer, like the murderer, needs a motive.”
Janet Malcomb

CHAPTER 1 | INTRODUCTION

The object of the research is to show the extent of legal challenges that South African librarians encounter with regard to support for public access to research-related information through open access practices such as institutional (research) repositories. This chapter motivates the proposed study through a research statement, a rationale for the study, research methodology, and validation for the interdisciplinary approach to the work presented.

1. BACKGROUND: A CHANGING LANDSCAPE

The Internet changed the way we function in almost every aspect of our lives, as indicated in the 2017 usage statistics of Web 2.0 tools per minute.[1] The World Wide Web (WWW) is a system that facilitates sharing of information and connecting of users through downloads and uploads. Millions of web searches are conducted per second. The Internet has thus become an uncontrollable and unregulated system of sharing – both legally and illegally.[2] David Bollier[3] argues that by using the Internet and its applications as a powerful tool, we are developing and building "a radical different order of society based on open access, decentralized creativity,[4] collaborative intelligence, and cheap and easy sharing".[5] Ultimately, we are creating "a digital republic of commoners"[6] through newly developed shared platforms, tools, and content[7] not only changing the perception of the public domain from "something of a wasteland" without any monetary value but also a rising disruptive economic,[8] political,[9] legal,[10] cultural, and social force.[11]

---

[1] Nayyar F (2017), at https://aftechs.com/what-happens-in-an-internet-minute-in-2017/
[2] See Figure A1 for visualised data.
[3] Bollier D (2008:11) *Viral spiral: How the commoners built a digital republic of their own*, New York: New York Press.
[4] Rifkin J (2015:5) refers to "prosumers" as individuals who are both consumers and producers, in *The Zero Marginal Cost Society: The Internet of things, the collaborative commons, and the eclipse of capitalism*, New York: St Martin's Griffin. See Aufderheide P & Jaszi P (2011:7) *Reclaiming FAIR USE: How to put balance back in copyright*, Chicago: The University of Chicago Press; Hooper R (2016), at http://www.wipo.int/wipo_magazine/en/2016/02/article_0007.html; and Lessig L (2002:9) on the blended species of creators and users, in *The future of ideas: The fate of the commons in a connected world*, New York: Vintage Books.
[5] See Stein J (2015), at http://time.com/magazine/us/3687285/february-9th-2015-vol-185-no-4-u-s/
[6] Bollier (2008:194).
[7] Bollier (2008:295).
[8] This features as "on-demand economy" and disruptive economic power (such as Uber). See Schwab K (2017:19–20) *The Fourth Industrial Revolution*, London: Penguin. See also Hendrickson C & Galston WA (2017), at https://www.brookings.edu/blog/techtank/2017/12/06/big-technology-firms-challenge-traditional-assumptions-about-antitrust-enforcement/ and Rushkoff D's (2016) concern that big tech firms not only shape our lives, but also "dictate the terms of regional economic development", in *Throwing rocks at the Google bus: How growth became the enemy of prosperity*, London: Penguin.
[9] See Schwab K (2016) on "decentralisation of power", at https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/ and Isin E & Ruppert ES (2015:3) *Being digital citizens*, London: Rowman & Littlefield.
[10] Lessig L (2004) *Free culture: How big media uses technology and the law to lock down culture and control creativity*, New York: The Penguin Press.
[11] Bollier (2008:42).

The rapid development of information and communication technologies (ICTs) such as the Internet, the World Wide Web and Web 2.0 technologies are widely regarded as great "enablers in empowering citizens" that will lead to the democratisation of information and bridging knowledge divides in support of, amongst others, "social empowerment, economic progress, inclusive development, and green economy".[12] These proposed societal changes are in line with the goals of the Internet (widely regarded as the biggest human-made commons of all time),[13] striving to protect the fundamentals of openness, interoperability and collaboration,[14] and could be regarded as a force that drives congruence, tolerance, and understanding.[15] Thus, Yochai Benkler argues:

> As the networked information economy develops new ways of producing information, whose outputs are not treated as proprietary and exclusive but can be made available freely to everyone, it offers modest but meaningful opportunities for improving human development everywhere. We are seeing early signs of the emergence of an innovation ecosystem made of public funding, traditional non-profits, and the newly emerging sector of peer production that is making it possible to advance human development through cooperative efforts in both rich countries and poor.[16]

Yet, the price of knowledge – the enabler for change – seems to be too high for the developing world in a globalised society, creating knowledge scarcity.[17] In turn, this leads to a vast amount of information, such as (publicly funded) research findings, not being (publicly) available to influence government policy,[18] improve and ensure visibility for research from the developing world,[19] contribute to the public good in general,[20] empower through access to information,[21] facilitate

---

[12] UNESCO (2015f:4) *Concepts of openness and open access* (OA curricula for Researchers, Booklet 2). UNESCO: Paris. See Schwab (2017:64–66) on environmental renewal and preservation through the Fourth Industrial Revolution. See also Klein N (2014:288–418) on atmospheric commons, in *This Changes Everything: Capitalism vs. the Climate*, UK: Penguin Random House.

[13] Barnes P (2006:126) *Capitalism 3.0: A Guide to Reclaiming the Commons*, Oakland: Berrett–Koehler Publishers.

[14] Peters J (2016:100): "thanks to the decentralized architecture, the network inverts the way that power and expertise tend to consolidate in the hands of big organizations that can use that power to perpetuate the divide between the rich and the poor", in *The idealist: Aaron Swartz and the rise of free culture on the Internet*, New York: Scibner.

[15] Peters (2016:13). See also Schmidt E & Cohen J (2013:88–89 & 109) on countries with restrictions to the Internet, in *The new digital age: Reshaping the future of people nations and business*, London: John Murray.

[16] Benkler Y (2006:14–15) *The wealth of networks: How social production transforms markets and freedom*, New Haven: Yale University Press.

[17] Open Science Initiative (OSI) Work Group (2015:18) "Mapping the future of scholarly publishing", Report published by the National Science Communication Institute (NSCI), at https://caullibrarypublishing.wordpress.com/2015/02/11/mapping-the-future-of-scholarly-publishing/

[18] Butler-Adam J (2016), at https://theconversation.com/investing-in-science-can-help-put-food-on-africas-plates-64017

[19] See Willinsky J (2006:32) *The Access Principle: The case for Open Access to Research and Scholarship*, Cambridge: The MIT Press.

[20] See Gray E (2010:4) "Access to Africa's Knowledge: Publishing Development Research and Measuring Value" *The African Journal of Information and Communication*, 10: 4–19; and Waghid Y (2011:72) "The decline of the University in South Africa: Reconstituting the place of reason", in Barnett R (ed.) *The Future University: Ideas and Possibilities*, New York: Routledge, pp. 71–83.

[21] Minister of Science and Technology quoted in Gray E (2016), at https://mg.co.za/article/2016-12-09-00-open-access-open-data-open-science

public debate,[22] improve government accountability,[23] and address the challenges of the developing world. Ultimately, it is argued that advancements (such as economic, social, and technological) are hindered by the lack of access to information by researchers, educators and the public at large.[24]

1.1 The role of the library

In 1836, Anthony Panizzi, the principal librarian of the British Museum (that later became the British Library), presented to Parliament the vision of a library/museum as commons of knowledge. He requested the following:

> I want a poor student to have the same means of indulging his learned curiosity, of following his rational pursuits, of consulting the same authorities, of fathoming the most intricate inquiry as the richest man in the kingdom, as far as books go, and I contend that the government is bound to give him the most liberal and unlimited assistance in this respect.[25]

I am acutely aware of the difference between the historic concept of the gift economies[26] and the long-existing market economies.[27] However, the development of the Internet has allowed for drastic reform in relation to the ownership and accessibility of information in the electronic era:

> Libraries and universities pose an apparent threat to copyright guardians because they ostensibly represent a gift economy; they exist to disseminate information for the betterment of the commonwealth, rather than to control the flow of information for the benefit of creators. The concept of intellectual property is a cornerstone of the market economy. Its adherents view with suspicion anyone who fails to share their free-market framework for cultural creation, and thus easily classify dissenters as pirates or thieves.[28]

The role of the library changed dramatically from that of a private book warehouse renting books to subscription members into a public library lending books, and now serving as a multifunctional information dissemination hub. According to South African academic librarian Denise Nicholson, "librarians are key players in the knowledge chain. They are leaders in print and digital information collection, management, and dissemination, as well as in preservation, data

---

[22] Holmwood J (2013), at http://blogs.lse.ac.uk/impactofsocialsciences/2013/10/21/markets-versus-dialogue/

[23] Holmwood (2013).

[24] Czerniewicz L & Wiens K (2013) "The online visibility of South African knowledge: Searching for poverty alleviation", *The African Journal of Information and Communication*, 13: 1–12.

[25] Panizzi quoted in Moody G (2016), at https://arstechnica.com/science/2016/06/what-is-open-access-free-sharing-of-all-human-knowledge/

[26] Hyde L (2006:xvi–xviii) *The gift: How the creative spirit transforms the world*, New York: Vintage Books; Anderson C (2010:178–179) *Free: How Today's Smartest Businesses Profit by Giving Something for Nothing*, London: Random House; Karatani K (2014:51) *The structure of world history: From modes of production to modes of exchange*, Durham: Duke University Press; Rifkin (2015:188); Žižek S (2015:155–157) *Trouble in Paradise: From the end of history to the end of capitalism*, London: Penguin Books; Mason P (2016:129) *PostCapitalism: A guide to our future*, London: Penguin Books; Nickson J (2017:35 & 49) *Our common good: If the state provides less, who will provide more?*, London: Biteback Publishing.

[27] Peters (2016:89). See also Anderson (2010) in relation to free business models.

[28] McShelly in Peters (2016:88).

management, knowledge production, literacy development, and other key professional activities".[29] Although provision is made for exceptions for libraries, museums, archives, and galleries[30], these non-profit entities are required to function under the same laws as commercial enterprise.[31] This is hampering a number of core services they need to deliver to the public.

Libraries play an important role in national development by providing access to information. The members of the International Federation of Library Associations and Institutions (IFLA) Dynamic Coalition on Public Access in Libraries agree with the following three (out of eight) principles relating to the issues of access to information at hand:

> **Copyright:** National and international copyright frameworks should balance the public interest in accessing information with the rights of authors, artists, and publishers by ensuring provisions for libraries and archives to provide public access to the world's knowledge in all formats.
>
> **Open access content:** Through providing technology and Internet access, libraries offer and promote access to free online content that supports education and development, complementing access to commercial content through online subscription resources.
>
> **Local content:** Through providing technology and offering support, libraries have the capacity to promote and enable the creation of local content and to ensure its preservation. Libraries should be supported in using and facilitating access to open data and open access solutions and libraries' role in providing access to government information and services should be recognized.[32]

Libraries have long attempted to engage in resource sharing through initiatives such as consortium, networks and inter-library loans in support of information availability. Now, a new shift is taking place with regard to the role of the academic library in securing accessibility of information for all. Chadwell & Sutton argue that their "fundamental role in removing barriers to the free exchange of information is transforming the landscape of scholarly communication[33] through building institutional repositories, publishing O[pen] A[cces] journals, hosting open educational resources, facilitating access to research data, and advocating for the passage of OA policies".[34] Universities and research libraries around the world use institutional repositories in many ways – for instance, for

> scholarly communication; storing learning materials and courseware; electronic publishing; managing collections of research documents; preserving digital materials for the long term;

---

[29] Nicholson (2017c), at http://libguides.wits.ac.za/ld.php?content_id=33607968
[30] Sections 12–19B of the South African Copyright Act deal with exceptions.
[31] See Dryden J (2017), at http://www.wipo.int/wipo_magazine/en/2017/04/article_0003.html
[32] International Federation of Library Associations and Institutions (IFLA) (2016), at https://www.ifla.org/publications/node/10328
[33] Defined as "the process of sharing, disseminating and publishing research findings of academics and researchers so that that the generated academic contents are made available to the global academic communities", according to UNESCO (2015e:6) *Scholarly communications* (OA curricula for Researchers, Booklet 1). UNESCO: Paris.
[34] Chadwell F & Sutton SC (2014:225) "The future of open access and library publishing", *New Library World*, 115(5/6): 225–236.

> adding to the university's prestige by showcasing its academic research; institutional leadership role for the library; knowledge management; research assessment; encouraging open access to scholarly research; [and] housing digitised collections.[35]

South African libraries are struggling to populate their institutional repositories due to a number of factors including (but not limited to) copyright restrictions.[36] Information specialists (working with researchers) should all be able to advise on the copyright status of material for their institutional repositories through available tools and a basic but sound knowledge of legal rights. A successful repository is not a silo but rather a network of individuals that builds, contributes, and populates such a system. More importantly, it requires skills that are difficult to obtain in a country where there are serious limitations to academic training opportunities for repository managers.[37]

1.2 The Open Access movement in support of access to information

According to the global coalition SPARC, open access is described as "the free, immediate, online availability of research articles, coupled with the rights to use these articles fully in the digital environment".[38] Since the beginning of the Open Access movement in the 1990s, the demand for access to information grew rapidly due to fast-developing technology such as the Internet and initiatives including (but not limited to) the following:

- Creative Commons (CC) (founded in 2001).[39]
- Budapest Open Access Initiative (2002).[40]
- Bethesda Statement on Open Access Publishing (2003).[41]
- Berlin Declaration on Open Access (2003).[42]

The aim of these and other developments[43] was to support the archiving of research materials, including (but not limited to) institutionally produced journal article content, into a trusted

[35] See list of uses from UNESCO (2015c:20) *Open access infrastructure* (OA curricula for Library Schools, Booklet 2). UNESCO: Paris.
[36] See Chapters 4 and 5 for discussions on legal challenges.
[37] LIASA now has the status of a professional body, and should move in a direction where continuing professional development (CPD) courses in the fast-developing library environment form part of the requirements for professional bodies in general, at http://www.liasa.org.za/liasa-professional-body-status/
[38] Definition used by the Scholarly Publishing and Academic Research Coalition (SPARC): "SPARC is a global coalition committed to making [o]pen the default for research and education. SPARC empowers people to solve big problems and make new discoveries through the adoption of policies and practices that advance Open Access, Open Data, and Open Education." A full definition, description and characteristics are available at http://www.sparc.arl.org/issues/open-access.
[39] https://creativecommons.org/
[40] http://www.budapestopenaccessinitiative.org/
[41] http://legacy.earlham.edu/~peters/fos/bethesda.htm
[42] http://openaccess.mpg.de/Berlin-Declaration
[43] See Chapter 2 for a discussion of open access as part of the open science development.

repository,[44] database, or website. This is to ensure public access to published research that is subject to copyright under "all rights reserved" clauses that publishers lock down behind paywalls.[45] Copyright may thus be regarded as a negative force that marginalises the public domain, allowing corporations through assignments to "take from the commons and give nothing back", causing our cultural experience to become that of "consumers of culture rather than participants".[46] UNESCO presents the following motivation for an institutional repository:

> Some of the main objectives for having an institutional repository are to provide open access to institutional research output by self-archiving it, to create global visibility for an institution's scholarly research, and to store and preserve other institutional digital assets, including unpublished or otherwise easily lost grey literature such as theses or technical reports.

South African universities followed international trends by drafting open access policies for the purposes of hosting institutionally produced research, making published journal articles and chapters from books available, and publishing "grey literature"[47] such as electronic theses and dissertations (ETDs), research reports, conference proceedings and student projects on open archives[48] (institutional (research) repositories (IRs)).[49] Part of the aim of these repositories is to ensure public visibility and accessibility to institutionally produced research output funded with taxpayers' money through government research and development subsidies. Thus, the repository does *not* establish an alternative to the traditional model of scholarly publishing, but provides an alternative means to access academic research, including that which is published and copyright protected by international conglomerate publishers.

---

[44] These might be institutional, subject, funder, or data repositories (see Chapter 2 on types of repositories). See Chapter 5 for reference to trusted repositories.

[45] Archiving a copy of research papers as pre-print (unpublished) or post-print versions (published) is known as green route open access (see Chapter 2 on definitions).

[46] Benkler (2006:119–120).

[47] Grey literature is defined as "that which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers". According to Alberani V et al. (1990), this definition could be broadened as "literature publications [that] are non-conventional, fugitive, and sometimes ephemeral publications. They may include, but are not limited to the following types of materials: reports (pre-prints, preliminary progress and advanced reports, technical reports, statistical reports, memoranda, state-of-the art reports, market research reports, etc.), theses, conference proceedings, technical specifications and standards, non-commercial translations, bibliographies, technical and commercial documentation, and official documents not published commercially (primarily government reports and documents)", quoted online from http://www.greylit.org/about

[48] See Castagné M (2013) for a report compiled for the University of British Columbia comparing the different open source repository software titles in use: DSpace, EPrints, Digital Commons, Islandora, and Hydra software, at https://open.library.ubc.ca/clRcle/collections/42591/items/1.0075768

[49] UNESCO (2015c:36) presents the following motivation for an institutional repository: "Some of the main objectives for having an institutional repository are to provide open access to institutional research output by self-archiving it, to create global visibility for an institution's scholarly research, and to store and preserve other institutional digital assets, including unpublished or otherwise easily lost grey literature such as theses or technical reports." Repositories are listed on the Directory of Open Access Repositories (DOAR), at http://www.opendoar.org

1.3 The institutional repository

The institutional repository is regarded as something that "returns value to the institution in terms of impact and reputation",[50] and is normally hosted in university libraries where there is adequate staffing and infrastructure for this endeavour.[51] Many regard this form of open access – green route open access – as the most reliable and sustainable way to ensure long-term preservation and accessibility to research.[52] The Confederation of Open Access Repositories (COAR) regards repositories as an "increasingly important component to the global research infrastructure".[53] The fast-developing network of repositories could be the platform envisioned by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) when it called to "build an optimal system for communicating science – a fully linked, fully interoperable, fully exploitable scientific research database available to all".[54] Not only does it allow free access to content, but the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) would increase the visibility and access of locally produced content on a global scale. The protocol should allow for a "global repository" to arise",[55] for the development of technical standards that support harvesters/indexers/crawlers such as Google and GoogleScholar, which will in turn establish an easily accessible search and access service, and ultimately produce a network of science that stretches across the world.[56]

It is also believed that repositories have the "potential to transform scholarly practice".[57] The science communication system will include formal and informal publishing practices, as well as traditional and new publishing models (blogs, wikis, social media), and allow different forms of engagement with scholarly matter.[58] COAR also predicts important longer-term benefits for repositories:

> Beyond providing access to research articles and other research outputs, open access repositories are developing other functionalities, especially as services are built on top of the network of repositories. These include providing funders and institutions with the ability

[50] Swan A (2012:13) "Policy Guidelines for the Development and Promotion of Open Access", at http://unesdoc.unesco.org/images/0021/002158/215863e.pdf
[51] See Chapters 4 & 6 on human resource and financial constraints.
[52] Open access implies no registration – thus, direct access. See the report by Archambault E et al. (2014:i) "Proportion of open access papers published in peer-reviewed journals at the European and world levels: 1996–2013. Study to develop a set of indicators to measure open access", at http://science-metrix.com/sites/default/files/science-metrix/publications/d_1.8_sm_ec_dg-rtd_proportion_oa_1996-2013_v11p.pdf
[53] COAR (2015b:3) "Promoting Open Knowledge and Open Science: Report of the Current State of Repositories", at https://www.coar-repositories.org/files/COAR-State-of-Repositories-May-2015-final.pdf
[54] Swan (2012:10).
[55] Harnad S & McGovern N (2009), at http://onlinelibrary.wiley.com/doi/10.1002/bult.2009.1720350410/full
[56] Swan (2012:20).
[57] Pinfield S et al. (2014:2419) "Open-access repositories worldwide, 2005–2012: Past growth, current characteristics and future possibilities", *Journal of the Association for Information Science and Technology*, 65(12): 2404–2421.
[58] Swan (2012:13).

> to track funded research output across repositories; delivering usage data; hosting collections of academic journals; supporting text mining of content for new discoveries; and linking related content across the network. As open access expands to the broader concept of open science, including a wider range of content types, open access repositories will become indispensable for managing, tracking, and providing access to the full range of outputs produced through research.[59]

1.4 The library of the future

"The 'library of the future' would be intuitively organised and universally accessible, it would be responsive, personalized, and intelligent; it would belong to everyone, and benefit everyone," Justin Peters claims.[60] This is possible through technological changes, by means of the Internet and the World Wide Web and supported by the Open Access movement. In the Budapest Open Access Initiative, it is stated that there is a need for reform in the current scholarly publishing system by means of modern technology and open access:

> An old tradition and a new technology have converged to make possible an unprecedented public good. [...] Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.[61]

The librarian of the future needs to develop skills to deliver the services required in a rapidly transforming technological era.[62] These might go beyond institutional repository management skills to include providing publishing services,[63] copyright services,[64] data management services,[65] and assessment and impact metrics.[66, 67]

---

[59] COAR (2015b:3).

[60] Peters (2016:13). See also Dempsey L & Malpas C (2018) "Academic Library Futures in a Diversified University System", in Gleason, NW (ed.) *Higher Education in the Era of the Fourth Industrial Revolution*, Singapore: Palgrave Macmillan, pp. 65–89.

[61] Budapest Open Access Initiative (2002).

[62] See Bains S (2013) "Teaching 'old' librarians new tricks" *SCONUL Focus*, 58: 8–11; Calarco P et al. (2016) "Librarians' competencies profile for scholarly communication and open access. Joint Task Force on Librarians' Competencies in Support of E-Research and Scholarly Communication", at https://www.coar-repositories.org/files/Competencies-for-ScholComm-and-OA_June-2016.pdf; NASIG (2017) report on core competencies for scholarly communication librarians, at https://s3.amazonaws.com/amo_hub_content/Association92/files/CoreComp/CompetenciesforScholCommLibrarians_final_ver_2017-08-11.pdf; and Oßwald A et al. (2016) "Continuing professional education in open access – a French-German survey", *LIBER Quarterly*, 26(2): 43–66. For the South African context, see Raju J (2014) "Knowledge and skills for the digital era academic library" *The Journal of Academic Librarianship*, 40(2): 163–170; Raju (2017) *LIS professional competency index for the higher education sector in South Africa*, Cape Town: University of Cape Town Libraries; and the wiki developed by Gibson H, at http://wiki.lib.sun.ac.za/index.php?title=SUNScholar/Capacity_Building

[63] Such as knowledge of and experience with publishing platforms, the full life cycle of publishing, and minting identifiers; possession of basic knowledge of relevant metadata schemata; provision of technical support performance of system administration and programming; and collection and dissemination of assessment metrics.

[64] Such as awareness of the judicial environment; broad understanding of author's rights; knowledge of orphan works; performing licensing services; handling permission requests; and awareness of campus copyright policies.

[65] Such as data description and storage; data management planning knowledge of and ability to apply funder mandates related to data storage, access, and retention; knowledge of and experience with

Chadwell & Sutton predict that, in the long run, the repository model of publishing could form part of the solution to a variety of problems with the current scholarly publishing system. Repository publishing allows a switch from PDF publishing to database/repository infrastructure publishing. Some journal platforms (such as eLife and PLOS) already use means of transparent peer review, emphasise the importance of article-level metrics over the journal effect factor, and act like a publishing platform rather than an electronic journal.[68] This view is supported strongly by the COAR Next Generation Repository initiative[69] which aims to establish

> links between resources in distributed repositories [that] will create a scholarly web within the larger web and will be a key catalyst towards effectively bridging scholarly communication and research infrastructures, *removing the separation between the places where we perform science and the places where we publish it*. This brings many new opportunities for broadening the scope of the services repositories offer.[70] [emphasis added]

Furthermore, the Public Knowledge Project (PKP) made available a number of open source software-based services for alternative publishing avenues, such as the open journal system (OJS), Open Monograph Press (OMP), open conference systems (OCS) and open harvester systems (OHS) which will allow easy access to products that can broaden the role of the library with regard to library publishing.[71]

2. RESEARCH STATEMENT

The study focuses on the legal challenges that repository managers face. This will take into account the different role-players, legislation, regulations, regulatory bodies, institutional policies and copyright agreements with (largely international) academic publishers. It deals with the following issues:

- Exploring the global flow of information through the concepts of "open science", "open access" and "open data", and the role these play in the broader development of the knowledge society (Chapter 2).

---

open source and hosted data repository solutions; collection development, organization of, and access to third-party data sets.

[66] Such as understanding of indicators of research effect, their strengths and limitations; understanding of emerging alternative measures of effect; knowledge of faculty profile systems and academic social networks; knowledge of faculty activity reporting systems; and evaluation of journals (open access and traditional).

[67] NASIG (2017).

[68] Chadwell & Sutton (2014:227–229).

[69] See Figure A2 for a visualisation of the differences between the current and the next generation repository.

[70] COAR (2017b:10) report on "Next generation repositories behaviours and technical recommendations of the COAR Next Generation Repositories Working Group", at https://www.coar-repositories.org/files/NGR-Final-Formatted-Report-cc.pdf

[71] PKP tools available for download, at https://pkp.sfu.ca/

- Explaining the legal challenges academic librarians face with regard to copyright restrictions, contract agreements with publishers, leasing of material and the use of Creative Commons licensing at the institutional level. It will also take into account the positive changes that might arise for the Copyright Amendment Bill (Chapters 3).
- Undertaking a case study of legal and institutional regulations and of repositories by exploring the different regulatory systems and the legal challenges faced with regard to the UPSpace repository (University of Pretoria) (Chapter 4).
- Establishing basic guidelines for librarians on good legal practices for maintaining an IR in South Africa, by balancing legal requirements and the drive for public access to scholarly knowledge.

3. RATIONALE

To ensure that an institutional repository is legally compliant, it is important that staff members working in the field of open scholarship and repository services understand the broader context of the two opposing worlds – intellectual property legislation and public access to research resources and information. It is the responsibility of the repository manager to ensure that all the materials in the repository adhere to intellectual property legislation, national and international research policies, publishers' agreements and institutional regulations. The repository manger is also responsible for overseeing the technical compliance of the database in terms of adherence to required embargo periods, producing comprehensive metadata for repository records, and ensuring that all information in relation to copyright, funder requirements, embargo dates, and sources of obtaining publishers' policy information are available for public scrutiny. To ensure a legally compliant institutional repository service, it is important that staff obtain a broad knowledge base on intellectual property, establish internal regulatory systems to ensure the efficient management of the repository system, and take cognisance of the relevant services to be delivered to researchers at the institutional level.

Although a variety of sources and resources on open access publishing and the use of Creative Commons licences are available, few are aimed at and developed specifically for the local library environment.[72] International material on copyright regulations provides broad guidelines on the interpretation of copyright legislation but does not necessarily apply to the South African context.[73] Contractual arrangements with international publishers for access to information, as well as agreements between researchers and publishers, broaden the challenges. To date, no specific and

[72] See *Creative Commons Licensor Guide* for South Africa, at https://open.uct.ac.za/bitstream/handle/11427/9045/CC_Guidelines_092014TS.pdf?sequence=1

[73] See also Owen D & Dyer A (2014:xxix–xxx) *Dean & Dyer: Introduction to intellectual property law*, Cape Town: Oxford University Press.

inclusive South African legal resource has been available to librarians working in the field of open access repositories and its challenging legal issues.

Because the "key to challenging the culture of fear and doubt is knowledge"[74] and "the writer, like the murderer, needs a motive",[75] I chose to write about the situation with all its challenges against the background of what I faced in my four years of working as an Open Scholarship Programme Manager at a South African higher education institution (2013–2017).

Consequently, this study seeks to highlight the challenges, with examples, and presents arguments for reform and change. It attempts to analyse the problems faced in a library environment in order to add desperately needed research to the public domain, within the parameters of the applicable legal principles and binding institutional rules and regulations.

4. RESEARCH METHODOLOGY

This research project aimed to

- make use of a theoretical framework from the field of Open Science (focusing on the subfields of open access and open data as core components of the open science democratic school of thought) identified by Fecher & Friesike (2014); and
- present a twofold practical component that (i) explores the legal challenges of hosting an institutional repository (UPSpace) at the University of Pretoria (presented as an institutional case study); and (ii) drafts guidelines for good legal practices to be used by the library and information industries relating to the legal challenges of establishing, populating and maintaining institutional repositories with a variety of digital materials.

This study makes use of a socio-legal approach[76] by means of an *interdisciplinary* approach, combining library and information science with intellectual property law.[77] Although socio-legal research is perceived more positively, interdisciplinary research is received with mixed emotion by legal scholars.[78] Yet, the two cannot be separated – socio-legal research is, by definition, an

[74] Aufderheide & Jaszi (2011:3 & 7).
[75] Malcomb J (2005:176) *The silent woman: Sylvia Plath & Ted Hughes*, London: Granta Books.
[76] Banakar R & Travers M (2005:xi) explain that "[w]hether socio-legal studies is regarded as an emerging discipline, sub-discipline or a methodological approach, it is often viewed in the light of its relationship to, and oppositional role within, law", in *Theory and Method in Socio-Legal Research*, Portland: Hart Publishing. See also the different methods of socio-legal research in Salter M & Mason J (2007:119–181) *Writing Law Dissertations: An Introduction and Guide to the Conduct of Legal Research*, Harlow: Longman.
[77] For a comparison between the fields of multidisciplinary, interdisciplinary and transdisciplinary research, see Du Plessis H et al. (2013:20) *The concept and application of transdisciplinarity in intellectual discourse and research*, Johannesburg: Mistra.
[78] See the chapters by Samuel G on the problems of interdisciplinary research, Adams M on comparative law and interdisciplinarity, and Du Laing on promises and pitfalls of interdisciplinary legal research, in

interdisciplinary form of research.[79] In support of the broader theme of the study, the view of interdisciplinary research as a form of mashup, presented by Öber et al., is ironically useful. They describe the approach as involving "some creative undertaking which brings two or more familiar or pre-existing things together in a way that is surprising or not usually anticipated, and makes a point about the union of the two exceeding the sum of the parts".[80] Du Plessis et al., present the outcome of such an approach as (among other things) positive for knowledge production in support of "strategies devised to rebuild a society fissured by structural inequality and disempowerment", global evolvement of knowledge in support of influencing local knowledge, and putting the imperatives of the Constitution into effect.[81]

In the spirit of the Open Access movement and the utilisation of agents of digital change such as the Internet, a variety of important blogs, public science platforms and other forms of "non-academic" discourse are included to highlight the day-to-day discussion and debate surrounding the open society and the development of a knowledge commons.[82] This follows on the approach of Fecher & Friesike.[83]

Where possible, statistical information is presented in graphs and summarised in tables for easy reference and reading. Other illustrative materials are presented in the appendices.

Van Hoecke M (ed.) (2011) *Methodologies of legal research: Which kind of method for what kind of discipline*, Portland: Hart Publishing; Siems MM (2009) "The Taxonomy of Interdisciplinary Legal Research: Finding the Way Out of the Desert", *Journal of Commonwealth Law and Legal Education*, 7: 5–17; Schrama W (2011) "How to carry out interdisciplinary legal research: Some experiences with an interdisciplinary research method", *Utrecht Law Review*, 7(1): 147–162; Roux TR (2015) "The Incorporation Problem in Interdisciplinary Legal Research: Some Conceptual Issues and a Practical Illustration", *Erasmus Law Review*, 8(2): 55–64.

[79] See Banakar R & Travers M (2005:x).

[80] Öber G et al. (2013) "Is interdisciplinary research a mashup?", IRES Working Paper Series, at https://open.library.ubc.ca/cIRcle/collections/facultyresearchandpublications/52383/items/1.0076562

[81] Du Plessis et al. (2013:21–22).

[82] Such information resources include reports by news media (such as the *Mail & Guardian*, *Time* magazine and *Wired* magazine), science communication platforms (such as *The Conversation Africa* and *Nature* news blog); international forum and blog discussions (such as *The Scholarly Kitchen*) and highly regarded open access activists; statements, white papers and reports by important open access and open science organisations and role-players (such as COAR, JISC, SPARC); and online tools by accredited open access service providers (such as OpenDOAR, SHERPA).

[83] Fecher B & Friesike S (2014:18) "Open science: One term five schools of thought", in Bartling S & Friesike S (eds.) *Opening science: The evolving guide on how the Internet is changing research collaboration and scholarly publishing*, Heidelberg: SpringerOpen, pp. 17–47.

"Put simply, intellectual property law polices the knowledge that can be owned, the realm of artefact, while the university polices the knowledge that cannot be owned, the realm of fact and universal truth"

Corynne McSherry

CHAPTER 2 | ACCESS TO INFORMATION BY MEANS OF AN OPEN SCIENCE APPROACH

Chapter 2 serves as a broad overview and contextualisation – an abbreviated literature review – on the development of the Open Access movement as part of the broader open science approach. Open science supports research accessibility and transparency in its broadest form and is regarded as a means to develop a second scientific revolution. Open science thus calls for reform in relation to the accessibility of scholarly information, increased research transparency, broader research collaboration, and the utilisation of alternative licensing options, together with the technological development that enable these changes. The "serial crisis" is discussed in the context of a few open access initiatives initiated by the scholarly community. The two main forms of open access are presented: gold route open access (as an attempt to transform the current scholarly publication business models) and green route open access (as an attempt to address accessibility without commercial reform). Green route open access includes different repository services for research-related material, but here the discussion is not limited to scholarly journal articles only. The broader focus paves the way for Chapter 4, which presents the repository of the University of Pretoria as a case study, and Chapter 5, which categorises the wide variety of materials that populate institutional repositories. The five theoretical schools of open science, as presented by Fecher & Friesike (2014), are used as a theoretical basis to position the Open Access movement in the open science democratic school of thought.

1. THE OPEN ACCESS MOVEMENT

The Open Access movement calls for the scholarly publishing system to reform on three different levels: access (establishment of repositories, known as green route open access), financial (establishment of new business models, known as gold route open access), and copyright reform.[84] Green route open access is a "supplement" or alternative means to access information (and not an alternative form of publishing),[85] whereas gold route open access is regarded as an alternative to the current publishing model.[86]

The Budapest Open Access Initiative (2002) defines open access to research literature as:

[84] See Suber P (2012:7–8) on the distinction between *gratis* and *libre* open access, and pages 125–132 on general call for reform, in *Open Access*, Cambridge: MIT Press. See Chapter 3 for a discussion on legal reform in the context of the Open Access movement.
[85] Wenzler J (2017:190) "Scholarly communication and the dilemma of collective action: Why academic journals cost too much", *College and Research Libraries*, 78(2): 183–200.
[86] Solomon DJ et al. (2016) "Converting scholarly journals to open access: A review of approaches and experiences. Digital access to scholarship at Harvard", at http://nrs.harvard.edu/urn-3:HUL.InstRepos:27803834

> 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.[87]

This initiative was soon followed by the Bethesda Statement on Open Access Publishing (2003) (in the Biomedical research community) and the Berlin Declaration on Open Access to Knowledge (in the Sciences and Humanities). Both stipulated the two conditions assigned to open access – copyright reform and the use of repository services:

> 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.
>
> 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).[88]

This was followed by a variety of statements on open access from different groups, each with specific focuses and goals to improve, escalate and support the call for wider research dissemination, participatory culture in education,[89] relevance and contribution from the developing world,[90] support for research infrastructure development on the African continent,[91] closing the existing digital divide,[92] developing a more transparent approach to science through open science initiatives,[93] establishing an equitable information society,[94] enhancing democracy

[87] Budapest Open Access Initiative (2002).
[88] Bethesda Statement on Open Access Publishing (2003).
[89] Cape Town Open Education Declaration: Unlocking the promise of open educational resources (2008), at http://www.capetowndeclaration.org/
[90] Salvador Declaration on Open Access: The developing world perspective (2005), at http://www.icml9.org/meetings/openaccess/public/documents/declaration.htm
[91] Dakar Declaration on Open Science in Africa (2016), at https://oar.sci-gaia.eu/record/133/files/Dakar%20Declaration%20v2%20-%20for%20the%20OAR.pdf
[92] All European Academies (ALLEA) (2013) Statement on Enhancement of Open Access to Scientific Publications in Europe, at http://www.allea.org/wp-content/uploads/2015/08/Statement_ALLEA_Open_Access_2013-11.pdf and All European Academics (ALLEA) (2015) Supplementary Statement on Enhancement of Open Access to Scientific Publications in Europe, at http://www.allea.org/wp-content/uploads/2015/12/Supplementary-Statement_Open-Access_FINAL.pdf
[93] All European Academies (ALLEA) (2013). See also Suber (2012:29–48).

through open governance,[95] and intellectual property law reform.[96] These systemic changes are regarded as necessary, as reported by the Open Source Initiative (OSI):

> For the past 20 years or so – roughly coinciding with the growth of the Internet – the scholarly publishing system has been under a tremendous and increasing amount of stress due to rapidly increasing subscription prices, rapid proliferation in the number of journals being published, distorted publishing incentives in academia, lax editorial oversight, massive escalation in the global rate of knowledge production, changing communication patterns and expectations in our society, the emergence of open access as a compelling model of free and open information access, and a wide array of other important factors. This stress is particularly affecting access to medical research information today, and particularly in the developing world.[97]

In South Africa, general access to publicly funded research findings is needed to communicate local research to a wider academic and public audience, increase the effect of local research, and improve ways of addressing some of the dire needs of South African society.[98] John Butler-Adam emphasises access to publicly funded research by all South Africans as a means to stimulate lifelong learning, encourage innovation and research, improve education and training, and ensure empowerment and human development.[99]

2. THE DEVELOPMENT OF KNOWLEDGE MONOPOLIES AND A "SERIAL CRISIS" IN SCHOLARLY PUBLISHING

The arguments around the "serial crisis"[100] relate to what is regarded as the divide between knowledge economies and the knowledge society.[101] The knowledge economy developed into a system by which a few for-profit conglomerate publishers managed to take control of the scholarly journal publishing system, increasing subscription prices and establishing extremely high profit

---

[94] Kigali Declaration on the Development of an Equitable Information Society in Africa (2016), at http://unpan1.un.org/intradoc/groups/public/documents/un/unpan033853~1.pdf

[95] G8 Open Data Charter (2013), at https://www.gov.uk/government/publications/open-data-charter/g8-open-data-charter-and-technical-annex See also Willinsky (2006:127) on democratic divide.

[96] Adelphi Charter on Creativity, Innovation and Intellectual Property (2005), at https://www.ictsd.org/adelphi-charter-launched-on-creativity-innovation-and-intellectual-property

[97] Open Science Initiative (OSI) Work Group (2015). The OSI report (2015:42) states that "scientists from the global south must contribute to problems affecting mostly rich countries rather than their own in order to be published in these journals, and important scientific questions are being slighted or ignored because of the need to publish in prestigious journals. This issue has been referred to as the 10/90 problem. The phenomenon in which 90% of the world's R&D money is spent on the 10% of diseases that primarily affect people in developed countries, while only 10% is spent on diseases that mainly affect the 90% of people who live in the developing world."

See Nickson J (2017:136) with regard to media coverage on the Ebola virus in *Our common good: If the states provides less, who will provide more?*, London: Biteback Publishing, and Sunder M (2012:1) arguing medical disinterest regarding those being "too poor to save their lives", in *From goods to a good life: Intellectual property and global justice*, London: Yale University Press.

[98] Butler-Adam J (2015), at https://theconversation.com/opening-up-access-to-research-and-information-isnt-a-luxury-its-a-necessity-49302

[99] Butler-Adam (2015). See also Benkler (2006:14–15).

[100] UNESCO (2015e:44–52).

[101] Gray E (2010:16).

margins.[102] This was in part caused by the substitution of print journal subscriptions (mainly in academic libraries) with online electronic resources: libraries no longer build resource collections, but lease material through an annually renewable subscription fee business model. Cancellation of subscription packages leads to the loss of an entire resource unless an agreement is reached or a leasing contract does not include back-filing as part of the agreement.[103]

Both Peter Suber and John Willinsky argue that scholarly publishers "add the least value and generally demand the ownership right"[104] and use copyright as a means to "distort" relationships between role-players.[105] Authors (academics and researchers), editors (often viewed by publishers in the category "work-for-hire")[106] and referees (academics and researchers) deliver a product free of charge (often regarded as contributions to the gift economy[107] or "reputation economy"[108]) and assign all copyrights to publishers. Publishers then sell the work as an information resource to the scholarly community at exorbitant prices.[109] Willinsky describes scholarly publishing as a system of "banking on longer-term investments in what may be cast as human rights and vanities. The inextricable mix of a right to know and a right to be known drives the academy's knowledge economy."[110] Publishers are creating revenue that does not benefit science and education[111] but rather the shareholders of these publishing houses.[112] Unlike

[102] Larivière V et al. (2015a:10) indicated that the profit margins for Reed Elsevier increased from 30.6% to 38.9% between 2006 and 2013, in "The oligopoly of academic publishers in the digital era" *PLOS ONE*, at http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502 This is reported as "almost four times the average profit margin of groups in the FTSE 100", quoted from Cookson R (2015), at https://www.ft.com/content/93138f3e-87d6-11e5-90de-f44762bf9896 See also McNutt in Pelcastre IF & Correa FG (2016), at http://blogs.lse.ac.uk/impactofsocialsciences/2016/09/26/the-current-system-of-knowledge-dissemination-isnt-working-and-sci-hub-is-merely-a-symptom-of-the-problem/ Elsevier-generated revenue for 2016 was reported as 2.32 billion GBP.

[103] See the explanation by Smith C (2018) in the response to the cancellation of the Elsevier services in Sweden, at https://openaccess.blogg.kb.se/2018/06/20/qa-about-the-cancellation-of-the-agreement-with-elsevier-commencing-1-july/

[104] Suber (2012:37).

[105] Willinsky J (2006:43), in *The Access Principle: The Case for Open Access to Research and Scholarship*, Cambridge: The MIT Press.

[106] Willinsky (2006:45–46).

[107] Suber (2012:14).

[108] Esposito J (2018), at https://scholarlykitchen.sspnet.org/2018/07/16/hasnt-academy-taken-back-control-publishing-already/

[109] Pricing analyses of journals conducted by Bosch S & Henderson K (2016) showed the top 5 single most expensive fields (average journal prices) to be chemistry ($5 105), physics ($4 508), engineering ($3 244), biology ($3 104), and food sciences ($2 729), at http://lj.libraryjournal.com/2016/04/publishing/fracking-the-ecosystem-periodicals-price-survey-2016/# Some call for regulated pricing for the common good (Wenzler 2017:23, in "Scholarly communication and the dilemma of collective action: Why academic journals cost too much" *College and Research Libraries*, 78(2): 183–200), price caps (Brembs B 2016a, at http://bjoern.brembs.net/2016/04/how-gold-open-access-may-make-things-worse/), strict monitoring (such as that done by eigenFACTOR.com), and pushing for cost effectiveness of journal subscriptions through an open-access "flip" model by the Max Planck Digital Library, at http://pubman.mpdl.mpg.de/pubman/faces/viewItemOverviewPage.jsp?itemId=escidoc:2148961

[110] Willinsky (2006:6).

[111] See Taylor M (2016) on moral dimensions of openness, at https://svpow.com/

"artistic" fields such as the music, entertainment, and book-publishing industries, academic journal publishing is a no-royalty-paying[113] industry wherein research is largely funded by government subsidy and research-funding agencies.[114]

The rise of the Internet led to the creation of knowledge monopolies through conglomerate publishers by which the top five most prolific publishers accounted for more than 50% of all papers published in 2013.[115] This situation supports opinions and an outcry over a system that is regarded as "deeply dysfunctional",[116] shows "abusive behaviour",[117] and unilaterally favours publishers over users.[118] Scholarly publishers charge high prices for access to research outputs through online sales and leasing, pay-per-view fees, library leasing, subscription fees, and so-called "journal bundling"[119] as part of their big deal-agreements. This publishing model also allows the "entrapment" of institutions through the signing of long-term agreements with high annual increases and the inclusion of non-disclosure clauses[120] in their leasing agreements.

Ironically, the knowledge economy is creating knowledge scarcity instead of knowledge dissemination due to exponential price hikes,[121] budget cuts, inflation, economic recessions, currency fluctuations,[122] and affordability problems in developing countries.[123] This results in forced subscription cancellations by academic libraries.[124] Jon Tennant explains that the system developed into one in which "the cost of knowledge is extraordinary low and the cost of

---

[112] Van Noorden R (2013:427), at https://www.nature.com/news/open-access-the-true-cost-of-science-publishing-1.12676

[113] See Bethesda Statement on Open Access Publishing (2015) in relation to royalty-free literature, at https://legacy.earlham.edu/~peters/fos/overview.htm

[114] See Doctorow C (2014) in relation to the artistic fields, in *Information Doesn't Want to Be Free: Laws for the Internet Age*, San Francisco: McSweeney's.

[115] Larivière et al. (2015b:9) "Big publishers bigger profits: How the scholarly community lost the control of its journals" in *Media Tropes eJournal*, 5(2): 102–110. These publishers are: Reed-Elsevier (42% market share of the top 10 academic publishers), Wiley-Blackwell, Springer Nature, Taylor and Francis, and Sage Publications.

[116] Suber (2012:29).

[117] Larivière et al. (2015a:107).

[118] *Tiedonhinta* | Statement, at http://tiedonhinta.fi/en/english/

[119] See Willinsky (2006:17).

[120] See Chapter 3 with regard to the challenges that non-disclosure agreements present.

[121] In an analysis of subscription fees of the top 32 journal disciplines, 14 were priced at over $1 000 per title, eight were priced between $500 and $1 000, and ten were priced between $200 and $500, see Czerniewicz L & Goodier S (2014:2) "Open access in South Africa: A case study and reflections", *South African Journal of Science* (SAJS), 110 (9/10): 1–9.

[122] UNESCO (2015e:44).

[123] UNESCO (2015e:47).

[124] See Else H (2018) on large-scale Big Deal cancellations in Europe, at https://www.nature.com/articles/d41586-018-05191-0

The South African higher education sector saw a reduction in subscription fees of 9% in 2015 and 11% in 2016 – thus, a total of 20% over a two-year period – and 57% of universities were planning more cancellations in 2017, see Truran presentation (2016/2017?) (slides 16 & 20). International library consortium such as The Netherlands, Germany, Sweden, Austria, United Kingdom, Finland and South Korea have taken drastic actions to reduce costs against some of the conglomerate publishers.

withholding knowledge is extraordinary high".[125] Publishers argue, however, that it is expensive to develop, implement, and maintain the necessary infrastructure for e-resource availability, such as pre-production, production, and distribution costs.[126] Instead of the development of knowledge commons that could be regarded as a public good, publishers have become monopolistic corporations that thrive on an outdated system built on "over-dependency".[127] Willinsky refers to this as a broken system, as knowledge "is something that is regarded as beneficial and can be provided to everyone who seeks it, without their use of it diminishing its value".[128] The peculiarity of the situation is explained by Larivière et al. as follows: "Unlike usual suppliers, authors [researchers] provided their goods *without financial compensation*, and consumers (i.e. readers) are isolated from the purchase due to the library purchasing on behalf of the institution. Because purchase and use are not directly linked, price fluctuations do not influence demand"[129] [emphasis added]. It is estimated that academic library subscriptions contribute as much as 75% of revenue generated by journal publishing.[130]

Willinsky thus urges research institutions to take responsibility for the collective management of a new scholarly publishing model to ensure opening, increasing and improving access to knowledge production.[131] This can be done by means of the Open Access movement, yet open access is just one component of a larger drive for open science that aims to change the entire (publicly funded) research system.[132]

3. OPEN SCIENCE AS A SECOND SCIENCE REVOLUTION

There is a call for much-needed change to the old practices of the First Scientific Revolution (1665), when the practice of scientific journal publication was established. Kalev Leetaru notes that the current commercial publishing model is outdated and has remained largely unchanged due to resistance to the democratisation of access to information.[133] In a blog post, Sarah Andrus

[125] Yolland L & Tennant J (2016), at https://sciencedisrupt.com/posts/2016/5/20/jon-tennant-the-cost-of-knowledge
[126] See Anderson K (2016) on the 93 tasks performed by publishers, at https://scholarlykitchen.sspnet.org/2016/02/01/guest-post-kent-anderson-updated-96-things-publishers-do-2016-edition/
[127] UNESCO (2015e:44).
[128] Willinsky (2006:9).
[129] Larivière et al. (2015a:11).
[130] Larivière et al. (2015a:11).
[131] Willinsky (2006:27). See also Bethesda Statement on Open Access Publishing (2015), and Wenzler (2017:26).
[132] Esposito J (2018) on "defunding".
[133] Leetaru K (2016), at https://www.forbes.com/sites/kalevleetaru/2016/04/29/the-future-of-open-access-why-has-academia-not-embraced-the-internet-revolution/#7e5155dc45eb Suber, in the Bethesda Statement on Open Access Publishing (2015), explains: "Publishers are not monolithic. Some already provide full OA, some provide hybrid models, some are experimenting, and some are considering experiments. Among those not providing OA, some are opposed and some are merely unpersuaded. Among the unpersuaded, some provide more free online content than others. Among the opposed, some have merely decided not to provide it themselves, while others lobby actively against

postulates that the "stubborn" academic structure, as well as the publishers, play a role in a system that is regarded as "immune to innovation". She writes: "One might say that publishing culture echoes the conservatism of academic culture, and very rarely does the former significantly influence the latter".[134] Bartling and Friesike point out that that scholarly publication formats have also seen little change in the digital era, as journal-format publications still dominate the way scientific knowledge is disseminated. Even though print publications are largely no longer supported, journal articles are still packaged as if they are in print publications, allowing users to download or print a PDF version of the online journal.[135]

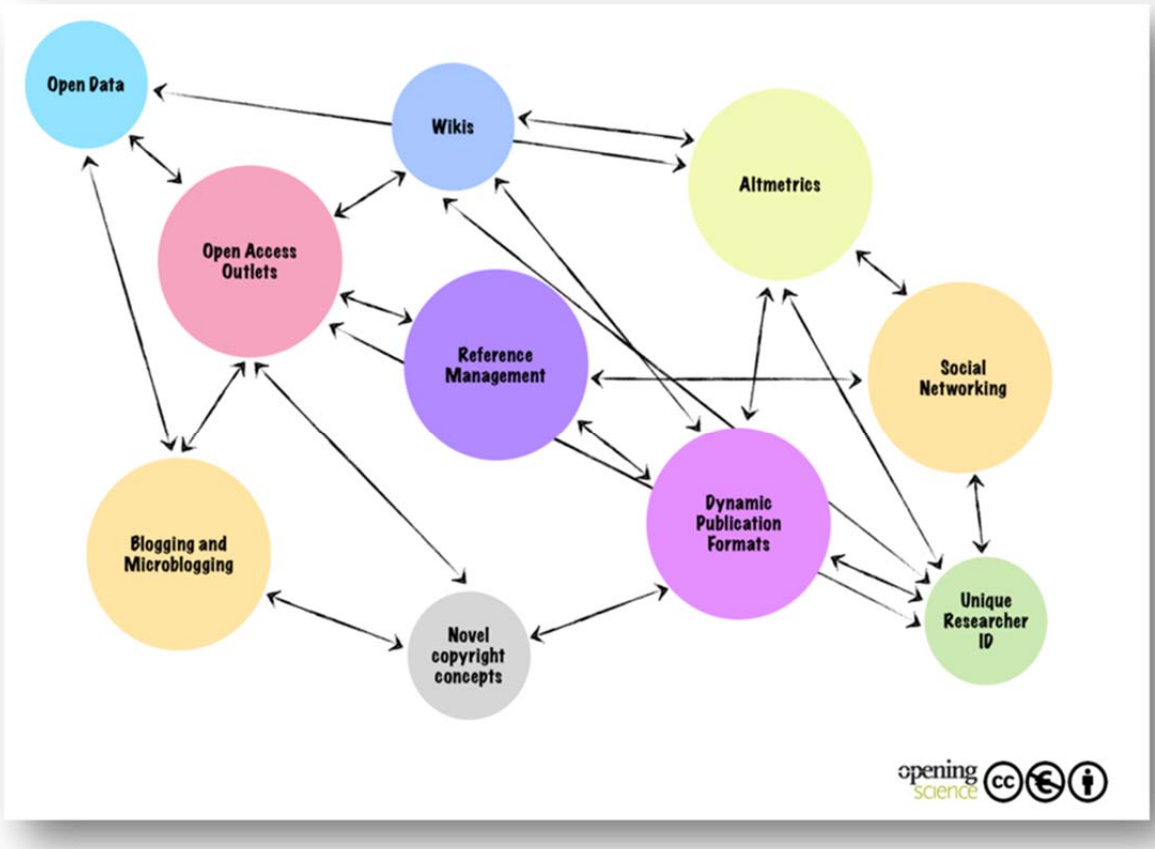


Figure 1: Second Scientific Revolution Tool (Bartling & Friesike, 2014)

policies to encourage or require it. Some oppose gold but not green OA, while others oppose green but not gold OA. OA gains nothing and loses potential allies by blurring these distinctions."

[134] Andrus S (2018), at https://scholarlykitchen.sspnet.org/2018/07/03/guest-post-research-article-immune-innovation/ Note also the remarks to the Article 2.0 initiative.

[135] See the view of Burgelman JC (2017) that "due to the power of cyber science tools, it is quite realistic to assume that we will evolve from peer reviewed open access publications to peer reviewed open access research workflows[.] Implying that scientific publishers become open science platforms in which an article is [one] of the many products", presentation (slide 51).

The new science revolution – also known as "science 2.0", "open research", "open science", and "eScience" – attempts to make science more open, liberal and fair by means of new initiatives and technological developments. Among these are initiatives such as open access, open data, Creative Commons licensing, social networking, reference management, dynamic publication formats, alternative effect measures and researcher identification codes. According to the Organisation for Economic Co-operation and Development (OECD), "[o]pen science commonly refers to efforts to make the output of publicly funded research more widely accessible in digital format to the scientific community, the business sector, or society more generally".[136] According to the European FOSTER[137] open science taxonomy, this includes research publications, research data, models, methods, quality evaluation, policies, tools, systems, and services.[138] The necessary open science tools that will allow a science network to be established are presented in Figure 1.

While accessibility remains one of the aims of open science, other concerning issues in scientific communities have also become driving forces for change. The rationale behind more openness (such as accessibility, transparency and re-use rights) in the field of science in general can be summarised as: improving efficiency, increasing transparency and quality (research validation), the transfer of knowledge which will spill over to the economy, addressing global challenges more effectively, and promoting citizens' engagement.[139] RK Merton warned in 1993 already that: "knowledge does not impact on society if it is unable to disseminate".[140]

In an editorial by Greg William of *Wired* magazine, he comments on a general scepticism by the public with regard to science[141] but also on a lack of government policy development in crucial areas of change.[142] Open science developments not only pursue the removal of academic and

[136] Organisation for Economic Co-operation and Development (OECD) policy paper (2015a:9) "The mission of the Organisation for Economic Co-operation and Development (OECD) is to promote policies that will improve the economic and social well-being of people around the world", at http://www.oecd.org/about/

[137] Facilitate Open Science Training for European Research, at https://www.fosteropenscience.eu/

[138] See Figure A3 for a visual representation of the taxonomy, and Figure A4 for the Wheel of Open Science.

[139] OECD policy paper (2015a:8–19).

[140] Merton in Bartling & Friesike S (2014:5) *Opening Science The evolving guide on how the internet is changing research collaboration and scholarly publishing*, Heidelberg: SpringerOpen.

[141] Research on the public perception of science in America, Canada and Britain is presented in the reports on *Science Culture: Where Canada Stands* (Council of Canadian Academies), at http://www.scienceadvice.ca/en/assessments/completed/science-culture.aspx; *Loss of Trust? Loss of Trustworthiness? Truth and Expertise Today* (All European Academies), at http://www.allea.org/wp-content/uploads/2018/05/ALLEA_Discussion_Paper_1_Truth_and_Expertise_Today-digital.pdf; and *The Public Face of Science: An Examination of Current Data on Public Attitudes Toward Science* (American Academy of Arts and Sciences), at https://www.amacad.org/publicfaceofscience/pfs.html

[142] With regards to informed government policy see Langer L & Stewart R (2016), at https://theconversation.com/the-science-of-using-research-why-it-starts-with-the-policymaker-59265 Schwab K (2016), at https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/

public access barriers to science through existing commercial publication models, but also call for the utilisation and development of academic collaboration platforms, wider dissemination of research through the use of collaboration tools that allow public engagement with science (such as social media and blogs), and the engagement and participation of the broader society in the processes of science (such as citizen science). These proposed changes in the scientific community are categorised by Fecher & Friesike[143] into five schools of open science thought.

4. THE FIVE SCHOOLS OF THOUGHT METHODOLOGY

Fecher & Friesike[144] distinguish five broad theoretical schools of thought related to the field of open science: infrastructure (technology), public (knowledge creation), measurement (research impact), pragmatic (research collaboration), and democratic (accessibility). The categorisation includes a variety of role-players from different sectors of society that support "predominant thought patterns" in the open science landscape. These schools of thought propose a new technologically driven approach to science that is public, interlinked through development, networks, and collaborative and technical protocols. Fecher & Friesike caution, however, that the discourse is relatively young and very diverse in focus. The research landscape of the future, based on an open science approach, is presented in Figure 2.

4.1 Infrastructure School

According to Fecher & Friesike, the infrastructure school of thought "is concerned with the technical infrastructure that enables emerging research practices on the Internet, for the most part software tools and applications, as well as computer networks". This includes the "grid technology (for high-throughput projects), automation, and enhanced tools for data analysis and computation".[145] They distinguish further between "distributed computing" (such as Science Grid) and "social and collaboration networks for scientist" (such as ResearchGate). Another example is the infrastructure developed by the Open Library of Humanities[146] (making use of grants and crowdfunding) for the development of open sources technological infrastructure applications such as annotation, user-generated translation, and typesetting software.

Fourie W (2017), at https://theconversation.com/six-barriers-that-make-it-difficult-for-african-states-to-use-research-for-policy-86492
Qhobela M (2018), at https://mg.co.za/article/2018-07-27-00-scientific-research-is-sas-future
and Williams G (2017:14) *WIRED*, 17 December 2017.

[143] Fecher B & Friesike S (2014) "Open science: One term five schools of thought", in Bartling S & Friesike S (eds) *Opening science The evolving guide on how the internet is changing research collaboration and scholarly publishing*, Heidelberg: SpringerOpen, pp. 17–47

[144] Fecher & Friesike (2014:17–47).

[145] Fecher & Friesike (2014:39).

[146] Open Library of Humanities, at https://www.openlibhums.org/

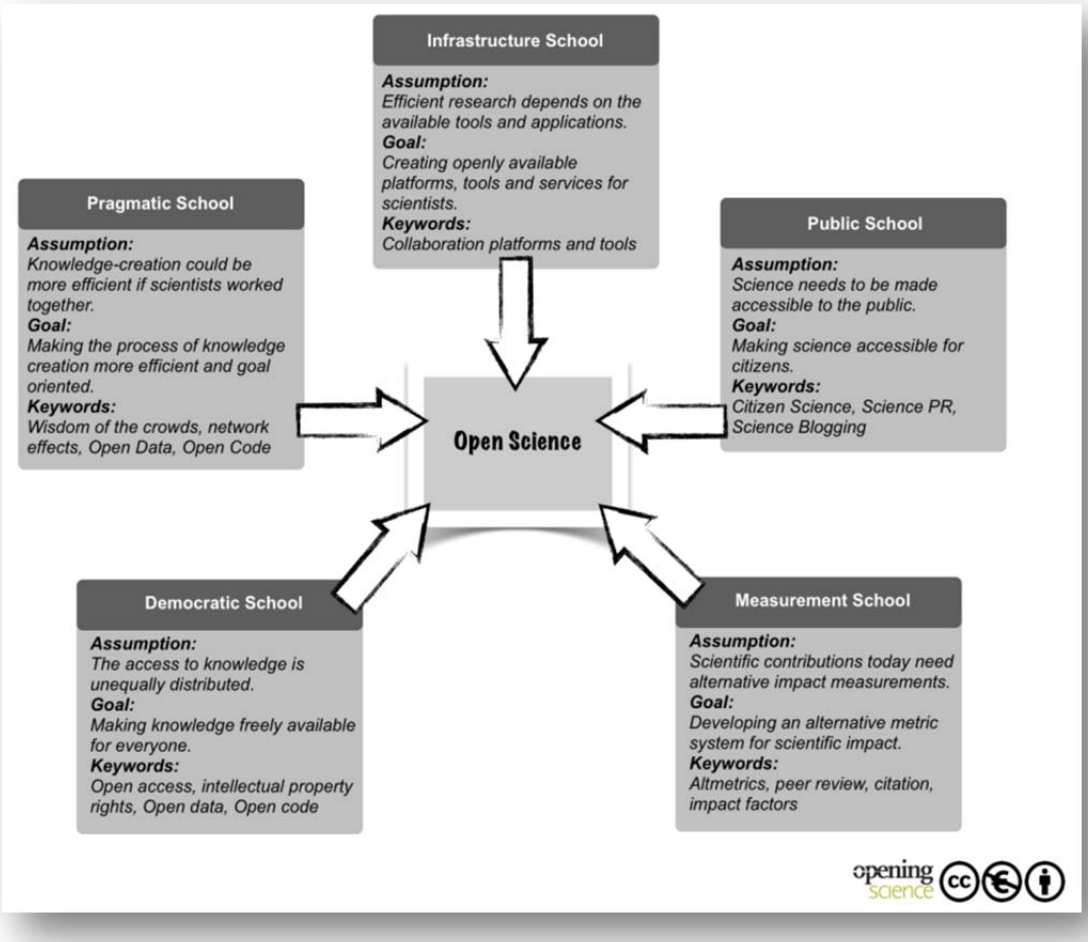


Figure 2: Open science: Five schools of thought (Fecher & Friesike, 2014)

4.2 Public School

The literature analysed by Fecher & Friesike propose that researchers make their research publicly accessible through the use of Web 2.0 tools and blogging platforms, as well as simplifying research results for public understanding. Charlie Rapple is of the opinion that "availability doesn't necessarily equate to discoverability"[147] and urges researchers to improve discoverability *and* penetrability (impact) by making research available to the general public on the level of non-specialist audiences. Public understanding of science will in turn support research by means of participation, such as citizen science and science communication.[148] Both these public science research initiatives will allow the "formerly excluded public [to] now play a more active role in

[147] Rapple C (2016), at https://www.researchinformation.info/news/analysis-opinion/getting-noticed-open-access-world

[148] The Department of Science and Technology published the national "Science Engagement Strategy" in 2015 in support of improved: regularisation and coordination of science; strategic alignment of science engagement activities; monitoring and evaluation; popularisation of science, engineering and technology; developing critical engagement between the public and science; and science communication and profiling South African science, at http://www0.sun.ac.za/scicom/wp-content/uploads/2018/06/2015_sci_engagement_strategy.pdf

research" and "making research understandable to a wider audience".[149] Some examples from the medical field are the initiative of PLOS *Computational Biology* and *RNA Biology* that require researchers to contribute a Wikipedia entry for every scholarly publication to ensure accessible versions of scholarly research that can be easily read and understood by the layman.[150]

4.3 Measurement School

Citation indexing and journal impact factors (bibliometrics), such as those provided by Web of Science and Scopus, have long been the standard measurement tools of quality research. In open science, the drive is towards alternative measurement tools (altmetrics, such as measuring effect on social media, CitedIn, and webometrics) to determine research effect and broader impact. Fecher & Friesike postulate that "[a]s the scholarly workflow is [migrating] increasingly to the Web, formerly hidden uses like reading, bookmarking, sharing, discussing, and rating are leaving traces online and offer a new basis by which to measure scientific impact."[151] Moreover, as discussed by Yeong & Abdullah, altmetrics will determine the effect on not only the published research, but also the research process and research collaboration.[152]

4.4 Pragmatic School

Arguments in support of research and knowledge dissemination to improve research collaboration and thus research efficiency can be categorised as belonging to the pragmatic school of thought. According to Neylon & Wu,[153] Web 2.0 tools might include "social networking sites, electronic laboratory notebooks,[154] [and] controlled vocabularies". Collaborations such as "wisdom of crowds"[155] (with the example of Wikipedia), "collective intelligence", "networked science", and "open innovations"[156] can also be categorised as pragmatic research initiatives. According to a recent article in *Nature*, the lines between academia, industry, governments, and communities (also known as the 'quadruple helix') are blurred by a phenomenon of Open Innovation 2.0. Martin Curley explains: "It exploits disruptive technologies – such as cloud computing, the Internet of Things and big data, to solve societal challenges sustainably and profitably, and more quickly than before".[157] According to experts, the Fourth Industrial Revolution[158] will disrupt the status quo even

---

[149] Fecher & Friesike (2014:23–24).
[150] Masukume G & Heilman J (2016), at https://theconversation.com/why-getting-medical-information-from-wikipedia-isnt-always-a-bad-idea-59708 See also Stone M (2015) for the use of Wikipedia by academic publishers, at https://gizmodo.com/is-elsevier-trying-to-paywall-wikipedia-1731522201
[151] Fecher & Friesike (2014:40).
[152] Fecher & Friesike (2014:43).
[153] Fecher & Friesike (2014:36).
[154] See https://opennotebook.thesgc.org/ as an example.
[155] Surowiecki J (2004) *The Wisdom of Crowds*, New York: Random House.
[156] Leadbeater C (2009) *We-think: Mass innovation not mass production*, London: Profile Books.
[157] Curley M (2016), at http://www.nature.com/news/twelve-principles-for-open-innovation-2-0-1.19911 See Figure A5 for a visual representation of the different phases of the development of innovation.
[158] See Schwab K (2017:14–27) on drivers and trends in the Fourth Industrial Revolution, in *The Fourth Industrial Revolution*, London: Penguin.

further through "emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing".[159]

4.5 Democratic School

This school of thought relates to the fact that academic research is predominantly funded with taxpayers' money, yet average citizens are denied access to published research results unless they pay a fee. The Internet allows for radically reduced prices in information dissemination, but the effect of this on scholarly publishing is still not evident. Some argue that access to information is a human right[160] and plays an important role in human development. Lack of access is thus regarded as a "hindrance to development",[161] and accessibility is believed to play a constructive role in bridging the gap between developed and underdeveloped countries.[162] For the researcher, public accessibility is believed to increase research visibility, dissemination, citations, and ultimately impact.[163] If these proposed changes to the scholarly publishing system are successful, it should assist with possible solutions to the "serials crisis", lead to the development of an alternative to the peer-review process, and ensure improved quality of published research.[164] Moreover, this approach aims to support not only improved scholarly publication accessibility by means of open access initiatives, but also to emphasise the importance of research transparency through open data and the development of open educational resources (OERs) and Massive Open Online Courses (MOOCs) through the use of free open source software (FOSS) tools.

---

[159] Schwab (2016). See also Schmidt E & Cohen J (2013:69) on flexibility of non-profits vs. governments and business sectors, in *The new digital age: Reshaping the future of people nations and business*, London: John Murray.

[160] Willinsky (2006:6). With regard to IP as a human right, see also Chapman AR (1999), at www.wipo.int/edocs/mdocs/tk/en/wipo_unhchr.../wipo_unhchr_ip_pnl_98_5.doc Pistorius T (2006) "Developing countries and copyright in the information age – the functional equivalent implementation of the WCT" *Potchefstroom Electronic Law Journal* (PELJ), 9(2) 149–175; Klopper H et al. (2011) *Law of intellectual property in South Africa*, Durban: LexisNexis: pp. 441–457, and Harms LTC (2012) *The enforcement of intellectual property rights: A case book*, New York: WIPO, pp. 24–26.

[161] Fecher & Friesike (2014:29).

[162] Access gaps have long been part of the research landscape, with Suber (2012:30) referring to the unequal divide relating to available budgets and resources. In 2008 he indicated: "Harvard University, 98 900 journals; Yale 73 900 journals; India Institute of Science (top funded in India) 10 600 journals; and some sub-Saharan libraries 0 journals". See also Pelcastre & Correa (2016).

[163] Gadd E & Covey D (2016:13–14) "What does 'green' open access mean? Tracking twelve years of changes to journal publisher self-archiving policies" *Journal of Librarianship and Information Science*, July: 1–17, at https://doi.org/10.1177/0961000616657406

[164] See Meadows A (2017), at https://scholarlykitchen.sspnet.org/2017/08/03/transparent-peer-review-mean-important/ and OpenAIRE's Experiments in Open Peer Review Report (2016), at https://zenodo.org/record/154647#.W1R-sDI9i70

The discovery of the *Homo naledi* fossil proves the importance of, and positive outcomes due to accessibility of scientific knowledge. Researchers used social media such as Twitter[165] and Facebook, as well as blogging and live video streaming tools, to engage the public during the underground research process and excavation of the fossils. The scientific paper was published in an open access journal (*eLife*) that was viewed (by the time of media publication in 2015) more than 170 000 times, and the available datasets accompanying the research publication were downloaded over 700 times. In support of open education, virtual reams were produced to enable visualisation of the fossils, and 3-D scans allowed anyone anywhere in the world to print 3-D copies of the fossil discoveries. According to Professor Adam Habib, former Vice-Chancellor and Principal of the University of the Witwatersrand, this was a deliberate attempt by a South African academic institution to share the unfolding of the knowledge discovery – showcasing an example of published research not being commoditised by academic publishers.[166]

5. OPEN ACCESS GREEN AND GOLD ROUTES

The report on "Accessibility, sustainability, excellence: How to expand access to research publications" (2012)[167] (the Finch report) was commissioned and accepted by the UK government in 2012. This was an attempt to lobby for a new business model in scholarly publishing by which the "publish-for-free and pay-to-read" system would be transformed into a "pay-to-publish and read-for-free" system[168] – also known as gold route open access.[169] The Finch report, however, encouraged gold route open access in both full *and* hybrid open access publishing models as more favourable than free green route open access through repository access. This created the opportunity for publishers to sell open access publication rights on individual research papers (not journal access) by charging what is known as a publication fee

[165] See the series of articles by Haustein S (2018) on the utilisation of Twitter, at https://www.altmetric.com/blog/never-put-off-till-tomorrow-what-you-can-tweet-today-or-how-quickly-research-papers-spread-on-twitter/

[166] Hawks J (2015), at https://theconversation.com/homo-naledi-fossil-discovery-a-triumph-for-open-access-and-education-47726 See also Joubert M (2015), at http://mg.co.za/article/2015-12-11-00-recognise-scientists-who-engage-with-the-public

[167] Finch J (2016) "Accessibility sustainability excellence: How to expand access to research publications: Report of the Working Group on Expanding Access to Published Research Findings", at https://www.acu.ac.uk/research-information-network/finch-report-final The Report (2012:4) states: "The group's remit has been to examine how to expand access to the peer-reviewed publications that arise from research undertaken both in the UK and in the rest of the world; and to propose a programme of action to that end."

[168] Gadagkar R (2016) "The "pay-to-publish" model should be abolished" *Notes and records of the Royal Society of London*, 70(4): 403–404.

[169] This, the Finch report (2012:5) summarised, would have the following positive spinoffs: "enhanced transparency, openness and accountability, and public engagement with research; closer linkages between research and innovation, with benefits for public policy and services, and for economic growth; improved efficiency in the research process itself, through increases in the amount of information that is readily accessible, reductions in the time spent in finding it, and greater use of the latest tools and services to organise, manipulate and analyse it; and increased returns on the investments made in research, especially the investments from public funds."

generally paid for by funders or academic institutions. Open access is generally regarded as positive reform of the scholarly publishing system, attempting to change business models of the industry constructively. Peter Suber explains:

> The purpose of the campaign for OA is the constructive one of providing OA to a larger and larger body of literature, not the destructive one of putting non-OA journals or publishers out of business. The consequences may or may not overlap (this is contingent) but the purposes do not overlap. [...] for researchers themselves, the overriding motivation is not to solve the journal pricing crisis but to deliver wider and easier access for readers and larger audience and impact for authors. [...] Promoting OA need not cause publisher setbacks, and publisher setbacks need not advance OA. To focus on undermining non-OA journals and publishers is to mistake the goal. Open-access and toll-access literature can coexist. [...]

Suber further indicates that open access serves the interests of a broad spectrum of role-players, including authors, readers, teachers, students, libraries, universities, journals, publishers, funding agencies, governments, and citizens. There are a number of different attempts at reform.

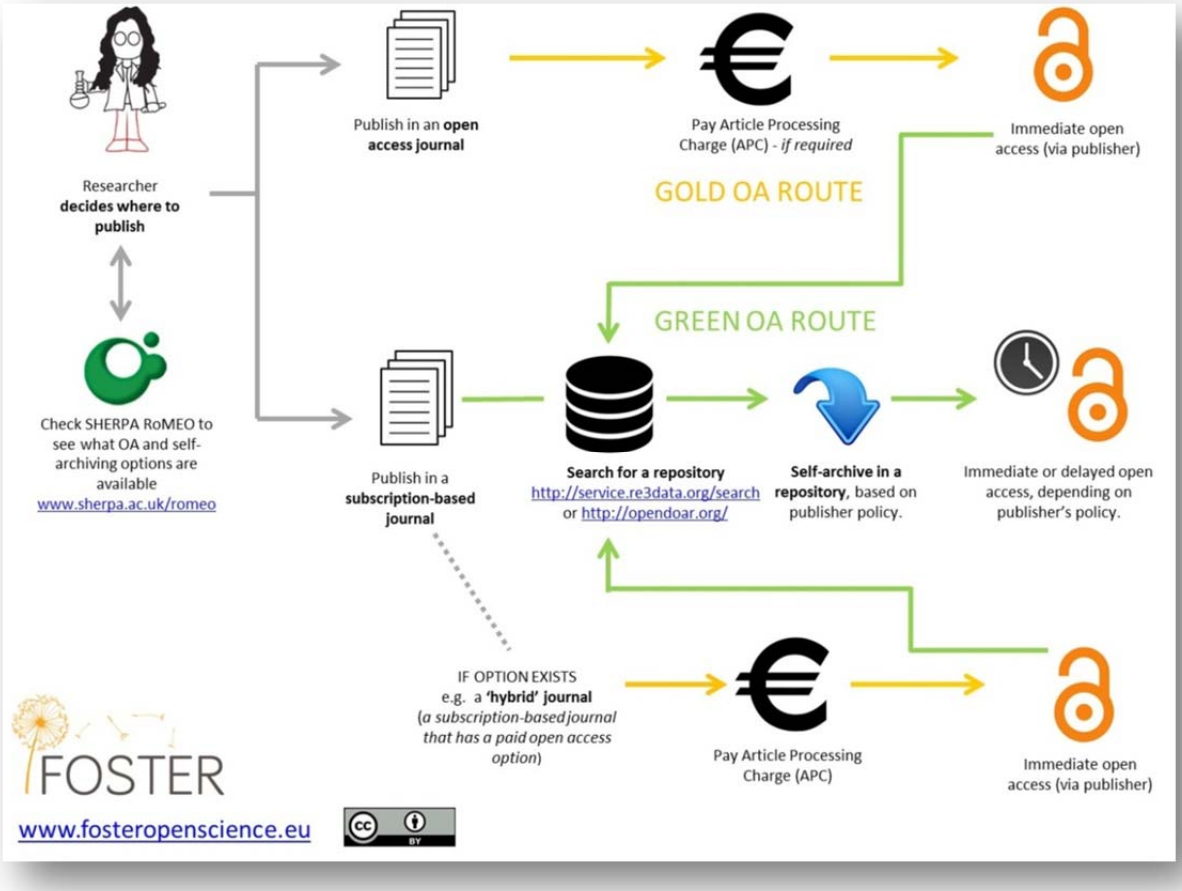


Figure 3: Routes to Open Access Publications (FOSTER, n.d.)

The two established attempts include gold route open access (open access journals) and green route open access (open access repositories). The dominant open access routes are visualised in the FOSTER Routes to Open Access Publications (Figure 3).

5.1 Alternative business models (gold route open access)

In line with the functioning of the traditional scholarly publishing system, gold route open access publishers such as BioMed Central (BMC) and Hindawi arose as part of the economic changes of the Open Access movement. These open access publishers support both public access and the use of open licences, yet uphold the traditional publishing model whereby articles are published in subject-specific journals. Alternative open access business and publishing models such as mega journals[170] (PLOS, eLife, and PeerJ) also arose as part of scholarly publishing reform. Mega journals are characterised by their "wide subject scope", higher number of published papers, and additional open science services and requirements.[171] This publication model thus functions as a scholarly publication platform – hosting individual articles – rather than a traditional scholarly journal. Both of these publishing models (gold route open access journals and mega journals) can embrace changes in relation to open science through the use of Creative Commons licences (in contrast to all rights reserved copyright agreements), the inclusion of an open peer-review approach (in contrast to double-blind review), and requiring public availability of related datasets.[172] Both models require publication fees in support of full open access journal publishing.

5.2 Alternative access platforms (green route open access)

There is a difference between free public access platforms (such as repositories) and open access publishing models that require publication fee payments (gold route).[173] Suber argues that "[th]e Internet widens distribution and reduces cost at the same time".[174] The development of alternative scholarly access platforms is thus regarded as a means by which the content owned by legendary publishers can be made available publicly, free of charge, in a legal manner.

---

[170] Spezi V et al. (2017) "Open-access mega-journals: The future of scholarly communication or academic dumping ground? A review" *Journal of Documentation*, 73(2): 263–283.

[171] Spezi et al. (2017:1).

[172] Smart P (2014:54) "The big picture: Scholarly publishing trends" *Science Editing*, 1(2): 52–57. Rick Anderson (2015) describes the Public Library of Science (PLOS) as "the world's largest and most powerful OA publisher" with publication statistics of over 30 000 articles per year, and highlights the problem of the open access industry as not an all positive alternative to the traditional model. He also highlights the problem of academic freedom through choice of association and sustaining academic reputation when authors are forced to licence academic research publications and datasets under the CC–BY licence, and thus sign away control over possible poorly translated versions of their work, commercial publishers repackaging their work in collections they do not approve of, and leaving very little choice as to how work can be licenced, at https://www.insidehighered.com/views/2015/12/15/mandatory-open-access-publishing-can-impair-academic-freedom-essay

[173] OSI report (2015:10).

[174] Suber (2012:44).

Green route open access by means of repositories is regarded by the Confederation of Open Access Repositories (COAR) as the only consistent non-payment open access option in the current business model that "represent[s] a sustainable, equitable and cost-effective way for the global research community to support the dissemination, sharing and reuse of research knowledge".[175] Repositories act as hosts of pre- or post-print versions of journal articles, yet the availability of the materials remains subject to publishers' embargo policies. They can moreover function as a platform for electronic publishing, knowledge management, and research assessment[176] (see section 6).

5.3 Hybrid open access

Traditional scholarly publishers also support open access, yet this is done through the hybrid open access model that allows for revenue increase and restrictive application of licensing. However, the development of the hybrid open access publishing model has led to three negative outcomes: double dipping, unequal playing fields and little or no support for free open access. Full open access journals allow for all content in a single journal edition to be publicly available by means of a once-off publication fee payment for each of the articles in the journal. In contrast, hybrid open access journals now have some papers in a single journal that are publicly accessible and some that are behind paywalls. Publishers use article processing charges as a second stream of income, in addition to their subscription fees, and not a means to embrace open access.[177]

Richard Poynder noted that the noble idea of open access found footing with legacy publishers, but the application was a collective mistake, as prices did not come down and the broader publishing system did not embrace openness in the format as was intended.[178] It is reported that commercial publishers now make more money from article processing charges than full open access publishers by charging publication fees 51% higher than full open access journals.[179] The UK membership organisation JISC[180] reported that seven of the top ten publishers collecting

[175] COAR (2015b:15) "Promoting Open Knowledge and Open Science: Report of the Current State of Repositories", at https://www.coar-repositories.org/files/COAR-State-of-Repositories-May-2015-final.pdf

[176] UNESCO (2015c:20) *Open Access Infrastructure*. (OA curricula for Library Schools, Booklet 2), UNESCO: Paris, at http://unesdoc.unesco.org/images/0023/002322/232204E.pdf

[177] Brembs (2016a) indicates a 70% rise in APCs by Emerald and Wellcome Trust (2016) on the high cost of hybrid. See Solomon et al. (2016:46–55) on the increase of hybrid journals by Elsevier for the period 2013–2016.

[178] Poynder R (2016), at https://poynder.blogspot.co.za/2016/10/institutional-repositories-response-to.html

[179] See also Wellcome Trust (2017), at https://wellcome.ac.uk/news/wellcome-trust-and-coaf-open-access-spend-2014%E2%80%9315

[180] Formerly known as The Joint Information Systems Committee (JISC), now Jisc "provide digital solutions for UK education and research", at https://www.jisc.ac.uk/about

article processing charges were hybrid (not full) open access publishers.[181] Furthermore, hybrid open access revenue accounted for 80% of publication fees collected between 2014 and 2015.[182] JISC also reported a 6% raise in publication costs between 2013 and 2015, with an average article processing charge of £1 745.[183] Experts predict that hybrid open access could end up costing more than the subscription model due to the rise in expenditure,[184] and is even regarded as a means of "reinventing the big deal".[185] It is further noted that publishers set restrictive green route open access policies to encourage authors to choose gold route open access due to the revenue implications,[186] and charge lower publication fees for materials with more restrictive licences than those with more open licence options.[187]

With publishers generating increased income from the current hybrid open access system, it is doubtful if any suggestions for radical reform to the scholarly publishing system would receive much support.[188]

5.4 More open access categories and more change

New categories of open access emerged over the years that broadened the scope of the green and gold route open access models. References are made to *bronze* open access (open access with a restricted CC-BY licence);[189] *azure* open access (published materials re-released under a different licence);[190] *platinum/diamond* open access (zero payment for open access – gold route levying publication fees vs. gold route with no publication charge[191]); and "black open access"[192] (such as through pirate sites). On a legal level, a distinction is made between *libre* and *gratis* access.[193] On the public access side, there is a distinction between immediate and delayed open

[181] The top ten APC collectors, Elsevier, Wiley, Nature, OUP, Springer, PLOS, American Chemistry Society, Biomed Central, BMJ, Cell Press, Taylor and Francis, from the JISC report on APC monitoring, see Shamash K (2016:11), at https://www.jisc.ac.uk/sites/default/files/apc-and-subscriptions-report.pdf
[182] Shamash (2016:14).
[183] Van Noorden (2013:427) and Brembs (2016a).
[184] It is reported that 12% of institutional expenditure is on APCs, in Shamash (2016:4).
[185] Harris S (2013:5), at https://us.sagepub.com/sites/default/files/apc.pdf
[186] Harris (2013:4).
[187] Mounce in Brembs (2016a). See also Aufderheide P & Jaszi P (2011:10–11) on the development of the discourse on copyright reform and civil disobedience, in *Reclaiming FAIR USE: How to put balance back in copyright*, Chicago: The University of Chicago Press.
[188] See criticism by Harnad of this proposal in the interview between Harnad S & Lewandowski T (2016), at https://otwartanauka.pl/in-english/experts-on-open-access?id=1090
[189] Poynder R (2017), at https://poynder.blogspot.co.za/2017/08/the-state-of-open-access-some-new.html
[190] Lavizzari CS & Viljoen R (2015:36), at http://publishingresearchconsortium.com/index.php/prc-guides-main-menu/166-open-access-licensing-0215 See also Margoni T et al. (2016:10) on buy-back rights in "Open access, open science, open society" *Trento Law and Technology Research Group Research Paper Series* 27, at https://iris.unitn.it/handle/11572/138385
[191] Eve MP (2012), at https://www.martineve.com/2012/08/31/open-access-needs-terminology-to-distinguish-between-funding-models-platinum-oagold-non-apc/
[192] Björk B-C (2017) "Gold, green and black open access" *Learned Publishing*, 30: 173–175.
[193] Suber (2012:66).

access in relation to embargo periods.[194] Open access platforms can also be categorised as non-commercial (such as institutional repositories) and commercial open access platforms (such as ResearchGate and Academia.edu) that support free access but serve a commercial interest by selling advertisements.[195]

Although there is still a strong drive for green route open access through the establishment of alternative access platforms, open access as a means of reforming business models is dominating the current public access debate. The European initiative lobbies for offsetting agreements[196] and flip models[197] in support of affordable hybrid open access business models. The American model supports open access through national and institutional policy and practice, advocacy and infrastructure development.[198] In turn, the South American approach is to include legislative change[199] and alternative publishing platforms, such as the SciELO journal platform which allows for public access while supporting visibility and dissemination of research produced in languages other than English.[200]

5.5 Impact of open access on accessibility

It is estimated that since April 2014, papers published for the period of 2007–2012 have had a 50% open access rate (green, gold and pirate). It is explained that

> the growth of OA appears as the result of four main forces: **1.** historical growth in the interest in OA, which translates into new papers being increasingly available for free; **2.** the growing interest in OA also translates into actors increasingly making old papers available for free; **3.** OA policies that allow for delaying OA to scientific papers with embargo periods produce a concomitant disembargoing of scientific articles, which creates additional growth

---

194 http://www.sherpa.ac.uk/romeo/index.php

195 See Chapter 3 on illegal practices often confused with the Open Access movement.

196 See Fecher B & Wagner GG (2016) "Open access innovation and research infrastructure" *Publications*, 4(2): 5–6 and Arbeitskreis Open Access (AKOA, 2016) on "Principles for Offset Agreements", at http://www.kb.se/Dokument/Principles-for-offset-agreements.pdf.

197 Schimmer R et al. (2015) "Disrupting the subscription journals' business model for the necessary large-scale transformation to open access. White paper for Max Planck Digital Library", at http://pubman.mpdl.mpg.de/pubman/faces/viewItemOverviewPage.jsp?itemId=escidoc:2148961

198 See Schonfeld R (2018) for the view on North America and European Big Deal agreements, at https://scholarlykitchen.sspnet.org/2018/06/18/will-european-contagion-spread/

199 See Chapter 3 on South African Copyright reform.

200 See Suber P (2015) in relation to language as a barrier to universal access, at https://legacy.earlham.edu/~peters/fos/overview.htm See also Nobes A (2016) on the development of open access Spanish language journals, at http://blog.inasp.info/open-access-plays-vital-role-developing-country-research-communication/ See also AfricArxiv in support of African languages, at https://osf.io/preprints/africarxiv

Research also shows that citation advantage is still limited mostly to English language materials that dominate scholarly research on citation indexes, in Archambault et al. (2014:1) "Proportion of open access papers published in peer-reviewed journals at the European and world levels: 1996–2013. Study to develop a set of indicators to measure open access", at http://science-metrix.com/sites/default/files/science-metrix/publications/d_1.8_sm_ec_dg-rtd_proportion_oa_1996-2013_v11p.pdf

According to the OpenROAR statistics 69% of the materials archived is in English, at http://www.opendoar.org/

> in old papers being made available for free; and **4.** the number of published scientific papers is growing, so even for a stable proportion of OA, the number of OA papers would keep growing. [201]

According to Archambault et al., 47% (or 10.1 million) of the 21.5 million articles (for the period of 1996–2013) listed on the Scopus database can be downloaded for free (since April 2014). This is due to a number of factors: growth of awareness/interest, backfilling, disembargoing, and general growth in scientific publications.[202] It is estimated that green route growth is slower than gold route due to embargoes placed on archived materials by legend publishers, as well as the low deposit rate by researchers.[203] There was a reported steady growth of 18% in gold route open access between 2012 and 2014.[204] In a study, conducted by Gadd & Covey, the growth of green route open access for the period 1996–2012 is estimated at 8.8%, and of gold route open access at 24%.[205] It is further noted that delayed open access and embargoes have a "tangible effect" on access[206] and mean older and possibly outdated information is made available. It is thus argued that most green route open access development is taking place through backfilling rather than through a deliberate and visible change of the current publishing system.[207] This might also confirm the opinions of those who view the hybrid open access business model as becoming the established means of open access.[208]

6. REPOSITORIES – LEGAL OPEN ACCESS PLATFORMS

Clifford Lynch defines an institutional repository as follows:

> A university-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution.[209]

The history of repositories dates back to the 1990s with the development of subject repositories such as the ArXiv.org (1991) platform that was developed to host unpublished materials in high-energy physics, computer science, mathematics, and biology; RePEc (1997) for papers in economics; and the E-biomed service (1999), which later became PubMed Central (2000), for

[201] Archambault et al. (2014:ii).
[202] Archambault et al. (2014:12).
[203] Archambault et al. (2014:13).
[204] Archambault et al. (2014:ii).
[205] Gadd & Covey (2016:2).
[206] Archambault et al. (2014:iii).
[207] Archambault et al. (2014:11–12).
[208] Wenzler (2017:189).
[209] Lynch CA (2013) "Institutional repositories: Essential infrastructure for scholarship in the digital age. ARL: A Bimonthly Report no. 226", at http://old.arl.org/resources/pubs/br/br226/br226ir~print.shtml

biomedical and life sciences. Repositories can have a number of different formats (see Table 1), but all aim to support public access to scholarly research.

6.1 Types of repositories

The categories of repository services include institutional repositories, often hosted by university libraries; subject or disciplinary repositories, hosted by non-commercial entities (such as SSRN[210] and arXiv); format repositories, for depositing data[211] or e-theses; funder repositories (such as PubMed Central); government repositories, in support of government transparency;[212] journal repositories (such as SciELO and Redalyc);[213] and aggregated repositories, harvesting content from other repositories (such as CiteSeerX, CORE, BASE, and OAISTER).[214] Additionally, there are commercial repositories known as "quasitories"[215] and pirate repositories, referred to as shadow libraries.[216]

The repository landscape (excluding quasitories and pirate libraries) is documented and monitored by two initiatives: the Registry of Open Access Repositories (ROAR)[217] and the Directory of Open Access Repositories (OpenDOAR).[218] The four main categories of repositories can be summarised as follows:

Table 1 OpenDOAR Open Access Repository Types[219]		Worldwide 3 519	Africa 158	South Africa 33
Institutional	An institutional or departmental repository	3 024 (85.9%)	196 (92.4%)	30 (90.9%)
Disciplinary	A cross-institutional subject repository	302 (8.6%)	8 (5.1%)	2 (6.1%)

[210] SSRN was sold to Elsevier in 2016, following the obtainment of Mendeley in 2013. In 2016, the Federal Trade Commission launched a review into the purchase. In 2016, Martin Eve, Jonathan Tennant, & Stuart Lawson referred Elsevier/RELX to the Competition and Marketing Authorities for anti-competitive practices, see Eve MP (2016), at https://www.martineve.com/2016/12/03/referring-elsevierrelx-to-the-competition-and-markets-authority/

[211] UNESCO (2015c:8). See also Nicholas in Pinfield et al. (2014:3) "Open-access repositories worldwide 2005–2012: Past growth current characteristics and future possibilities" *Journal of the Association for Information Science and Technology*, 65(12): 2404–2421.

[212] Open government systems can improve transparency and accountability on expenditure, budget distribution, and administration of financial systems, see Arenstein J (2015), at https://medium.com/code-for-africa/opengov-fellows-liberate-100s-of-government-datasets-ebcfffbdea82

[213] COAR (2015b:5).

[214] See UNESCO (2015c:7–8) for a description of different types of repositories.

[215] Harnad S (2016), at http://openaccess.eprints.org/index.php?/archives/1182-Repositories-vs.-Quasitories-or-Much-Ado-About-Next-To-Nothing.html

[216] Such as Sci-Hub and LibGen.

[217] ROAR categorises repositories in the following five categories: institutional/departmental, multi-institutional, cross-institutional, e-theses, data, and other, at http://roar.eprints.org/

[218] http://www.opendoar.org/

[219] Data retrieved from the OpenDOAR online repository measurement tool. Statistics reflect the position on 11 August 2018.

Aggregating	An archive aggregating data from several subsidiary repositories	108 (3.1%)	2 (1.3%)	1 (3%)
Governmental	A repository for governmental data	85 (2.4%)	2 (1.3%)	–

According to the OpenDOAR initiative, there are 3 519 repositories registered worldwide. 158 (or 4.4%) of these are hosted on the African continent and 33 (20% of the African total) are hosted in South Africa. In line with the international trend, institutional repositories account for the majority (30 or 90%) of repositories in South Africa, with a small number of subject repositories, and one aggregated repository – a metadata-only e-theses repository hosted by the National Research Foundation.[220]

6.2 Types of repository materials

The primary function of the repository is to support accessibility and visibility to versions of materials published by commercial publishers (largely post-print versions of journal articles), and unpublished materials (grey materials). Unpublished materials can include theses and dissertations, as well as drafts, working papers, or pre-prints. Published materials can be made public by means of open licences in line with publishers' policies and in compliance with funders' requirements.[221] This forms part of initiatives to disseminate a variety of institutionally produced research products publicly, but can also include a variety of educational and special materials in relation to libraries serving the higher education sector. The diverse content hosted by institutional repositories is summarised in Table 2:

Table 2 Content Types in OpenDOAR Repositories[222]	Worldwide (3 519)	Africa 158	South Africa 33
Journal articles	2 505	119	19
Theses and dissertations	1 991	116	26
Books, chapters and sections	1 371	44	5
Conference and working papers	1 278	69	10
Unpublished reports and working papers	1 233	55	9
Multimedia and audio-visual materials	785	30	6
Bibliographic references	580	14	3
Learning objects	545	28	–
Other special item types	519	19	6
Data sets	192	5	3
Patents	109	1	–
Software	51	–	–

[220] http://nrfnexus.nrf.ac.za/
[221] COAR (2015b:3).
[222] Data retrieved from the OpenDOAR online repository measurement tool. Statistics reflect the position on 11 August 2018.

With institutional repositories at the forefront of repository growth and development (see Table 1), it is apparent that journal articles and electronic theses and dissertations (ETDs) can be regarded as a universal institutional archiving trend.[223] To date, there is no proven indication that repositories reduce the subscriptions and income to commercial journals,[224] but publishers are becoming stricter with their archiving policies.[225] Research conducted in a number of scholarly disciplines also proved that open access papers in both green and gold route open access formats have a higher citation advantage than articles in paywalled journals.[226] The support for journal article archiving can thus be attributed to the perception that citation and research reputation rely on accessibility. Institutional and funder policies[227] might require and financially support archiving for public access purposes. In South Africa, the number of journal articles archived is far lower than the rest of Africa and the rest of the world, but shows a higher percentage of institutional repositories archiving electronic theses and dissertations.[228] In terms of copyright, theses and dissertations are often regarded as institutional intellectual property and can easily be shared on a publicly accessible platform by means of institutional policies.[229] It is also notable that most institutional repositories focus on full-text materials and exclude bibliographic records. Bibliographic records should receive more attention, as this can increase the visibility of scholarly published and unpublished material,[230] especially in the African context with its relatively low contribution to world knowledge.[231] The statistics also reflect a low uptake

[223] See UNESCO (2015c:25) for lists of primary and secondary content accepted.
[224] COAR report (2013:11).
[225] Joint COAR-UNESCO Statement on Open Access (2016), at http://www.unesco.org/new/en/communication-and-information/resources/news-and-in-focus-articles/all-news/news/joint_coar_unesco_statement_on_open_access/ See also Wild S (2015) in response to the impact of stricter policies in the South African context, at http://mg.co.za/article/2015-06-25-door-slammed-on-open-access-to-academic-work
[226] See Hitchcock S (2013), at http://opcit.eprints.org/oacitation-biblio.html; Verstak et al. (2014) "On the shoulders of giants: The growing impact of older articles", at arXiv:1411.0275v1; COAR (2015b:13); Hicks D (2016), at http://www.sciencemetrics.org/oaca-open-access-citation-advantage/ and Sotudeh et al. (2015) "The citation advantage of author-pays model: The case of Springer and Elsevier OA journals" *Scientometrics*, 104(2): 581–608.
[227] Sherpa Juliet enables researchers and librarians to see funders' conditions for open access publication, at http://v2.sherpa.ac.uk/juliet/
[228] See Chapter 4 in relation to a case study of the University of Pretoria.
[229] See Chapters 4 and 5 for practical examples and applications.
[230] See Swan A (2012:19) on the development of an open bibliographic reference system, at http://unesdoc.unesco.org/images/0021/002158/215863e.pdf
[231] According to Gray (2010: 6) South Africa produces 80% of the continent's research listed in the ISI indexes. See also Ojanperä S & Graham M (2017), at http://www.scidev.net/global/knowledge-economy/opinion/africa-digital-knowledge-economy.html

It is estimated that Africa produces only around 1.1% of global scientific knowledge and the proportion of researchers is as low as 79 per million residents, compared to Brazil with 656 researchers per million and the United States of America with 4 500 researchers per million, see Kariuki T (2015), at http://www.theguardian.com/global-development-professionals-network/2015/oct/26/africa-produces-just-11-of-global-scientific-knowledge There is an increase in the North-South divide (see Gray 2010:10); publications not listed on international citation indexes are proven to suffer lower visibility, citation, and effect; and these research results make little or no contribution to the existing body of global knowledge. Ghosh SB & Das AK (2007:248) indicated that journals in developing countries lack international attention and struggle in terms of distribution of

of open data (archived data sets), possibly due to the poor utilisation and/or infrastructure limitations of institutional repositories to host large data sets, and the willingness of researchers to share research data.[232] The low uptake of learning objects in support of open educational resources, which supports the function of the Internet as an educational tool (especially by public libraries), is also troublingly low.[233]

CONCLUSION

The world of science needs to embrace the changes that are required to support sustainable development, the developing world, research transparency, and shared benefits from research funding – especially from government-funded research. The music,[234] media, and film[235] industries already changed the way in which they function and developed new profitable business models to align with the changing digital environment. Yet, the publishing industry – in relation to the non-royalty scientific publishing industry – is lagging behind in terms of embracing the digital developments that could change the face of science. Open science initiatives support reform in relation to openness, transparency, collaboration and ownership. Such a transformation requires different sectors and role-players to support the changes required to responsibly disseminate the estimated $30 billion+ worth of research resources[236] that are currently in the hands of monopoly publishers rather than being publicly accessible.

The repository is regarded as the backbone of sustainable non-commercial open access. This initiative supports the Open Access movement in achieving the goal of developing a knowledge commons by means of institution-focused initiatives. In February 2015, the South African National Research Foundation (NRF) announced its stance on open access with a "Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research" encouraging higher education institutions to: "(i) formulate detailed policies on Open

research, in "Open Access and institutional repositories — A developing country perspective: A case study of India" *IFLA Journal*, 33(3): 229–250. See also Alperin JP (2013) "Ask not what altmetrics can do for you, but what altmetrics can do for developing countries" *Bulletin of the Association for Information Science and Technology*, 39(4): 18–21; Pinfield et al. (2014:21); UNESCO strategy for SA (ASSAf document 2015); and Hathcock A (2016) at, https://aprilhathcock.wordpress.com/2016/09/27/making-the-local-global-the-colonialism-of-scholarly-communication/

[232] See Hodson S (2017) presentation (slide 31) on barriers to sharing of data.

[233] Bonilla-Calero A (2013:431) "Good practice in an institutional repository service: Case study of Strathprints" *Library Review*, 62(6/7): 429–436. See also Czerniewicz L (2016); Walji S (2016), at http://roer4d.org/2696; Commonwealth of Learning Report on the status of OERs (2017); and Shah D (2017) on the class central tool.

[234] See Witt S (2015) *How music got free: The inventor the mogul and the thief* London: Vintage.

[235] See Smith MD & Telang R (2016) *Streaming sharing stealing: Big data and the future of entertainment*, London: MIT Press.

[236] EIFL (2016) reported an estimated $30 billion global expenditure on library materials for 2016 that include knowledge resources such as books, journals and databases. See "EIFL Draft Law on Copyright Including Model Exceptions and Limitations for Libraries and their Users" (2016), at http://www.eifl.net/system/files/resources/201607/eifl_draft_law_2016_online.pdf

Access of publications and data from its funded research; (ii) establish Open Access repositories; and (iii) support public access to the repositories through web search and retrieval according to international standards and best practice."[237] This is the first national declaration on the availability and accessibility of research produced with government funding. South African higher education is entering a new era of pledging and developing support to the Open Access movement – not only because they *want to*, but because they *must*. With South African higher education institutions being put under pressure to adapt their views and publishing practices to align with fast-changing national and international funding requirements in support of open science practices, the challenge of improved open scholarship services and infrastructure also arises in academic libraries. The role of the information specialist now expands to facilitating the dissemination of research to research communities and the broader South African public in support of policy development and to ensure that the country will reach the sustainable development goals by 2030. Hence, it is questionable if South African academic libraries will ensure the effective participation in the changeover while abiding by the growing challenges of digital rights management (DRM) and intellectual property law in the developing research environment.

[237] Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research (2015), at http://www.nrf.ac.za/media-room/news/statement-open-access-research-publications-national-research-foundation-nrf-funded

"Law is not an end in itself. Law is not an aesthetic object: we don't love laws. Law is merely a tool to achieve societal goals."

Bill Patry

CHAPTER 3 | INTELLECTUAL PROPERTY CHALLENGES AND PROPOSED CHANGES

This chapter presents a contextualisation of the copyright landscape, following on the charting of the open science landscape in Chapter 2. South African legislation is discussed in relation to international conventions and treaties, examples of national and international legislation. Regarding the Open Access movement, attention is focused on the legally applicable distinction between *gratis* and *libre* open access, and open licences such as Creative Commons. Considering the restrictions placed on repository services, the chapter also presents an example of publishers' copyright policies and permissions for research dissemination. A distinction is drawn between institutional and commercial repository services in relation to publishers' copyright policies for archiving purposes, using ResearchGate as an example of copyright infringement. The increase in both civil disobedience actions and shadow libraries is discussed in terms of the legal actions taken against them. The chapter concludes with a discussion of the Copyright Bill [B13–2017 Draft 2] to the extent that it affects the higher education sector in South Africa. The discussion refers to specific changes in the Bill that will affect the sector both positively and negatively.

1. BACKGROUND: INTERNATIONAL TREATIES ON INTELLECTUAL PROPERTY

South African copyright law is part of the English common-law tradition, originally based on the United Kingdom Copyright Act of 1911 that was adopted with some variation in South Africa in 1916. The South African Copyright Act of 1965 differed from the British Copyright Act of 1956, but "adopt[ed] substantial portions of the language" of this Act. The 1978 South African Act also retained some similarity to the British Copyright Act of 1956, although there is some indication that South African legislation "depart[ed] on an independent course".[238] Unlike the US Copyright Act,[239] which allows for an open, flexible and fair use doctrine,[240] the South African Act is based

[238] See Dean O (2012:1–3 & 1–4) for a historical overview of the Act, in *Handbook of South African Copyright Law*, Cape Town: Juta & Co. See Wang J (2018:80) on transplanting legal rules in the developed world, in *Conceptualizing Copyright Exceptions in China and South Africa: A Developing View from the Developing Countries*, Cham: Springer.

[239] US Copyright Act of 1976, at https://www.copyright.gov/title17/

[240] Section 107 on Limitations on exclusive rights: Fair use, state that: "Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include — (1) the purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copy-righted work. The fact that a work is unpublished shall not itself bar a finding of

on a closed, limited and specifically listed fair dealing approach.[241]

South Africa is a signatory to some international treaties and agreements[242] that aim to harmonise intellectual property law through standardised protection measures by means of minimum requirements, enforcement, recognising territoriality and requiring national treatment.[243]

The Berne Convention for the Protection of Literary and Artistic Works of 1886 (the 1979 version)[244] relates to literary, scientific and/or artistic works as therein defined.[245] The Convention aims to protect copyright as an exclusive right,[246] in relation to a set list of works,[247] protecting the economic right of the owner of the copyright in the work[248] and the moral rights of the author of the work.[249] The basic principles of the Berne Convention are national treatment,[250] automatic protection, and independence of protection.[251]

It also allows for exceptions to these rights. Of interest for this study is Article 9(2), which states:

> It shall be a matter for legislation in the countries of the Union to permit the reproduction of such works in certain special cases, provided that such reproduction does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author.

Article 10 permits free use for purposes of quotation and teaching (illustrative), recognising the source and author of the work,[252] and Article 21 and the Appendix make special provisions for developing countries.[253]

South Africa is also a member of the World Trade Organisation (WTO)[254] and party to the

---

fair use if such finding is made upon consideration of all the above factors." See Wang (2018:73–80) on open and closed systems, and pages 81–83 on the Austrian combination approach.

241 See Waelde C et al. (2011:38–39) in relation to the Anglo-American common-law tradition (economic role of copyright) and the Continental civil law traditions (with its emphasis on the personality right of author), "History, rationale, and subject matter", in *Contemporary Intellectual Property: Law and Policy*, Oxford: Oxford University Press, pp. 29–83.

242 Administered by the World Intellectual Property Organization (WIPO) and the World Trade Organisation (WTO).

243 See WIPO (2008:247–373) on "International Treaties and Conventions on Intellectual Property" in WIPO Intellectual Property Handbook: Policy, Law and Use. Geneva: WIPO.

244 Berne Convention for the Protection of Literary and Artistic Works (1979), at http://www.wipo.int/treaties/en/text.jsp?file_id=283698.

245 Berne Convention, Article 2(1).

246 Berne Convention, Articles 8–14.

247 Berne Convention, Article 2.

248 Berne Convention, Article 9(2).

249 Berne Convention, Article 11(2).

250 Berne Convention, Articles 3–6.

251 Berne Convention, Article 5.

252 Berne Convention, Article 10.

253 Berne Convention, Article 21 and Appendix 1.

Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement, 1995).[255] The Agreement contains general provisions[256] in relation to national treatment and exemptions for public interest;[257] sets standards in relation to availability, scope and usage;[258] and determines the standards of IP rights enforcement.[259] Article 9(1) of TRIPs determines that "Members shall comply with Articles 1 through 21 of the Berne Convention (1971) and the Appendix thereto". With regard to public interest exceptions, Article 13 is similar to Art 9(2) of the Berne Convention and contains a three-step test for them, namely (a) special cases, (b) may not conflict with the normal exploitation of the work and (c) may not unreasonably prejudice the legitimate interests of the rights holder. It reads:

> Members shall confine limitations or exceptions to exclusive rights to certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the right holder.[260]

South Africa is a signatory to the WIPO Internet Treaties[261] (1996) but has not yet ratified the requirements. The **WIPO Copyright Treaty** (WCT) is based on the TRIPs Agreement and includes provisions of the Berne Convention.[262] The Treaty seeks "uniform protection in literary and artistic works".[263] In relation to technological development, it extends to computer programmes[264] and compilations of data (databases),[265] and allows for certain rights of distribution,[266] rental[267] and communication to the public.[268]

In relation to the international context discussed, the exceptions in the South African Copyright Act 98 of 1978 and Copyright Regulations (1978) can be presented as follows:

---

[254] See Du Plessis E (ed.) (2011: 31–62), in *Adams & Adams Practitioner's Guide to Intellectual Property Law*, Durban: LexisNexis, on WPO and TRIPs discussion of international standards.
[255] http://www.tripsagreement.net/?page_id=40. Members of the WTO is automatically bound by the TRIPs Agreement (thus also the Berne Convention that is imbedded in TRIPs). International intellectual property is rightly regarded as a "trade-based [IP] regime", see Gervais in Wirtén E (2010:533), "Colonial Copyright, Postcolonial Publics: the Berne Convention and the 1967 Stockholm Diplomatic Conference Revisited" *SCRIPTed: A Journal of Law, Technology* & Society, 7(3): pp. 532–550.
[256] TRIPs Agreement, Articles 1–8.
[257] TRIPs Agreement ,Article 8(1).
[258] TRIPs Agreement, Articles 9–14.
[259] TRIPs Agreement, Article 61 on criminal procedures.
[260] TRIPs Agreement, Article 13.
[261] WIPO Copyright Treaty (WCT, 1996) and WIPO Performance and Phonograms Treaty (WPPT, 1996).
[262] WCT, Article 1 for "Relation to the Berne Convention".
[263] WIPO Copyright Treaty (1996).
[264] WCT, Article 4.
[265] WCT, Article 5.
[266] WCT, Article 6.
[267] WCT, Article 7.
[268] WCT, Article 8.

	Berne Convention (1979)	TRIPs Agreement (1995)	WIPO Copyright Treaty (WCT) 1996	Copyright Act 98 of 1978
General exception	9(2): Three-step test	13: Three-step test	10(2): Three-step test	13: Three-step test
For education/ research purposes	10(2) (1) 'utilization' not defined (2) no quantitative requirement of a use (3) 'teaching' not defined (4) an omission: Whether or not distribution of a work is exempt	10 exceptions extend to computer programs and compilations of data in some circumstances	Articles 4 and 5 exceptions extend to computer programs and compilations of data in some circumstances	Copyright Regulations (1978) (5 & 7) Multiple copies (8) Copies for teachers[269] (9) Prohibitions on copies for classroom use or for the use of teachers

Table 3: Copyright exceptions for education and research in international conventions and treaties (adapted from Wang J, 2018)[270]

2. THE BALANCING ACT

Following on the social argument that the advancement of society depends on dissemination of knowledge to the public,[271] the WIPO Copyright Treaty recognises the balance, particularly in relation to education, research and access to information.[272] In relation to appropriate balance, a number of national and international cases highlight the need for a balanced approach between the creator and the user. This includes cases of infringement,[273] constitutional consideration with regard to freedom of speech and the press,[274] term of copyright,[275] public interest,[276] fair use,[277]

[269] "Teacher" is defined in the South African Copyright Regulations 1978 (as amended by GN 1375 in GG 9807 of June 28, 1985) as including "any person giving instruction or doing research at any school, university or any other educational institution, by whatever name he may be called".
[270] Wang (2018:74).
[271] Pistorius T (2011:144) "Copyright law", in Klopper et al. (eds.) Law *of intellectual property in South Africa*, Durban: LexisNexis.
[272] WIPO Copyright Treaty (1996).
[273] Théberge *v.* Galerie d'Art du Petit Champlain inc., [2002] 2 S.C.R. 336, 2002 SCC 34; Robertson v. Thomson Corp., [2006] 2 S.C.R. 363, 2006 SCC 43
[274] Ashdown v. Telegraph Group Ltd [2001] EWCA Civ 1142
[275] Klinger v. Conan Doyle Estate, Ltd., No. 14-1128 (7th Cir. 2014)
[276] Pro Sieben Media A.G. v. Carlton Television Ltd & Anor [1998] EWCA Civ 2001; IceTV Pty Limited v Nine Network Australia Pty Limited [2009] HCA 14
[277] See presentation "Fair USE in the United States: Recent lessons from the mass digitization cases" by Lipinsky T (2017) on Sofa Entertainment Inc. v. Dodger Productions Inc. 709 F.3d 1273 (9th Cir 2013) using music clips to "serve as a historical reference point". Field v. Google Inc 412 F.Supp.2d 1106, 1116(D Nev 2006) using meta-tagging as an industry standard to make use of cashed information/links. Perfect 10 v. Google Inc. 487 F.3d 701, 2007 WL 1428632 (9th Cir 2007) using thumbnails in Google searches (transformative use vs. commercial use). A.V. v. iParadigms Ltd 2008 WL 728389 (ED Va. 2008) & Weidner v. Carroll 2010 WL 310310 (SD Ill) related to plagiarism detection tools and academic piracy respectively. Authors Guild Inc. v. HathiTrust 755 F.3d 87 (2d Cir 2014) related to full textbook search, preserve and print disability. Authors Guild Inc. v. Google Inc. 804 F.3d 202 (2d Cir 2015), cert. denied, 2016 WL 1551263 (April 18, 2016) on transformative use. Fox News Network, LCC TVEyes, Inc., 43 F.Supp. 3d 379 (S.D.N.Y.) and Fox News Network, LLC TVEyes, Inc., 2015WL 5025274 (S.D.N.Y) on archived TV news. Associated Press v. Meltwater US Holdings Inc. 2013 WL 1153979 (S.D.N.Y) on news excerpts via web-scraping tools. See Batke P (2010) for a view on the

fair dealing[278] and piracy.[279] In *Biotech Laboratories (Pty) Ltd. v. Beecham Group Plc and Another*, Harms JA held that:

> The present Act, in its original form, attempted to be kinder to authors. The concept of 'copyright' was replaced with an author's right, the 'ownership' of which vested principally in the author. In this and other regards the object was to move in the direction of Continental law where the emphasis is on the rights (moral and other) of the author and not on the economic rights of employers and entrepreneurs. The good intentions did not last and hardly a year had passed when the Legislature (by amending s 21) reverted, as far as ownership was concerned, to the Anglo-American model where commercial rights tend to reign supreme. The definition of 'author' in s 1 also covers a large number of persons who, in the ordinary sense of the word, are not authors but persons with financial interests in the end result. For instance, the author of a computer program is the person who exercised control over its making. One consequently does not have to be a cynic in order to be sceptical about the philosophical premise.[280]

The WIPO Development Agenda[281] adopted 45 recommendations in relation to, among other things, norm-setting, flexibilities, public policy and public domain (Cluster B); and Technology Transfer, Information and Communication Technologies (ICT) and Access to Knowledge (Cluster C). Yet, with regard to the landscape in the developing world, a number of challenges remain. These include, but are not limited to:

- the Berne Convention and the TRIPs Agreement's three-step test that favours copyright owners[282]
- unequal access to knowledge and global digital trade routes[283]
- disharmonisation due to uneven technological advance[284]
- inconsistency between the South African Constitution and the Copyright Act in relation to the educational sector[285]
- lack of clear definitions relating to education, teaching and scientific research[286]

---

role of the library (and the library of the future) and the Google Books Project, in *Google Books: Google Book Search and Its Critics*. Self-publication.

[278] HRH the Prince of Wales v. Associated Newspapers Ltd. [2006] EWHC 522 (Ch); Ashdown v. Telegraph Group Ltd [2001] EWCA Civ 1142; Hubbard v. Vosper [1972] 1 All ER 1023 (CA); Hyde Park Residence Ltd v Yelland & Ors [2000] EWCA Civ 37; Newspaper Licensing Agency Ltd v. Marks & Spencer Plc [2000] EWCA Civ 179; Moneyweb (Pty) Limited v Media 24 Limited and Another [2016] ZAGPJHC 81; Fraser-Woodward Ltd v. British Broadcasting Corporation Brighter Pictures Ltd [2005] EWHC 472 (Ch); Canadian Copyright Licensing Agency v. York University, 2017 FC 669 (CanLII)

[279] See Section 6 on shadow libraries.

[280] Biotech Laboratories (Pty) Ltd v. Beecham Group Plc and Another (494/2000) [2002] ZASCA 11 (25 March 2002), par. 12.

[281] http://www.wipo.int/ip-development/en/agenda/

[282] Wang (2018:60–61 & 65–66).

[283] Okediji RL (2018: vi) "Creative Markets and Copyright in the Fourth Industrial Era: Reconfiguring the Public Benefit for a Digital Trade Economy", Geneva: International Centre for Trade and Sustainable Development (ICTSD). She further states: "A principal characteristic of the Fourth Industrial Revolution is collaboration and sharing; both have become essential components of the modern trading landscape", p. 32.

[284] Okediji (2018:46).

[285] Schonwetter T et al. (2010:269) "South Africa", in Armstrong C et al. *Access to knowledge in Africa: The role of copyright*, Cape Town UCT Press. See also pages 248–249 & 270 for a discussion on the Constitution. See Owen & Dyer (2004:466–484) on IP and the Constitution, in *Dean & Dyer: Introduction to intellectual property law*, Cape Town: Oxford University Press.

- different needs in developed and developing countries relating to exceptions[287] and the single template challenge[288]
- underutilisation of flexibilities provided for in the TRIPs agreement for developing countries[289]
- lack of addressing the challenges of the digital environment[290]

In relation to the economics of copyright, Marc Scheufen proposes international intellectual property reform in support of the developing world and the needs of science:

> [...] both a recodification of the international three-step test (in accordance to the US fair-use principle) in combination with a reform process that incorporates the needs of developing countries (by incorporating users' rights provisions at the international level) is decisive for adjusting the international copyright framework to accommodate the needs of science.[291]

This echoes the empirical findings of Sean Flynn & Michael Palmedo that countries with a more open user rights environment increased both the quantity and the quality of research outputs in the scholarly publishing domain.[292]

3. OPEN ACCESS AND COPYRIGHT – COUNTERBALANCE ATTEMPT

Scheufen describes the Open Access movement as a counterbalance[293] attempt at the traditional copyright model that forms part of the discussion in the field of law and economics.[294] The Open Access movement has long called for copyright reform in support of the development of a knowledge commons and establishment of an improved public good.[295] This requires changes in the status quo of the scholarly publishing industry that include removal of pricing and copyright barriers to ensure not just access but also re-use rights.[296] Peter Suber[297] (a green route open access activist) identifies and defines two different forms of open access in relation to rights:

---

[286] Wang (2018:72). This relates to public and private education, distance and face-to-face teaching.
[287] Wang (2018:49). See also Scheufen M (2015:103), in *Copyright Versus Open Access: On the Organisation and International Political Economy of Access to Scientific Knowledge*, Cham: Springer.
[288] Wang (2018:50). See also Okediji (2018:viii).
[289] Schonwetter et al. (2010:268). See also Flynn & Palmedo (2018:22) on user rights and policy, in "The User Rights Database: Measuring the Impact of Copyright Balance", at http://infojustice.org/wp-content/uploads/2018/05/User-Rights-Database-Report-May-2018.pdf
[290] Schonwetter et al. (2010:268).
[291] Scheufen (2015:155). See also McSherry C (2001:4) on the "troubled boundaries [...] between legal and academic discourse", in *Who Owns Academic Work? Battling for Control of Intellectual Property*, Cambridge: Harvard University Press.
[292] Flynn & Palmedo (2018:19).
[293] See Scheufen (2015:1–2) for a contextualisation of the use of the term.
[294] Scheufen (2015) makes reference to studies conducted in this regard. See also Watt R (ed.) (2014:5) in reference to studies relating to economics of copyright, in *Handbook of the Economics of Copyright*, Cheltenham: Edward Elgar.
[295] McSherry (2001:14–16 & 54)
[296] Suber (2012:4–6), in *Open access*, Cambridge: MIT Press.
[297] Suber P (2015) states: "Because OA uses copyright-holder consent or the expiration of copyright, it does not require the reform, abolition, or infringement of copyright law," in "Open Access Overview", at:

> **Gratis:** OA is free of charge but not freer than that. Users must still seek permission to exceed fair use. Gratis OA removes price barriers but not permission barriers.
> **Libre:** OA is free of charge and free of some copyright and licensing restrictions. Users have permission to exceed fair use, at least in certain ways [...] Libre OA removes price barriers and at least some permission barriers.[298]

The Max Planck White Paper on business model disruption stresses the importance of national drives to change both the "underlying legal and financial structures" (gold route open access) in an attempt at reform.[299] Scheufen proposes a combination of alternative and complementary approaches in support of open access. He presents seven recommendations to "shape the future of academic publishing":[300]

1. developing open access mandates by funding agencies and universities[301]
2. monitoring of open access mandates[302]
3. inalienable right of secondary publication through open access mandates and the international copyright framework[303]
4. driving international copyright law reform and reconceptualising of the Berne Three-Step Test "to accommodate the needs of science"
5. implementation of a transnational funding agency to support publication cost for researchers in the developing world
6. reconsidering the reward structure in science to reduce the systemic problems hindering open access publishing[304]
7. creating awareness for open access and debunking prejudices towards open access

3.1 Legal reform – Technology requires change

The history of copyright is a response to technological developments dating back to the 15th century and the development of the printing press.[305] The Internet and the World Wide Web exasperated the flow of information in a digital era, changing the way information is shared, disseminated, regulated and controlled. Ruth Okediji highlights that the "borderless networks" of

---

https://legacy.earlham.edu/~peters/fos/overview.htm This view is supported by archiving evangelists – green route, self-archiving, pre-print open access supporters.

[298] Suber (2012:66).

[299] Schimmer et al. (2015:4) support the "flip-model" approach, in "Disrupting the subscription journals' business model for the necessary large-scale transformation to open access."

[300] Scheufen (2015:154–156).

[301] See section 3.4.

[302] Despite funder requirements with regard to CC licences and public access, the Wellcome Trust reported poor compliance, stating that "Elsevier and Wiley have been singled out as regularly failing to put papers in the right open access repository and properly attribute them with a Creative Commons licence". According to statistics, Elsevier lacked compliance in 57% (31% for hybrid journals and 26% for full open access) of funded articles, as reported by Matthews D (2016), at https://www.timeshighereducation.com/news/wellcome-criticises-publishers-over-open-access

[303] See section 3.4.

[304] See Scheufen (2015:148–150) with regard to the research reward structure.

[305] Pistorius (2011:143).

the Internet are in contrast to the inherent territorial nature of copyright.[306] She argues that emerging technologies do not function in terms of binary structures,[307] that we have seen the flattening of hierarchical economic structures,[308] and the dismantling of trade barriers.[309] In stark contrast to the current approach of a harmonised international copyright framework.

The evolvement of innovation is explained by Martin Curley as a change from a closed to an open system of innovation, followed by the current Open Innovation 2.0 model that now serves as an economic driver in the digital era. This supports the view of Wright & Walwyn, who propose that "[to] be genuinely competitive in the knowledge economy, one must be competitive at producing knowledge through research, diffusing it through education and applying it through innovation".[310] This could be a useful approach for South Africa to reach its goal of becoming a knowledge-driven economy.[311]

The comparative research between open and closed legal systems in relation to developed and developing countries conducted by Flynn & Palmedo indicated that "[th]ere is a general trend toward more open user rights over time in all of the countries, but developing countries in our sample are about 30 years behind on average."[312] With regard to the digital gap, they continue: "Few countries, and almost no developing countries, have sufficient user rights most needed to support the digital economy, including for transformative use or text- and datamining, or a general exception that can adapt to new technologies."[313]

This view is supported by the International Centre for Trade and Sustainable Development (ICTSD) in relation to

> disruptive technologies associated with the so-called fourth industrial revolution and of importance to creative industries such as automation, cloud computing, machine learning, and robotics and are also discussed, while others including digital twinning, distributed ledger technologies, and the internet of things.[314]

Therefore, those in support of free access to information call for copyright reform, such as the "Adelphi Charter on Creativity, Innovation and Intellectual Property", which states that the legal

---

[306] Okediji (2018:8–9).
[307] Okediji (2018:viii–ix) such as "public" or "private," "commercial" or "personal."
[308] Okediji (2018:viii).
[309] Okediji (2018:7).
[310] Whright C & Walwyn D (2017) presentation (slide 5), at https://www.dropbox.com/sh/pldwte3y56b2i20/AADRVhHlWgF8lQcEhyTfUCu6a?dl=0
[311] National Development Plan 2030: Our future – make it work, at https://www.gov.za/sites/default/files/NDP-2030-Our-future-make-it-work_r.pdf
[312] Flynn & Palmedo (2018:13–21).
[313] Flynn & Palmedo (2018:15).
[314] Okediji (2018:v). See also her argument in relation to originality and computational creativity on pages 14–23.

and technological "disconnect threatens the chain of creativity and innovation on which we and future generations depend".[315]

3.2 Contractual arrangements

In the scholarly publishing system, researchers do not earn any royalties from research article publications as they publish in the interest of "impact rather than money",[316] also called the "cycle of credit".[317, 318] Legal issues arise when concluding contracts[319] with publishers overriding fair dealing/use rights or copyright exceptions, restricting use of material (such as data mining), sharing of material with walk-in customers and other institutions by means of inter-library loans, and non-disclosure payment clauses.[320] Signing over copyright to publishers means that institutions must sometimes buy back research they have conducted when prescribing materials to students or sharing publications.[321] Because libraries are the biggest buyers of knowledge resources, publishers have concentrated revenue. One study estimated that 84% of the total global scholarly publishing bill is footed by academic institutions.[322]

3.3 Lack of transparency of expenditure

Phil Davis (2016) describes the change in the business models of scholarly publishers as follows:

> Over the past fifty or so years, publishers have moved from a model of *no price discrimination* (every subscriber pays the same price) to *third-degree price discrimination* (libraries pay more than individuals, students get a discount, those in developing countries get free), to *second-degree* (bulk discounts based on consortial deals), to *first-degree*, where each consumer pays a unique price set based on their willingness and ability to pay.[323]

Scholarly publishers – both national and international – require consortium bodies and institutions to sign non-disclosure agreements with regard to payments made to publishers for leasing e-resource materials. This is done in attempt to protect business models and pricing structures of publishers. In more extreme cases, the actual publisher's contract – without any financial information reflected in it – is also regarded as confidential. This is becoming an international problem as the restriction of institutional and national expenditure creates a vast array of problems when attempting to conduct empirical or comparative research relating to rise

---

315 http://www.eurim.org.uk/activities/ipr/0510rsacharter.pdf
316 Suber (2012:2).
317 McSherry (2001:69). See the chapter "An Uncommon Controversy" for a full discussion on academic authorship, pp. 68–100.
318 See Scheufen (2015:41–46) on the academic reward structure.
319 See section 3.3 in relation to non-disclosure agreements.
320 Suber (2012: 34–35). See also ACRL (White Paper, 2014).
321 Open Science Initiative (OSI) Work Group (2015:31) "Mapping the future of scholarly publishing. Report published by the National Science Communication Institute (NSCI)", at https://caullibrarypublishing.wordpress.com/2015/02/11/mapping-the-future-of-scholarly-publishing/
322 OSI report (2015:8).
323 Comment made by Davis in response to the article by Crotty D (2016), at https://scholarlykitchen.sspnet.org/2016/02/16/what-should-we-make-of-secret-open-access-deals/

in costs, long-term analyses, and the difference in pricing structures, as well as between developed and developing countries.[324] A number of legal actions were taken internationally against nondisclosure agreements (with mixed success) through "freedom of information" requests[325] to enhance financial transparency issues.[326]

In an individual attempt to obtain information on expenditure from universities for 2018, it was determined that 13 of the 26 higher education libraries paid R973 785 765 towards electronic and printed resources.[327]

3.4 Examples of change – National and institutional

Funders, governments and institutions are moving in the direction of mandatory open access for publicly funded research. Legislation in Argentina, Mexico and Peru requires federal-funded research to be archived on an open access platform,[328] with Venezuela, Brazil, Germany,[329] Poland[330] and South Africa[331] in the process of considering legislative change.

---

[324] Bergstrom TC (2014) "Evaluating big deal journal bundles", *PNAS*, 111 (26): 9425–9430, at http://www.pnas.org/content/pnas/111/26/9425.full.pdf See Bosch & Henderson (2016) for an analysis of journal pricing in different countries and by different publishers, at http://lj.libraryjournal.com/2016/04/publishing/fracking-the-ecosystem-periodicals-price-survey-2016/#

[325] See Lawson S (2016) for publicly available data, at http://stuartlawson.org/2016/06/publicly-available-data-on-international-journal-subscription-costs/
See also De Knecht (2017), at https://hackernoon.com/how-elsevier-plans-to-sabotage-open-access-76fbd46593ae
Gray & Lawson (2016), at https://www.theguardian.com/higher-education-network/2016/apr/18/why-academic-journals-expensive
Lawson S & Meghreblian B (2014), at http://blogs.lse.ac.uk/impactofsocialsciences/2014/10/15/foi-requests-uncover-lack-of-transparency/

[326] APCs are mostly regarded as transparent payments, but there are warning signs that this business is not as transparent as may be believed. Ellers J et al. (2017) focused on the global financial effect on mega journals, concluding that developing countries are subsidising premium journals, in "Gold open access publishing in mega-journals: Developing countries pay the price of Western premium academic output" *Journal of Scholarly Publishing*, 49(1): 89–102. Open access activists also responded to "secret open access deals" with regard to off-setting agreements that seem to be in line with non-disclosure agreements applicable to the Big Deals, in Crotty (2016), at https://scholarlykitchen.sspnet.org/2016/02/16/what-should-we-make-of-secret-open-access-deals/
See also the LIBER "Five Principles for Negotiations with Publishers" for Open Access, at https://libereurope.eu/blog/2017/09/07/open-access-five-principles-for-negotiations-with-publishers/

[327] 13 institutions responded to a request for e-resources and book budgets by Nicholson through CHELSA. 12 institutions did not respond and one institution did not supply figures due to non-disclosure agreements. Copyright fees payable to rights-owners for the use of content for educational purposes is collected and processed by the collecting society Dramatic, Artistic and Literary Rights Organisation (DALRO). The 13 tertiary institutions reported expenditure for blanket and transactional licences of R69 057 687 (Nicholson, 2018 through private correspondence).

[328] COAR (2015b:9) in COAR report on "Promoting Open Knowledge and Open Science: Report of the Current State of Repositories", at https://www.coar-repositories.org/files/COAR-State-of-Repositories-May-2015-final.pdf

[329] See Holcombe & Brembs (2017), at https://www.timeshighereducation.com/blog/open-access-germany-best-deal-no-deal

[330] Swan (2012:41) *Policy Guidelines for the Development and Promotion of Open Access*. Paris: UNESCO.

[331] Copyright Amendment Bill [B13–2017] clause 12D(7)(a).

Some international institutions such as Harvard University, Massachusetts Institute of Technology and Queensland University of Technology make use of a "rights-retention mandate where the university is given the right by default to re-use articles",[332] and for institutions and authors to demand a licence to publish that allows publication rights that leave room for redistribution, the use of Creative Commons licences and retaining some use and distribution rights.[333] With regard to open access policy guidelines, Alma Swan explains: "An example [...] is the Harvard University position, whereby researchers [...] voted to grant the university a nonexclusive, irrevocable right to distribute their scholarly articles for any non-commercial purpose. [It is a right] that trumps any other subsequent agreement with publishers."[334] Researchers are advised and encouraged to retain rights to self-archive, not to sign copyright transfer agreements but rather licensing agreements (licences to publish).

Policies concerning retention of rights can be applied at the institutional level, in terms of national legislation, or by means of funder requirements.[335] Embargo periods not exceeding six months are encouraged, and research should be uploaded to repositories with an embargo function that allows for metadata to be publicly visible during the embargo period. Accessible metadata would allow for a request-a-copy button (built into the system software) to obtain copies legally for scholarly use.[336] Funding agencies allowed reasonable embargo periods of between six and 12 months, with some funders now starting to require that embargoes do not exceed a period of six months[337] and others requiring immediate accessibility upon publication.[338]

3.5 Open licences – From Copyleft to Creative Commons

The aim of (open) licensing systems is to allow the individual to turn private property (exclusive use) into common property (inclusive use).[339] The open licensing initiative started with Richard Stallman's GNU free-use licences[340] in resistance to the rise of software monopolies in 1983.[341]

---

[332] Hammes M (2012:7) "Open access by default: Implications for the University of Pretoria". [Internal institutional document.]
[333] Swan (2012:16).
[334] Swan (2012:49).
[335] Swan (2012:37).
[336] Swan (2012:48).
[337] Swan (2012:47).
[338] The Wellcome Trust (second largest funder of medical research) launched its own open access publishing platform "that [...] include[s] everything from standard research articles and data sets, to case reports, protocols and null and negative results", Kelly É (2016), at https://sciencebusiness.net/news/79876/Wellcome-Trust-launches-new-open-access-platform See also https://wellcome.ac.uk/news/new-way-researchers-share-their-outputs
[339] Barnes P (2006:75) *Capitalism 3.0: A Guide to Reclaiming the Commons*, Oakland: Berrett–Koehler Publishers. See UNESCO (2015a:34–38) for a summary of the development of the copyleft and licensing movements, in *Introduction to open access* (OA curricula for Library Schools Booklet 1). Paris: UNESCO.
[340] https://www.gnu.org/philosophy/free-sw.en.html

The GNU free software licences claim four important measures according to the GNU freedom philosophy:

> The freedom to run the program as you wish, for any purpose (freedom 0). The freedom to study how the program works and change it so it does your computing as you wish (freedom 1). Access to the source code is a precondition for this. The freedom to redistribute copies so you can help your neighbour (freedom 2). The freedom to distribute copies of your modified versions to others (freedom 3). By doing this, you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.[342]

Since then, the free open source (FOSS) movement developed into a valuable contribution to the software community – specifically with regard to the scholarly environment. Initiatives such as open repository platforms, scholarly book and journal publishing systems, free curriculum materials software, data repositories and data visualisation tools, metadata harvesting tools, open education platforms, and many more assist in the drive for open science.[343]

Lawrence Lessig developed a series of Creative Commons licences (2001) in support of a legally compliant alternative to share copyrighted works with anyone without having to obtain permission for re-use purposes.[344] Producers of any copyright-protected works can choose between combinations of different restrictions and conditions to self-construct a usage licence tailored to their needs:

> A Creative Commons (CC) license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted work. A CC license is used when an author wants to give people the right to share, use, and build upon a work that he/she has created. CC provides an author flexibility (for example, he/she might choose to allow only non-commercial uses of his/her own work) and protects the people who use or redistribute an author's work from concerns of copyright infringement as long as they abide by the conditions that are specified in the license by which the author distributes the work.[345]

The licensing system functions on three levels, namely as a machine-readable tool, human-readable output, and legal compliance system. Licensing allows for clear use and re-use rights by both human and machine users,[346] also allowing for text mining.[347] Creative Commons Version 4.0 is an international licence that allows use across jurisdictions. CC licences are compatible with existing copyright laws and do not attempt to violate or abolish them;[348] the licences merely

---

[341] See Watt's R (2014:311–316) discussion on incentives and social value of participation in "Open source and open access: New paradigms in the theory of copyright", in *Handbook on the Economics of Copyright: A Guide for Students and Teachers*, Cheltenham: Edward Elgar Publishing, pp. 311–327.
[342] https://www.gnu.org/philosophy/free-sw.en.html
[343] See, among many others, the PKP tools developed for the scholarly communication industry, at https://pkp.sfu.ca/
[344] Over a billion works with Creative Commons Licences are available on the Web today, at https://creativecommons.org/
[345] http://ivansaiesbernardino.blogspot.com/2017/06/creative-commons.html
[346] Swan (2012:11).
[347] Swan (2012:17).
[348] Suber (2012:21).

attempt to give more rights to authors.[349] They are irrevocable and legally binding.[350]

4. EXAMPLE OF PUBLISHER COPYRIGHT POLICIES IN RELATION TO DISSEMINATION RIGHTS

Following on the discussion of green and gold route open access in Chapter 2, the sharing policy of Elsevier is presented as an example of copyright policies for open access purposes. The changes to the Elsevier sharing policy in 2015 caused much debate.[351] In an attempt to defend their support for openness, they released a summary of the sharing rights for pre- and post-print versions and the required embargo periods (see Figure 4).

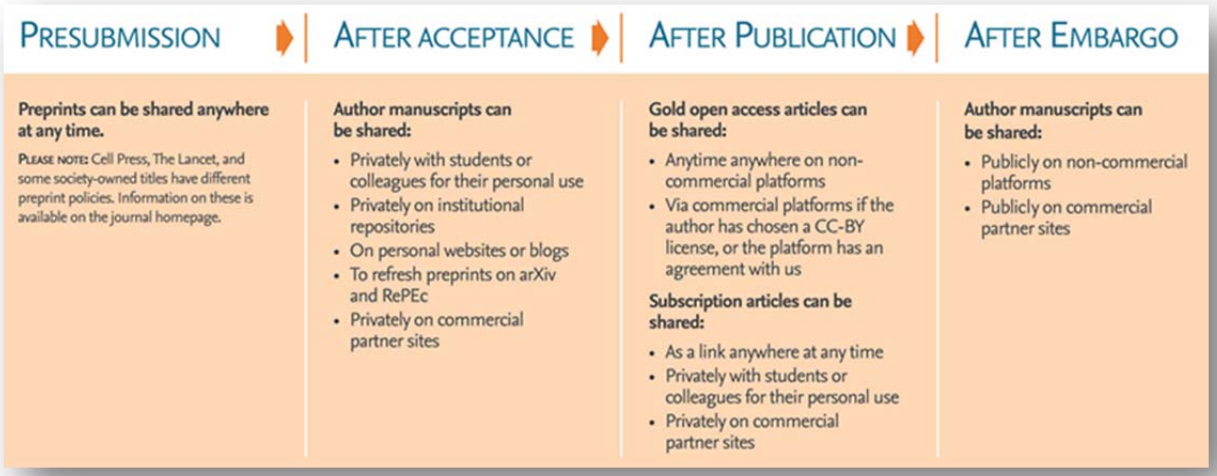


Figure 4: Elsevier's new sharing policy (2015)[352]

The restrictions (default publisher policy)[353] of Elsevier are presented on the SHERPA/RoMEO tool[354] as follows:

Publisher copyright policies & self-archiving for Elsevier default policies

- Authors pre-print on any website, including arXiv and RePEC
- Author's post-print on author's personal website immediately
- Author's post-print on open access repository after an embargo period of between 12 months and 48 months
- Permitted deposit due to Funding Body, Institutional and Governmental policy or mandate, may be required to comply with embargo periods of 12 months to 48 months
- Author's post-print may be used to update arXiv and RepEC

[349] Suber (2012:22–23). Figure A6 presents a visual representation of the legal representation of the "open access spectrum".
[350] See a list of case law on Creative Commons, at https://wiki.creativecommons.org/wiki/Case_Law
[351] COAR Statement against Elsevier's sharing policy (2015a), at https://www.coar-repositories.org/activities/advocacy-leadership/statements-and-guidelines/petition-against-elseviers-sharing-policy/ See Wild S (2015) in relation to South Africa, at http://mg.co.za/article/2015-06-25-door-slammed-on-open-access-to-academic-work
[352] https://www.elsevier.com/connect/elsevier-updates-its-policies-perspectives-and-services-on-article-sharing
[353] SHERPA/RoMEO warns: "These are the publisher's default policies. Individual journals may have special permissions."
[354] http://www.sherpa.ac.uk/romeo/index.php

- Publisher's version/PDF cannot be used
- Must link to publisher version with DOI
- Author's post-print must be released with a Creative Commons Attribution Non-Commercial No Derivatives License[355]

Due to the signing of contracts between publishers and authors, it is of the utmost importance that institutional repository services adhere to these legally binding requirements when populating a publicly accessible repository. The agreements between the researcher and the publisher exceed the rights to exceptions in national copyright legislation and cannot be made public without prior permission from the publisher.[356] These permissions also vary in terms of private websites, institutional repositories and subject repositories. An archived version of a published research paper on an institutional repository can thus not automatically be utilised on other publicly accessible platforms.

5. MISCONCEPTION OF FREE AND LEGAL USE ON ACADEMIC SOCIAL MEDIA PLATFORMS

Academia.edu (2008) and ResearchGate (2008) are regarded as academic social media platforms.[357] They allow researchers to build profiles, upload and download research papers and form networks with researchers in the same field.[358] However, both these platforms are commercial systems (they sell advertising and marketing space) and are mostly excluded from the policies allowing versions of research papers to be archived for public access.[359] Researchers often wrongly assume that public access on a repository also allows for duplication of versions on other systems such as commercial repositories.[360] Both ResearchGate and Academia.edu were established with venture capital.[361] As start-up services that rely on advertising as a means of

[355] Obtained from SHERPA/RoMEO database on 19 August 2018, at http://www.sherpa.ac.uk/romeo/search.php?id=30&fIDnum=|&mode=simple&la=en&format=full
[356] See Chapter 4 in relation to a case study of UPSpace and Chapter 5 in relation to good legal practices.
[357] Fitzpatrick K (2015), at http://www.plannedobsolescence.net/academia-not-edu/
[358] Harington R (2017), at https://scholarlykitchen.sspnet.org/2017/10/06/researchgate-publishers-take-formal-steps-force-copyright-compliance/
[359] Fortney K & Gonder J (2015), at https://osc.universityofcalifornia.edu/2015/12/a-social-networking-site-is-not-an-open-access-repository/index.html
[360] Fitzpatrick (2015) points out that the ".Edu" is misleading, as it is not an education-affiliated organisation.
[361] Fortney & Gonder (2015) report start-up funding of $17.8 million for Acdemic.Edu and $35 million for ResearchGate. Harington (2017) reports $85 million for ResearchGate.

income, they may have an uncertain future.[362] This is in sharp contrast to non-profit institutional repositories that serve the purpose of long-term institutional preservation and accessibility.[363]

The usage statistics of the ResearchGate platform for the period December 2015–November 2016 far exceeds those of any publisher, and even the Sci-Hub shadow library.[364] A study conducted by publishing house Wiley indicated that ResearchGate showed download statistics seven times higher than those of Sci-Hub.[365] The controversial nature of these research network sites relates to continuous e-mail requests to researchers to upload their materials to the platform, without indicating that such an action might infringe copyright in view of publishing contracts. Furthermore, it seems that researchers neither understand copyright nor read the contracts they sign.[366] Therefore, it is argued that "authors who do [...] archive [to these sites] often do so in breach of publisher policy, either unknowingly, through ignorance of the policy, or knowingly in the belief that publishers support their free gift of content and will deter them from pursuing the legal breach".[367]

ResearchGate infringes on copyright by hosting some documents illegally and actively encourages copyright infringement by pursuing researchers with requests to archive their materials on these platforms.[368] Of the seven million academic papers hosted, not all are

[362] Fitzpatrick (2015). McKenzie L (2017), at http://www.sciencemag.org/news/2017/07/sci-hub-s-cache-pirated-papers-so-big-subscription-journals-are-doomed-data-analyst See also Björk in Archambault et al. (2014:28) "Proportion of open access papers published in peer-reviewed journals at the European and world levels—1996–2013" Study to develop a set of indicators to measure open access, at http://science-metrix.com/sites/default/files/science-metrix/publications/d_1.8_sm_ec_dg-rtd_proportion_oa_1996-2013_v11p.pdf and COAR (2017b:8) in "Next generation repositories behaviours and technical recommendations of the COAR Next Generation Repositories Working Group", at https://www.coar-repositories.org/files/NGR-Final-Formatted-Report-cc.pdf

[363] Fortney & Gonder present the differences between repositories and academic social media platforms as different in relation to harvesting, long-term preservation, business models, use of default e-mails, required access to contacts in address books, and policy requirements. See Figure A7 for a visual representation of the differences between an institutional repository and an academic social media platform.

[364] Discussed in section 6.

[365] Harington (2017).

[366] See Dawson PH & Yang SQ (2016:6) for a summary of studies conducted in the field of comprehending copyright among researchers, in "Institutional repositories open access and copyright: What are the practices and implications?" *Science & Technology Libraries*, 35(4): 1–16. See also Carter et al. (2007:67–68) "Library faculty publishing and intellectual property issues: A survey of attitudes and awareness" *Libraries and the Academy*, 7(1): 65–79.

[367] Gadd & Covey (2016:3) "What does 'green' open access mean? Tracking twelve years of changes to journal publisher self-archiving policies" *Journal of Librarianship and Information Science*, July 2016: 1–17. See also Gadd (2017) on publishers creating confusion among the research community with their marketing campaigns regarding visibility, at https://scholarlykitchen.sspnet.org/2017/10/31/guest-post-academics-copyright-ownership-ignorant-confused-misled/

[368] Cowen commented on the Harington (2017) article, calling it "nagging", and others have referred to it as spamming their inboxes with useless information.

infringing copyright. However, the Coalition for Responsible Sharing[369] believes that ResearchGate is "undermining the integrity and the sustainability of the scholarly communication system" and will be issuing take-down notices to ResearchGate.[370] Publishers also flagged foul play for supposedly altering links in research papers to link back to ResearchGate[371] and not to the publisher's website.[372] Furthermore, the Coalition states that "the underlying behavioural issue of ResearchGate is that it scrapes copyrighted material from the Web, invites researchers to upload it to their portfolio, and modifies articles."[373]

Elsevier and the American Chemistry Society are pursuing legal action, filing a lawsuit in Germany against ResearchGate.[374] It is believed that this case will not uphold the fair use defence like in Napster (2001),[375] Aimster (2004),[376] and Grokster (2005).[377, 378] ResearchGate reportedly started to take down infringing articles after receiving the complaint.[379]

6. CIVIL DISOBEDIENCE AND SHADOW LIBRARIES

Lewis Hyde argues that "as long as the goals of science require an intellectual community congenial to discourse and capable of integrating a coherent body of theory, gift exchange will be a part of its commerce."[380] He further states that

> It seems correct to speak of the gift as anarchist property because both anarchism and gift exchange share the assumption that it is not when a part of the self is inhibited and restrained, but when a part of the self is given away, that community appears.[381]

The Internet has a history of sharing communities and platforms, and initiatives developed for resource exchange such as RedditScholar, #icanhazpdf Twitter requests, MedicineGround,

[369] The coalition consists of the American Chemistry Society (ACS), Elsevier, Wolters Kluwer, Wiley, and Brill. See the coalition statement, at http://www.responsiblesharing.org/coalition-statement/
[370] Academia.edu received 2 800 takedown notices in 2013 from Elsevier, see Solon O (2013), at http://www.wired.co.uk/article/elsevier-versus-open-access and Holcombe AO (2013), at https://theconversation.com/riled-up-by-elseviers-take-downs-time-to-embrace-open-access-21405
[371] See the comment made by Davis in response to the article by Harington (2017) stating preferential linking used by other platforms to ensure users stay on their site.
[372] See the discussion following Harington's post (2017) in this regard.
[373] Milne quoted in Chawla DS (2017a), at http://www.sciencemag.org/news/2017/10/publishers-take-researchgate-court-alleging-massive-copyright-infringement
[374] Harington (2017). Elsevier and ACS also pursued legal action against Sci-Hub in 2016 and 2017.
[375] A&M Records Inc. v. Napster Inc. 239 F 3d 1004 (2001).
[376] Aimster Copyright Litigation, 252. F Supp. 2d 634, (7th Cir. 2004)
[377] MGM Studios Inc. v. Grokster Ltd 545 US 913 (2005).
[378] Thatcher commenting in the Harington (2017) article.
[379] See the Coalition follow-up statement, at http://www.responsiblesharing.org/2017-10-18-coalition-for-responsible-sharing-issues-take-down-notices-to-researchgate-to-address-remaining-violations/
[380] Hyde L (2006:85) *The gift: How the creative spirit transforms the world* New York: Vintage Books.
[381] Hyde (2006:94). See also Liang L (2018:205) on shadow libraries as a form of community practice, "India: The Knowledge Thief" in Karaganis J (ed.) *Shadow Libraries: Access to Knowledge in Global Higher Education*, Cambridge: MIT Press, 181–222. Bodó B (2016:11) on information smugglers, in "Pirates in the library – An inquiry into the guerrilla open access movement. *Social Science Research Network*, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2816925 and Isin & Ruppert (2015:167–179) on bills, charters, declarations, and manifestos, in *Being digital citizens*, London: Rowman & Littlefield.

GigaPaper, informal sharing of papers, log-in credentials, and use of cyber lockers[382] – all forming part of knowledge activism driven by free culture advocates.[383] It also includes technological developments to improve searches for open access versions, such as CanaryHaz (a free browser plug-in),[384] Unpaywall (Chrome and Firefox extension),[385] and Open Access Button (an article request tool).[386] Aufderheide & Jaszi describe the establishment of community in this regard as follows:

> That discourse is variously called copyright reform, copyfighting, the copyleft, and advocacy for a cultural/creative/intellectual commons, depending on your angle of entry. [...] The people in this discourse share an acute awareness that copyright policy and practice are tilted unfairly toward ownership rights, in a way that prejudices the health and growth of culture. This broader discourse is evident in many ways besides the efforts to make fair use more usable: proposals for copyright law revisions efforts to create legally sanctioned copyright-light or copyright-free zones or to expand the public domain, and civil disobedience.[387]

Lawrence Liang identifies five schools of thought on intellectual property activism that include (i) views on IP expansion to affect creativity and knowledge, (ii) a political economic critique of IP, (iii) a combination of literary theory and legal theory on romanticising the author, (iv) a historical approach, (v) and handling of IP from developing countries.[388] There is a rise in vigilante, infringing, and piratical open access.[389] These initiatives form part of a culture Aaron Swartz describes as an "ethical responsibility to advance the public welfare", believing that knowledge is power and that knowledge should be accessible to all.[390] Swartz requested in his Guerrilla Open Access Manifesto a call for support and community against what he regarded as the unjust.[391]

For some, the changeover to an open knowledge system is far too slow and illegal sharing practices of scholarly materials is on the rise.[392] "Black open access"[393] platforms are known as

---

[382] Bodó (2016:9).
[383] Peters J (2016:40) *The idealist: Aaron Swartz and the rise of free culture on the Internet*, New York: Scibner.
[384] Vincent P (2017,) at https://kopernio.com/
[385] http://unpaywall.org/
[386] https://openaccessbutton.org/
[387] Aufderheide & Jaszi (2011:10–11) *Reclaiming FAIR USE: How to put balance back in copyright*, Chicago: The University of Chicago Press.
[388] Liang L (2010: 60–61) "Piracy creativity and infrastructure: Rethinking access to culture" in Subramanian & Katz (eds.) *The global flow of information: Legal social and cultural perspectives*, New York & London: New York University Press, pp. 54–89. See Brembs (2016b) for the argument that Sci-Hub became a "societal imperative", at http://bjoern.brembs.net/2016/02/sci-hub-as-necessary-effective-civil-disobedience/
[389] See Suber (2012:22) on terminology.
[390] Peters J (2016:213–214).
[391] Guerrilla Open Access Manifesto (2008), at https://archive.org/stream/GuerillaOpenAccessManifesto/Goamjuly2008_djvu.txt
[392] See Karaganis J (2018) in relation to the development of alternative access through shadow libraries, in "Introduction: Access from Above, Access from Below", in *Shadow Libraries: Access to Knowledge in Global Higher Education*, Cambridge: MIT Press, pp. 1–24.

"copyright-infringing sites", "shadow libraries of scholarly work" or "underground knowledge repositories".[394] In 2014 the scholarly repository Sci-Hub became the largest shadow library in the world. It is reported that the repository houses and supplies access to 85% of all scholarly articles,[395] obtained by means of "unauthorised backdoor access".[396] Currently, Sci-Hub illegally hosts more than 70 000 000 academic papers in support of three main objectives: Knowledge to all, no copyright and open access.[397] Elsevier successfully took legal action against the creator, Alexandra Elbakyan, for copyright infringement (2015 and 2017),[398] including domain name seizure, and damages awarded.[399] This was followed by a lawsuit filed by the American Chemistry Society (ACS) (2017),[400] claiming copyright and trademark infringement, counterfeiting and wrongful exercise of control over another's property, and domain names rendered inactive (2017).[401] The American Chemistry Society won the case and managed to get some of the domain names seized. Yet none of these judgments seems to have had an effect on Sci-Hub, which is hosted safely on the dark/deep (non-commercial) web[402] on servers in Russia, beyond US jurisdiction.[403]

---

[393] Björk (2017) "Gold, green and black open access" *Learned Publishing*, 30: 173–175 . See Bodó (2018:39–41) on the concept of "copynorms" of non-profit piracy, in "The Genesis of Library Genesis", *Shadow Libraries: Access to Knowledge in Global Higher Education*, Cambridge: MIT Press, pp. 25–51.

[394] Bodó (2016:1 & 11).

[395] McKenzie (2017). See also Himmelstein DS et al. (2017) in "Sci-Hub provides access to nearly all scholarly literature" *PeerJ* | Preprints, at https://doi.org/10.7287/peerj.preprints.3100v2

[396] Bodó (2016:2). This is done by using user credentials from paid subscribers at universities to bypass the firewalls of publishers and obtain requested articles. See Mower A (2016), warning that university library users who give out credentials will be in breach of the licensing agreements of publishers, which could result in liability and loss of access (as in the case of Swartz), at http://campusguides.lib.utah.edu/scihub

[397] https://sci-hub.tw/

[398] Elsevier Inc. et al. v. Sci-Hub et al. No. 1:2015cv04282 - Document 53 (S.D.N.Y. 2015) requesting a motion for preliminary injunction and alternative service of process.

[399] Elsevier Inc. v. Sci-Hub, No. 1:15-cv-4282-RWS [Dkt. No. 87] (S.D.N.Y. June 21, 2017). Judge Sweet ordered the defendants to destroy unauthorised copies of Elsevier's copyrighted works, transfer their website domain registrations to Elsevier, and pay Elsevier $150 000 for each of 100 copyrighted works.

[400] See the bibliography created by Stephen Reid McLaughlin with regard to Sci-Hub in the media, at http://www.stephenmclaughlin.net/2016/03/19/sci-hublibgen-in-blogs-and-the-media-a-recent-bibliography/

[401] American Chemical Society, v John Does 1-99, et al., No. 1:17-cv-00726-LMB-JFA.

The Internet demands by ACS had sparked concern among the Computer and Communications Industry Association (CCIA), which filed an amicus brief in the lawsuit, asking that ISP and search engine blocking be removed from the ACS's claim. However, this was denied by the judge. "Elsevier had made similar demands, but the judge in its case sided with the CCIA and the Internet Commerce Coalition, which filed a similar amicus brief, and Elsevier ultimately backed off those requests", in Chawla (2017b), at http://www.sciencemag.org/news/2017/01/mystery-controversial-list-predatory-publishers-disappears

[402] See Bartlett J (2014) *The dark net: Inside the digital underworld*, London: William Heinemann.

[403] See Kennerly M (2016) on the jurisdiction issue, at https://www.litigationandtrial.com/2016/02/articles/attorney/elsevier-vs-sci-hub/

Domain name seizing thus becomes a game of whack a mole,[404] as a new domain is created or a mirror site activated every time an injunction is ordered to shut down a specific domain. This might be the reason for the most recent judgement stating that "internet search engines, web hosting sites, internet service providers (ISPs), domain name registrars and domain name registries cease facilitating any or all domain names and websites through which Defendant Sci-Hub engages in unlawful access [...]".[405]

7. REFORM: THE COPYRIGHT BILL

A change to the copyright legislation in South Africa is long overdue,[406] as the current Copyright Act is not suitable for the rapidly changing technological environment and changes in the economy, and it fails to embrace the positive changes of a knowledge economy through innovation. An amendment to the Act will not only need to align with established legal frameworks but also the rapidly developing and unpredictable future digital technological developments such as artificial intelligence (AI).[407]

In 2010, a study entitled *Access to Knowledge in Africa: The role of Copyright*[408] put forward ten recommendations with regard to access to knowledge and copyright reform in the South African context:

- do not extend the term or scope of exclusive rights granted under copyright beyond what is required by the international treaties by which South Africa is bound;
- expand and adapt the current set of exceptions and limitations to better enable access to knowledge. State exceptions and limitations clearly. Exceptions and limitations should address new technologies;
- protect the public domain;
- address the problem of orphan works;
- explicitly permit circumvention of technologies that jeopardise the balance of copyright by preventing users from exercising their rights under exceptions and limitations;
- permit parallel importation of copyright-protected material;
- provide that all government-funded works which do not immediately fall into the public domain are freely available on equal terms to all South Africans;
- define licence so as to explicitly allow for free copyright licences;
- commence a government inquiry into a provision that authors can reclaim title to works which subsequent rights-holders fail to use over long periods of time, eg five years;
- and commence a government inquiry into the feasibility of making use of the Berne Appendix special provisions for developing countries.[409]

The much-debated Copyright Amendment Bill [B13–2017 (draft 2)][410] might produce positive changes relating to fair use, stricter regulation of unfair and/or ill-balanced contractual

[404] Kravets D (2016), at https://arstechnica.com/tech-policy/2016/05/piracy-site-for-academic-journals-playing-game-of-domain-name-whac-a-mole/
[405] Chawla (2017b).
[406] Nicholson (2017a) summarised the timeline of South African copyright reform.
[407] Okediji (2018).
[408] Armstrong et al. (2010) Access *to Knowledge in Africa: The role of Copyright*, Cape Town: UCT Press.
[409] Based on the 2008 Report on the South African Open Copyright Review funded by the Shuttleworth Foundation, at http://ip-unit.org/wp-content/uploads/2010/07/opencopyrightreport1.pdf

agreements, and flexibilities for education and research. It may also provide constructive flexibilities for libraries, archives and similar entities, and provide for accessible formats for people with disabilities. If these flexibilities are enacted, they may provide some financial relief to tertiary institutions.

However, some of the greatest challenges for the library and information sectors (as well as the public domain) are not addressed. Some proposed changes are more restrictive than under existing law (such as orphaned works) while issues such as cloud storage services and text and data mining[411] did not receive attention.

7.1 Proposed changes that will affect public access and higher education

In a 2015 submission to Parliament in relation to copyright reform, the University of Cape Town IP Unit put forward the following statement that summarises the complexity of the required change:

> It is important to recognise that an assumption that if some protection is good for creativity, more is even better is not only obsolete but potentially harmful, especially in the developing country context. In the same vein, it is now clear that global one-size-fits-all approaches to issues concerning copyright law are often ill-suited and that, instead, we need context appropriate and tailored approaches to copyright law that are responsive to local conditions. [...] Balancing features such as copyright exceptions and limitations play a key role in this context. Moreover, one needs to be mindful of the growing perception of creatives in South Africa that the current copyright system unjustly favours middlemen and multinationals.[412]

A number of submissions in relation to proposed changes to the 2017 Bill were made to the Department of Trade and Industry by the national and international education and library sectors.[413] The proposed changes that will directly affect public access to knowledge in the higher education sector include the following: state funded (clause 3(2)); fair dealing (clause 12A); repository services (clause 12D(7)(a)); exceptions for archives, museums and libraries (clause 19C); and orphan works (clause 22A).

---

[410] Version [B13–17 Draft 2], at http://libguides.wits.ac.za/ld.php?content_id=43311046

[411] See Margoni et al. (2016:80–82) on the benefits of open access and text and data mining, in "Open access, open science, open society", Loizides, & Schmidt (ed.) *Positioning and Power in Academic Publishing: Players, Agents and Agendas. Proceedings of the 20th International Conference on Electronic Publishing*, Amsterdam: IOS Press, pp. 75–86.

[412] Quoted in Parliamentary submission by University of Cape Town Intellectual Property Unit (UCT IP Unit) (2017:3), at http://libguides.wits.ac.za/ld.php?content_id=33935202

[413] Submission that are publicly available include those by: national and international higher education associations and institutions such as the Southern African Regional Universities Association (SARUA), Universities South Africa (USAf), University of Cape Town Intellectual Property Unit, the joint statement by the University of Cape Town, University of South Africa, and University of the Witwatersrand (and two international universities: Washington College of Law and the Loyola University Chicago, School of Law); national and international library associations such as the International Federation of Library Associations and Institutions (IFLA), the Library Copyright Alliance, the Library and Information Association of South Africa (LIASA), and the National Council for Library and Information Services (NCLIS); as well as other national and international organisations such as the Australian Digital Alliance, Google South Africa, the Freedom of Expression Institute (FXI), and Wikimedia South Africa, at https://libguides.wits.ac.za/Copyright_and_Related_Issues/SA_Copyright_Amendment_Bill_2017

- **State funded (clause 3(2))**

State-funded research should be used as a means to "facilitate broad dissemination and access to works that were created with taxpayer's money" as part of a public-interest focus.[414] It is thus proposed that research produced by government-funded research should be managed more effectively; for example, through open access policies[415] (such as the NRF statement)[416] and the local development of a national policy on open science.[417] The public university is a state-funded[418] enterprise and both legislation and policy development in this regard can ensure broader public access to local academic research – not disregarding, nor in contrast to, the South African legislation on publicly funded research.[419]

- **Fair dealing (clause 12A)**

The fair dealing clause is one of the most controversial clauses in the new Bill. Introducing an open "fair use clause" is regarded by the User Right's Network as improving the current Act in two ways:

> It adds a much fuller list of protected purposes of fair use, canvassing most (but [...] not all) of the categories of use that have been approved around the world by various statutes and court decisions. It adds a modern and progressive multi-factor test to determine fairness, including a helpful clarification that protection from market substitution effects is the core of copyright protection.[420]

The introduction of open "fair use" (clause 12) will allow for copyright protection to be based "on a balancing test to ascertain fairness"[421] to a much broader scope of general exceptions that will extend further than just being for educational purposes, thus supporting free expression,[422] reproduction in the press for informational purposes that supports democracy and transparency,[423] and individual and personal use.[424] This is well aligned with international legislation (e.g., in the US, Israel, Philippines, Korea, Malaysia and Taiwan).[425, 426]

---

[414] UCT IP Unit (2017:8).
[415] UCT IP Unit (2017:9).
[416] Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research (2015).
[417] The Academy of Science of South Africa (ASSAf) presented the Department of Science and Technology (DST) with a "Draft position Statement on Open Science in South Africa (2016), following a high-level stakeholders' meeting on open research (2017). The meeting (12–13 December 2016) was hosted in partnership with UNESCO and DIRISA with both national and international representation.
[418] Clause 3(2) refers to any work "which is made by, or under the direction or control of the state".
[419] The Intellectual Property from Publicly Financed Research and Development Act, 2008 51 of 2008, (IPR–PFRD Act).
[420] Presentation to Parliament by Flynn S (2017:4) representing Program on Information, Justice and Intellectual Property, American University, Washington College of Law, at http://libguides.wits.ac.za/ld.php?content_id=33933872
[421] UCT IP Unit (2017:12).
[422] UCT IP Unit (2017:14).
[423] UCT IP Unit (2017:15).
[424] UCT IP Unit (2017:15).
[425] Flynn (2017:6–9).
[426] Flynn (2017:4).

- **Repository services (clause 12D(7)(a))**

One of the digital services required to promote the wide dissemination of scholarly research to the broader public is the institutional repository. Clause 12D(7)(a) of the Bill provides for repository services:

> The author of a scientific or other contribution, which is the result of a research activity that received at least 50 per cent of its funding from the state and which has appeared in a collection, has the right, despite granting the publisher or editor an exclusive right of use, to make the final manuscript version available to the public under an open licence[427] or by means of an open access institutional repository.

There is however concern over the difficulty in determining the 50% public funding with regard to the research activity that leads to scientific publication.[428] This might also become a burden in future, as government funding for universities is slowly declining to the extent that some universities already receive less than 50% of their income from the government. Over the last decade, the government subsidy as a component of total university income has decreased from 49% to 40%.[429] The International Federation of Library Associations (IFLA) statement supports public access to published works by publicly financed means but argues that the "[embargo] period should be kept as short as possible, with immediate open access a desirable goal".[430] The clause makes provision for a 12-month embargo term,[431] proper acknowledgement of the first place of publication,[432] permission for third parties to carry out the act on behalf of the researcher/author,[433] and overriding contractual publishers' agreements.[434]

7.2 The need for exceptions[435]

The Bill makes provision for general exceptions from copyright protection (c12A), temporary reproduction and adaptation (c12C), reproduction for educational and academic activities

---

[427] An 'open licence' is defined in the Bill to mean "a royalty-free, non-exclusive, perpetual, irrevocable copyright licence granting the public permission to do an act for which the permission of the owner of copyright, or the author, is required". Clause 39B(2)(a) "does not prohibit open licenses or voluntary dedications of a work to the public domain" in relation to unenforceable contractual terms.

[428] UCT IP-Unit (2017:17).

[429] *BusinessTech* (2015), at http://businesstech.co.za/news/general/102010/what-you-need-to-know-about-university-fees-in-south-africa/
See also the CHE task team report on funding in higher education (2016:321–380) in *South African higher education reviewed: Two decades of democracy*. Pretoria: CHE.

[430] Presentation to Parliament by International Federation of Library Associations and Institutions (IFLA) (2017b:2), at http://libguides.wits.ac.za/ld.php?content_id=33933430

[431] Clause 12D(7)(b).

[432] Clause 12D(7)(c).

[433] Clause 12D(7)(d).

[434] Clause 12D(7)(e).

[435] Flynn & Palmedo (2018:9) "identified twenty categories of user rights common in many copyright systems": General exception, Computer Programs, Transformative Use, National Government Works, Quotation, Databases or Other Compilations of Non-Original Facts, Parody and/or Satire, Exhaustion of Rights, Education, Text and Datamining, Incident Inclusion, Safeguards from Secondary/ISP Liability, Research, Library Rights, Panorama Right. Temporary Copies for Technological Processes, Personal or Private Users, Disability Access, Orphan Works, Supremacy of Contracts.

(c12D), computer programs (c19B), libraries, archives, museums and galleries (c19C), persons with disabilities (c19D), and technological protection measures (c280). IFLA supports:

> A broader fair-use exception [that] would allow cultural heritage institutions to serve their users better, for instance by enabling them, in their educational activities, to illustrate arguments and points with historical political pamphlets or with audio-visual materials. They would be able to make copies of works for internal purposes, such as cataloguing or for insurances, to guarantee a better functioning of the institution, and would be able to supply unique works held only in their collections to other institutions on a non-commercial basis, among other examples.[436]

Both IFLA and Electronic Information for Libraries (EIFL) support exceptions for libraries, museums, and archives.[437] IFLA supports changes in the Bill related to "the lending of e-books, the possibility to supply documents digitally, the making available of collections on secure computer networks, the limitations of liability and the provision on out of commerce works. [This] will help to notably improve the public service that libraries offer."[438]

- **General exceptions regarding protection of copyright work for libraries, archives, museums and galleries (Section 19C)**

The Bill envisages general exceptions regarding protection of copyright work for archives, libraries, museums, and galleries.[439] Through this, the Bill recognises the importance of access to knowledge, including historical knowledge and knowledge of artefacts. With traditional knowledge and diversity of heritage preservation on the agenda of government,[440] the exceptions for archives, museums, galleries and libraries are all the more important for future adaptations and revisions of IP in support of the development of an open knowledge society to the benefit of all South Africans.

Non-profit entities such as libraries, museums, archives and galleries are required to function under the same laws as commercial enterprises.[441] This creates a situation that hampers a number of core functions they need to deliver to the public. Copyright severely limits the accessibility of the information institutions preserve for future generations and for valuable research to be conducted. In many cases, museums and archives (in South Africa) have become

[436] IFLA (2017b:1).
[437] See the "EIFL Draft Law on Copyright Including Model Exceptions and Limitations for Libraries and their Users" (2016:43–48) in relation to Sections 8–12, 17C, 22 and also Chapter 3 on libraries and copyright.
[438] IFLA (2017b:2).
[439] Memorandum (2017:65, section 3.17). This is in line with the findings of the WIPO study on *Limitations and Exceptions for Copyright and Related Rights for Teaching in Africa* (2009), the *WIPO Study on Limitations and Exceptions for Libraries and Archives* (2015), and the *IFLA Proposal for a Treaty on Limitation and Exceptions for Libraries and archives* (2013). See also "EIFL Draft Law on Copyright Including Model Exceptions and Limitations for Libraries and their Users" (2016) in relation to Sections 12, 16, 17C.
[440] IP Policy (2017).
[441] See Dryden J (2017), at http://www.wipo.int/wipo_magazine/en/2017/04/article_0003.html

white elephants struggling to survive due to the lack of government funding and their lack of public relevance. This is partly due to the lack of digital visibility, digital accessibility, and general awareness of the important materials in these collections. This also includes not only a lack of material in digital format, but also publicly accessible metadata of housed collections in electronic format on the Web.[442]

7.3 Assignment and licences in respect of orphan works (clause 22A)

According to the Bill, an orphan work "means a work in which copyright still subsists but none of the rights holders in that work is identified or, even if one or more of them are identified, none is located". With the positive adoption of exceptions to specifically archival materials (historical collections), the proposed procedures relating to "orphan works" seem to want to establish a system of copyright clearance so complex (onerous and impractical[443]), expensive and time consuming that very few institutions will be able to comply.[444] The Bill proposes that "orphan works" become state administered rather than entering the public domain. The proposed process requires the user to obtain a licence issued by a commission after notice in the *Gazette* and two newspapers, as well as undertaking a number of required actions to identify or locate the legal copyright holder as set out in clause 22A(6)(a)–(e). The commission will determine the royalties to be paid and the terms of the licensing agreement. IFLA calls for a more "flexible system" in support of cultural heritage institutions, as they are the holders of large collections categorised as "orphan works".[445] It is proposed that the section be adapted to international legislation[446] or to include orphan works under an open "fair use" provision.[447]

7.4 Oversights

Matthew Sag warns that the Bill does not make provision for applications of digital technology that are at the heart of developing non-profit and for-profit sectors:

> South Africans would benefit greatly from a provision that makes it clear that the technical processes at the heart of machine learning, cloud computing, text mining, plagiarism

---

[442] See Chapter 4 in relation to the need for heritage resources in digital format.
[443] Presentation to Parliament by Australian Digital Alliance (2017), at http://libguides.wits.ac.za/ld.php?content_id=33933915
[444] Presentation to Parliament by the National Council for Library and Information Services (NCLIS) (2017:5), at http://libguides.wits.ac.za/ld.php?content_id=33940984 See also Joint submission to Parliament by Schonwetter et al. and Andrew Rens (Duke University School of Law) (2017: fn 1, 2), at http://infojustice.org/wp-content/uploads/2017/05/Professors-Letter-re-South-Africa-Copyright-Amendments-Bill-2017.pdf
[445] IFLA (2017b:1–2).
[446] Such as the Jamaican Copyright Act of 1993 (Article 71).
[447] Presentation to Parliament by Universities South Africa (USAf) (2017:1), at http://libguides.wits.ac.za/ld.php?content_id=33937008;
Flynn (2017:9); IFLA (2017:2); NCLIS (2017:3); presentation to Parliament by Nicholson (2017b:3), at http://libguides.wits.ac.za/ld.php?content_id=33935312;
presentation to Parliament by Southern African Regional Universities Association (SARUA) (2017:3), at http://libguides.wits.ac.za/ld.php?content_id=34242121; and UCT IP-Unit (2017:24).

> detection, automated detection of copyright infringement and constructing search engine indexes do not violate copyright law.[448]

This echoes the argument of the Freedom of Expression Institute (FXI) that "law serves society, not the other way round. Law must, therefore, fit the way we live and constrain us from living up to our full potential".[449] Currently, the Bill lacks clarity and excludes important technological developments (software, computer system development, research and development) that are the driving forces behind job creations and economic growth through information industries.[450] The Bill also lacks clarity on a number of technological terms, services and products. Further examples of omissions include communication to the public with reference to hyperlinks,[451] Internet indexing for search,[452] text and data mining (TDM).[453] With regard to transformative works[454] and Freedom of Panorama (FOP),[455] the fair use provision under Article 12 will be sufficient. Should fair use not be adopted in the Act, these and a number of other issues will need specific exceptions.

---

[448] Presentation to Parliament by Sag M (2017:1–2) from the Loyola University Chicago School of Law, Philip H. Corboy Law Center, at http://infojustice.org/wp-content/uploads/2017/07/Sag-Comment.pdf Flynn (2017:6) also includes "computer assisted translations".

[449] Presentation to Parliament by Freedom of Expression Institute (FXI) (2017), at http://libguides.wits.ac.za/ld.php?content_id=33934143

[450] Presentation to parliament by Palmedo (2017:2–3) representing the Program on Information, Justice and Intellectual Property, American University, Washington College of Law, at http://libguides.wits.ac.za/ld.php?content_id=33934893

[451] Presentation to Parliament by Google South Africa (2017), at http://libguides.wits.ac.za/ld.php?content_id=33934566.
See also related cases: Crookes v. Newton, [2011] SCC 47, [2011] SCR 269 (Canada) commenting on the difference between "communication something [and] communicating that something exists or where it exists"; Perfect 10 v. Google Inc. 487 F.3d 701, 2007 WL 1428632 (9th Cir 2007) (US) finding that "HTML instructions is not equivalent to showing a copy"; and Svensson and Others v. Retriever Sverige AB (C466/12) (Sweden) finding that redirecting is not a copyright infringement.

[452] Schonwetter et al. (2017:3) & Flynn (2017:7).

[453] IFLA (2017b:2) states, "To our understanding, the right to read is the right to mine, and therefore any individual or legal entity should be allowed to do so." It is regarded as imperative for research, education, scientific analysis, libraries, forensics, technological innovation (NCLIS, 2017:8) and statistical analysis (SARUA, 2017:4). "Text and data mining (TDM) and other computational (or 'non-consumptive') uses, which enable useful technologies like plagiarism detectors and machine learning necessary to operate language translation software" (Schonwetter et al. 2017:4). With the rise of Big Data and the increasing importance of data, SARUA (2017:4) believes this could place South Africa in an internationally disadvantaged position. See also NCLIS (2017:8), Palmedo (2017:8–9), and Sag (2017:2).

[454] Schonwetter et al. (2017:4). See Presentation to Parliament by Jaszi (2017) representing the Program on Information, Justice and Intellectual Property, American University, Washington College of Law, for a detailed argument on transformative use, at http://libguides.wits.ac.za/ld.php?content_id=33935076.
Haupt A (2008:101–102) argues for "counter-culture" with the example of the practice used by Laugh It Off (LIO) that lead to the case of Laugh It Off Promotions CC v. South African Breweries International (Finance) BV t/a Sabmark International and Another (CCT42/04) [2005] ZACC 7; 2006 (1) SA 144 (CC); 2005 (8) BCLR 743 (CC) (27 May 2005), in *Stealing empire: P2P intellectual property and hip-hop subversion*, Pretoria: HSRC Press.
FXI (2017:4) urges that "copyright law should not stand in the way of individuals utilizing these technological innovations as recognised in The Hague Declaration on Knowledge Discovery in the Digital Age [2015]".

[455] See presentations to Parliament by NCLIS (2017:8), at http://libguides.wits.ac.za/ld.php?content_id=33940984 and WikiMedia South Africa (2017), at http://libguides.wits.ac.za/ld.php?content_id=33934131

The Bill, finally, fails to address the issue of novelty in respect of collections of date to bring it in line with TRIPs and international developments.

CONCLUSION

Reforming the scholarly publishing system requires a variety of changes in a variety of sectors: national policy and legislation; institutional policy, support and changes to the systemic incentive culture; and research funding bodies. National legislation is important, but is not the only role-player in the search for solutions, and will still fall short of the challenges with publishers. The Copyright Amendment Bill might bring positive change to national knowledge development and innovation. It supports the education and library sectors, allowing both fair use and a number of generous exceptions. This will assist the South African higher education library landscape to improve service delivery, access to information, dissemination of information, and general improvement of the educational sector that it serves. Although there are some issues that still need to be addressed, such as orphan works, and improved provisions for technological developments, the Bill seems to have received overwhelming support from the library and higher educational sectors both nationally and internationally. It is regarded as a great improvement on the current outdated and restrictive Copyright Act that has been in need of revision for at least four decades. By supporting openness through intellectual property reform, creators and users will reap the benefits, balancing the rights that in the current state are leaning towards the side of the creator and corporation – as the Bill intends. Yet, it might not bring much-needed change to the educational sector which is struggling to deliver necessary services in a rapidly changing electronic environment that faces challenges such as increased numbers of students, over-use of international resources, and a lack of adequate funding to obtain resources. However, the Bill will allow educators to improve their range of teaching resources. Moreover, archives and museums will benefit from greater visibility and accessibility of our history and heritage, which will hopefully stop them from being viewed as “white elephants”, and re-establish their position as electronic hubs that contribute to the large discussion of much-needed societal change. Research produced and presented to Parliament shows that an open approach will improve research and innovation, which will filter down to economic benefits and job creation – something that should assist South Africa with achieving its development goals and create a more equal society for all. Yet, it remains to be seen if the much contested fair use approach will be accepted, and if it will bring the necessary change that the scholarly publishing system is hoping for.

"Neither inaccessibility nor growing inequality are acceptable considering that universalism is one of the core values of scientific research."

European Commission report on open access papers

CHAPTER 4 | A CASE STUDY OF THE UPSPACE INSTITUTIONAL REPOSITORY OF THE UNIVERSITY OF PRETORIA

Chapter 4 presents a case study of the legal and regulatory measures that library and specifically repository services staff, need to take cognisance of. The study relates to the University of Pretoria, a research-intensive university, together with its policies on intellectual property and open access. Furthermore, the University supports an internationally registered institutional repository service branded as UPSpace. Three important categories of legal and institutional regulation are identified whereby ownership of the different material types hosted on the UPSpace repository is explained: policies, contracts, and legislation. Adherence to these regulatory frameworks is further explained in an analysis of the institutional repository of the University with regard to archived materials and usage statistics. The UPSpace case study is discussed in the context of institutional policies, national policies, the Copyright Act No. 98 of 1978 and the Intellectual Property Rights from Publicly Financed Research and Development Act No. 51 of 2008, but reference is made to other South African laws due to the archival materials hosted on the platform. The chapter concludes with an overview of the legal infringements made in relation to the repository with explanations for the infringement and the rectification measures that were taken. The chapter aims to present the reader with real examples in relation to the complex challenges a library faces when establishing and maintaining a trusted and legally compliant open access institutional repository in support of public access to research related information and resources.

1. BACKGROUND: THE INSTITUTION

The University of Pretoria is one of a number of research-intensive universities in South Africa and aims to improve its international standing among the top universities in the world. As stated in the "Five-year implementation plan: 2017–2021" (draft document), research is a key priority for the long-term vision of the University:

> As a research-intensive university that embraces the public mission [and prioritises] to pursue research that is driven by the need to create and exchange knowledge for the benefit of society, especially in South Africa and Africa. [...] UP intends to build world-class research capacity that will produce knowledge that is of critical importance to the future of the country, the African continent and the world at large.[456]

The University supports a number of open access initiatives to improve the dissemination of research outputs, public access and increased visibility.[457] However, while open access is

[456] University of Pretoria (2016:1), in "Draft version of Five Year Implementation Plan (2017–2021)".
[457] See section 2.1.1 on institutional policies.

supported, an attempt is also made to manage the commercialisation of institutionally produced research and to protect the intellectual property rights of the institution. Furthermore, the Department of Library Services supports public access to special collection material for research purposes and public access.

2. UNDERSTANDING DIFFERENT REGULATORY SYSTEMS

The institutional repository generally serves as a library-based service within a research environment. The rapidly changing technological environment demands lifelong learning and continuous skills development, depending on libraries to deliver diverse services to researchers, students and the general public.[458] Therefore, it is important for staff in the academic library sector to obtain and broaden their technical knowledge and knowledge of intellectual property rights, specifically pertaining to the digital environment. These skills should include, among others, an understanding and application of contract law, relevant national and international legislation, the role and purpose of regulatory bodies, as well as institutional and funder copyright policies.

To perform these functions, repository staff should be aware of the variety of regulatory frameworks that govern the management of the services provided by the repository. A regulatory compliance framework drafted for the UPSpace repository distinguishes between three overarching categories: (i) institutional, publisher and funder policies; (ii) contract law; and (iii) national and international legislation. Table 4 presents a summary of the categories, the governing bodies (where applicable); and the relevant materials:

[458] See COAR (2016) "Librarians' Competencies for E-Research and Scholarly Communication", at https://www.coar-repositories.org/activities/support-and-training/task-force-competencies/ Schmidt et al. (2016) "Time to Adopt: Librarians' New Skills and Competency Profiles", in Loizides F & Schmidt B (eds.) *Positioning and Power in Academic Publishing: Players, Agents and Agendas*, Fairfax: IOS Press Inc.

Table 4 Regulatory systems			
	Examples	**Governing bodies and institutional custodians**	**Relevant materials**
Institutional policies	Intellectual Property Policy	Institutional Technology Transfer Office (TTO)	Institutionally produced materials such as curricula, research outputs, research data, and grey literature
	Open Access policy	Institution (governed by the library services)	Institutionally produced materials such as scholarly articles, theses and dissertations
	Research Data Management Policy	Institution (governed by the library services)	Institutionally produced research data
	Regulations for licensing agreements such as open patents	Institutional Technology Transfer Office (TTO)	Research and innovation
	Open educational resources (no policy)	Institution (governed by the IP Policy)	Institutionally produced curricula
Funder policies	National policies (such as the NRF Open Access Statement)	Funder	Published research articles and theses and dissertations with accompanying data sets
	International research funders	Funder	Published research articles and in some cases accompanying data sets
Publisher policies	Publishers	Publishers' open access policies	Commercially and non-commercially published scholarly books, chapters, journal articles and conference proceedings
Contract law	Publishers	Publisher (commercial or non-commercial)	
National legislation[459]	Intellectual Property Rights from Publicly Financed Research and Development Act 51 of 2008	NIPMO[460]	Research and innovation
	Patents Act No. 57 of 1978	Institutional Technology Transfer Office (TTO)	Grey literature (by definition unpublished)
	Copyright Act No. 98 of 1978	Publisher (commercial or non-commercial)	Commercially published materials
		Rights holders	Materials of historic and research importance in institutional archival and special collections such as manuscripts, documented oral history, art works, artefacts, photographs, maps and architectural drawings
	Protection, Promotion, Development and Management of Indigenous Knowledge Systems Bill [B6–2016]	NIKSO[461]	
	National Heritage Resources Act No. 25 of 1999	SAHRA[462]	

[459] Schonwetter et al. (2010:243–249) make reference to a number of other South African Acts in relation to access to knowledge, in "South Africa", Armstrong et al. (eds.) *Access to Knowledge in Africa: The Role of Copyright*, Cape Town: UCT Press, pp. 231–280.

[460] National Intellectual Property Management Office, at http://www.dst.gov.za/index.php/nipmo2/about-nipmo

[461] National Indigenous Knowledge Systems Office, 2016 version of the Bill at http://www.parliament.gov.za/live/commonrepository/Processed/20160415/615036_1.pdf

[462] South African Heritage Resources Agency, at http://www.sahra.org.za/

2.1 Policies

A variety of policies pertaining to the University, research funders and publishers regulate public accessibility within legal frameworks such as intellectual property rights and contract law.

2.1.1 Institutional policies

The University of Pretoria has in place a formal intellectual property policy and three policies relevant to the support of open access:

- **Intellectual Property Policy of the University of Pretoria (2009 [under review])**
  The Intellectual Property (IP) Policy of the University governs the ownership, registration and exploitation, confidentiality, trade secrets, and the division of income derived from commercialisation developed by staff.[463, 464] Staff are bound to section 21(1)(d) of the Copyright Act No. 98 of 1978 (section 21(6)) in that materials created "in the normal scope of their employment" vest in the university. With regard to staff and students, the University is guided by the IPR–PFRD Act (2008), managed by the National Intellectual Property Management Office (NIPMO), which requires "a recipient of public funds for research [to have] both the authority and the responsibility to protect and own the IP emanating from such research. Further, [NIPMO] has the responsibility to commercialise this IP wherever possible."[465]

- **Policy on University of Pretoria electronic theses and dissertations (2009):**
  The University of Pretoria supports free access to research literature for researchers worldwide and takes responsibility for the dissemination of its own research outputs. Because theses and dissertations are not published formally (grey literature), it is even more important that the University itself should provide access to them.

- **Policy to provide open access to research papers authored by University of Pretoria researchers (2009):**
  This policy provides directions for the archiving and dissemination of journal articles authored by UP researchers that have been or will be published in accredited journals recognised for government subsidy, as well as conference papers that will be published. This policy aims to ensure that all published UP research is available for use within the University. Any other student, researcher or member of the public with a non-commercial need for the information has free access to it. The Research Report of the University is complemented with the full text of research papers, and mechanisms exist for the long-term preservation of UP research publications.

- **Policy on Open Access Publishing Processing Charges (2015):**
  The purpose of this policy is to facilitate open access publishing of research articles by members of the University of Pretoria, thereby making the research of the University more accessible, and increasing the visibility and effect of the research, for the benefit of researchers and the University.

[463] According to the University of Pretoria IP Policy (2009c:2) staff members are regarded as "employees as well as contract workers, students and other parties associated with the University of Pretoria".
[464] UP IP Policy (2009c:2).
[465] UP IP Policy (2009c:2).

The Intellectual Property Policy of the University of Pretoria (IP Policy) allows researchers and research conducted under the auspice of the University to be published in academic journals[466] and book publications for subsidy purposes in accordance with policies on research outputs[467] by the Department of Higher Education and Training.[468]

The University regulates institutional submission of hard-copy and electronic versions of theses and dissertations to the library for archiving purposes. All full research theses and dissertations[469] are submitted to faculty administration offices for the purposes of preserving a hard copy and archiving an electronic copy to the institutional repository.[470] Students automatically assign all rights to the University as part of the registration agreement, unless there are binding agreements in place relating to bursaries or commissioned research.[471] The University is thus the rights holder of institutionally produced theses and dissertations, *provided* it is in possession of a signed contract[472] in which the student assigns copyright to the University.[473]

The IP Policy provides for free public access to theses and dissertations by way of UPSpace,[474] subject to the withholding of public access for a maximum period of three years to support research publication and patenting.[475] Should the research be commercialised, the IP Policy contains a "formula for the allocation of income derived from the licensing of intellectual

[466] UP IP Policy (2009c:10).
[467] Department of Higher Education Research Outputs Policy (2015).
[468] UP IP Policy (2009c:100).
[469] The UP ETD Policy (2009a) only extends to full master's and doctoral studies, excluding mini-dissertations, five-year research reports and research projects completed for honours degrees.
[470] UP ETD Policy (2009a).
[471] The UP IP Policy (2009c:13) makes specific provision for students in respect of assigning ownership (in part of the whole) to a student.
[472] According to Section 22(3) of the Copyright Act, "no assignment of copyright and no exclusive licence to do an act which is subject to copyright shall have effect unless it is in writing signed by or on behalf of the assignor, the licenser or, in the case of an exclusive sublicence, the exclusive sublicenser, as the case may be".
[473] The UP IP Policy (2009c:13) states that "Students assign to the University their copyrights in all works that may be created in the normal scope and course of their study obligations and activities. These include, *inter alia*, all presentations, assignments, test and examination answer sheets, dissertations, theses, sound recordings, video recordings, software, databases, designs and model developments by students in the course of their studies. The University may decide in certain cases to assign ownership of the whole or part of the copyright to the student, or may authorise him/her otherwise to utilise the work commercially or otherwise."
[474] UP ETD Policy (2009a).
[475] The repository manager plays a very important role in ensuring that embargoed materials are not made public. The UP IP Policy (2009c:4) states that "registerable inventions and IP creation have to satisfy various legal requirements, with novelty being of particular importance. The invention or IP creation should be kept confidential as publication or public use (any form of disclosure in the public domain) may compromise the possibilities of registering a patent, a model or a plant breeder's right. Public disclosure of research results must be held back until the University has decided together with the inventor about possible IP patent registration."

property" that prescribes how the income will be divided among relevant parties.[476] The Policy does not prevent the commercial publication of assignments/theses/dissertations[477] in a popularised version or by means of independent publishing.[478] However, the University does not allow publication by vanity publishers.

Furthermore, the IP Policy supports the development of open source software[479] and creative outputs or artistic works[480] to be produced without the University, claiming any royalties on revenue generated from these products. Most South African universities do not levy copyright fees for grey literature used by other academic institutions as the material is used for non-commercial educational purposes. Such material is already accessible free of charge through the repository, but users must acknowledge the author, the institution and the UPSpace platform.

A challenge arises, however, when a commercial publisher requests permission to make use of chapters, sections or graphics from theses and dissertations that are accessible online. Commercial use produces small amounts of money but requires extensive administration should revenue be collected by the institution to be transferred to the student in full. Commercial publishers are thus advised to contact the student/researcher directly to obtain permission to use the material and to negotiate remuneration. The Open Scholarship Manager facilitates the contact and advises the student where necessary.

2.1.2 Funder policies

Some funding agencies contractually bind researchers to publishing research outputs and accompanying data sets in a publicly accessible format; placing limitations on embargo periods for delayed open access; supporting the use of specified Creative Commons licences; and/or requiring archiving research outputs and accompanying data into a specific repository service. In order to ensure legal compliance, it is important that repository staff are aware of funding agency requirements; ensure that the funding agency is recognised as part of the metadata entered into the repository; and keep track of any changes (national and international) to funder requirements. Repository staff should regularly obtain information from the University's Department of Research and Innovation (DRIS) in relation to contractual agreements signed with national and international

[476] UP IP Policy (2009c:13–14).
[477] UP IP Policy (2009c:13) Section 2.2.2.
[478] UP IP Policy (2009c:14). See also Section 2.2.2. Publishers might request that online versions be removed from the repository before signing a contract with the author. Johnson A et al. (2017:1) indicated that "publishers' decisions are […] likely not being affected by the presence of the dissertation in an open access IR", in "Dissertation to Book? A Snapshot of Dissertations Published as Books in 2014 and 2015, Available in Open Access Institutional Repositories" *Journal of Librarianship and Scholarly Communication*, 5 (General Issue), eP2177: 1–20.
[479] UP IP Policy (2009c:12–13).
[480] UP IP Policy (2009c:13).

funders, and other institutions for which the commissioned research is being conducted. The SHERPA/Juliet[481] database is the most up-to-date platform keeping track of funder policies and requirements.

In February 2015, the South African National Research Foundation released a "Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research".[482] The Statement places a limit on publishers' embargo periods on research produced with NRF funding – much in line with international funding bodies such as the Wellcome Trust, the Gates Foundation, and the Ford Foundation – and requires all data collected, produced and used as part of the research project to be made available through institutional data repositories as open data. This was a worthy attempt to get South African researchers to function at the level of their international counterparts, but to date, only one South African University, the University of Cape Town,[483] has established a data repository for collecting and curating datasets. Research data management (RDM) is a relatively new (and expensive) development for the South African higher education landscape. Limited mention of it is made in the UP IP Policy, and the rather outdated Research Data Management Policy of 2007 was updated in 2017.[484] In cases where researchers are required to deposit data files accompanying research publications, data sets are archived on UPSpace on request until a research repository is available (institutionally or nationally).

2.1.3 Publishers' copyright policies and contract law

Owing to the transfer of rights, institutions have no right to take over published articles into their institutional repositories without a sharing licence. Publishers must grant permission to archive journal articles on publicly accessible platforms. This is done under strict conditions that include versioning (see Table 5) and embargo periods. The SHERPA/RoMEO database[485] is the tool most often used by researchers and repository staff to determine the rights assigned for repository archiving. SHERPA/RoMEO lists over 2 500 copyright policies in four different categories. Most of these policies contain "legal boundary conditions"[486] that apply to repositories and personal

[481] http://v2.sherpa.ac.uk/juliet/
[482] Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research (2015).
[483] According to Moorem K-L (2017), UCT is the first South African university to launch such a platform (fully open access) in support of initiatives to "make data findable, accessible, interoperable, and reusable". This will support citation, usage, validation, replication, and reductions in duplication. It is stated that the research is funded by government and should be regarded as a "public good", at https://www.news.uct.ac.za/article/-2017-11-07-introducing-zivahub-open-data-uct
[484] UP Research Data Management Policy (2017).
[485] SHERPA/RoMEO database of publishers' policies on copyright and self-archiving, at http://www.sherpa.ac.uk/romeo/index.php
[486] Björk B-C (2014:705–706), in "Open access subject repositories: An overview" *Journal of the Association for Information Science and Technology*, 65: 98–706.

websites. Subject repositories[487] and commercial platforms are often excluded from these archiving policies. The SHERPA/RoMEO archiving policies can be summarised as follows:

Table 5:
SHERPA/RoMEO rights categories[488]

RoMEO colour	Archiving policy	Publishers	%
green[489]	Can archive pre-print and post-print	1 050	41%
blue	Can archive post-print (i.e. final draft post-refereeing)	848	33%
yellow	Can archive pre-print (i.e. pre-refereeing)	172	7%
white	Archiving not formally supported	489	19%
	Total	2 559	

2.2 National legislation

National legislation plays an important role in determining the public accessibility of published and unpublished materials, institutionally produced grey literature, and orphan works.[490] Some examples of the Acts and Bills that relate to collection development on UPSpace include those in relation to copyright, publicly financed research, patents, traditional knowledge and national heritage.

2.2.1 Copyright Act 98 of 1978

Generally speaking, all material hosted on the repository is subject to copyright unless it resides within the public domain due to expired copyright.[491] However, subsistence of copyright depends on the fulfilment of the requirements in Section 3 of the Act in relation to copyright by virtue of nationality, domicile or residence; and Section 4 of the Act in relation to copyright by reference to country of origin.

Section 2 identifies nine types of works that are eligible for copyright: literary works, musical works, artistic works, cinematograph films, sound recordings, broadcasts, programme-carrying signals, published editions and computer programs. The relevant works – with the exception of broadcasts and programme-carrying signals – are defined in the Act as follows:

[487] Burns et al. (2013) argue that institutional repositories and subject repositories are competing for the same content, at http://www.dlib.org/dlib/january13/burns/01burns.html
[488] Obtained from SHERPA/RoMEO online tool on 28 July 2018, at http://www.sherpa.ac.uk/romeoinfo.html
[489] Suber P (2015) refers to this category as "pale green", at https://legacy.earlham.edu/~peters/fos/overview.htm
[490] Defined by Lifshitz-Goldberg Y (2010:3) as "works that are protected by copyright, but the author cannot be identified or found", in "Orphan Works": WIPO Seminar, at http://www.wipo.int/edocs/mdocs/sme/en/wipo_smes_ge_10/wipo_smes_ge_10_ref_theme11_02.pdf
[491] See Section 3 of the Act in relation to duration of copyright.

Table 6: Legal definitions of works protected by the Copyright Act	
Term	**Legal definition in the Copyright Act**
literary works	"literary work" includes, irrespective of literary quality and in whatever mode or form expressed— (a) novels, stories and poetical works; (b) dramatic works, stage directions, cinematograph film scenarios and broadcasting scripts; (c) textbooks, treatises, histories, biographies, essays and articles; (c) encyclopaedias and dictionaries; (e) letters, reports and memoranda; (f) lectures, speeches and sermons; and (g) tables and compilations, including tables and compilations of data stored or embodied in a computer or a medium used in conjunction with a computer, but shall not include a computer program
musical works	"musical work" means a work consisting of music, exclusive of any words or action intended to be sung, spoken or performed with the music
artistic works	"artistic work" means, irrespective of the artistic quality thereof— (a) paintings, sculptures, drawings, engravings and photographs; (b) works of architecture, being either buildings or models of buildings; or (c) works of craftmanship not falling within either paragraph (a) or (b)
cinematograph films	"cinematograph film" means any fixation or storage by any means whatsoever on film or any other material of data, signals or a sequence of images capable, when used in conjunction with any other mechanical, electronic or other device, of being seen as a moving picture and of reproduction, and includes the sounds embodied in a sound-track associated with the film, but shall not include a computer program
sound recordings	"sound recording" means any fixation or storage of sounds, or data or signals representing sounds, capable of being reproduced, but does not include a sound-track associated with a cinematograph film
published editions	"published edition" means the first print by whatever process of a particular typographical arrangement of a literary or musical work
computer programs	"computer program" means a set of instructions fixed or stored in any manner and which, when used directly or indirectly in a computer, directs its operation to bring about a result

These definitions determine the type of material with regard to the repository service.[492]

2.2.2 Publicly financed research and patents

The object of the Intellectual Property Rights from Publicly Financed Research and Development Act 51 of 2008 is

> [t]o provide for more effective utilisation of intellectual property emanating from publicly financed research and development; to establish the National Intellectual Property Management Office [NIPMO] and the Intellectual Property Fund; to provide for the

[492] See section 3.2 for a complete analysis of material types.

establishment of offices of technology transfer at institutions; and to provide for matters connected therewith.[493]

Research conducted in the institution that could be commercialised through patent development forms the basis of this Act. It is important that embargo periods for unpublished research outputs are adhered to. This is required as the Patents Act No. 57 of 1978[494] stipulates that a patent can only be registered if the invention has not been made public before filing a patent application.[495]

2.2.3 Indigenous knowledge and national heritage

Digitisation of historical documents archived in library special collections for the purpose of public accessibility by means of developing online archives or online archival collections requires compliance with the National Heritage Resources Act 25 of 1999[496] and will require compliance

[493] Intellectual Property Rights from Publicly Financed Research and Development Act 51 of 2008. "The object of this Act is to make provision that intellectual property emanating from publicly financed research and development is identified, protected, utilised and commercialised for the benefit of the people of the Republic, whether it be for a social, economic, military or any other benefit. (2) This Act furthermore seeks to ensure that (a) a recipient of funding from a funding agency assesses, records and reports on the benefit for society of publicly financed research and development; (b) a recipient protects intellectual property emanating from publicly financed research and development from appropriation and ensures that it is available to the people of the Republic; (c) a recipient identifies commercialisation opportunities for intellectual property emanating from publicly financed research and development; (d) human ingenuity and creativity are acknowledged and rewarded; (e) the people of the Republic, particularly small enterprises and BBBEE entities, have preferential access to opportunities arising from the production of knowledge from publicly financed research and development and the attendant intellectual property; (f) following the evaluation of a disclosure, researchers may publish their research findings for the public good; and (g)where necessary, the State may use the results of publicly financed research and development and the attendant intellectual property in the interest of the people of the Republic."
http://www2.saflii.org/za/legis/consol_act.DEL/iprfpfrada2008736/
The IP Wise™ manual (2013) can assist with unpacking the technical details of intellectual property in terms of the IPR Act, at http://www.innovus.co.za/media/documents/IP_Wise_Manual.pdf

[494] The Act aims "To provide for the registration and granting of patents for inventions and for matters connected therewith".
http://www.cipro.co.za/legislation%20forms/patents/Patent%20act.pdf

[495] The IP Wise™ manual (2013: 6) indicates that: "If a thesis is made available on a library shelf or on the web it is also public disclosure. Patent applications should be filed before the thesis is made publicly available and it may be necessary to request the examiners of the thesis to sign a confidentiality agreement and to keep the thesis confidential until potentially commercial aspects have been protected."

[496] National Heritage Resources Act, No. 25 of 1999.
"To introduce an integrated and interactive system for the management of the national heritage resources; to promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations; to lay down general principles for governing heritage resources management throughout the Republic; to introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa; to establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level; to set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance; to control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries; to enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; to provide for the protection and management of

with the Protection, Promotion, Development and Management of Indigenous Knowledge Systems Bill [B6–2016] (IKS Bill).[497]

International developments with regard to Traditional Cultural Expressions (TCEs) focus on the cultural and economic value thereof, and recognise the need to be regarded and protected as an asset.[498] The South African IKS Bill (2016) recognises "indigenous knowledge as prior art under intellectual property laws"[499] and protects knowledge developed within indigenous communities and associated with cultural and social identity passed on from generation to generation.[500] Indigenous Knowledge (IK)[501] is defined[502] in the IKS Bill as meaning

> knowledge which has been developed within an indigenous community[503] and has been assimilated into the cultural and social identity of that community, and includes – (a)

---

conservation-worthy places and areas by local authorities; and to provide for matters connected therewith."
http://www.dac.gov.za/sites/default/files/Legislations%20Files/a25-99.pdf

[497] Protection, Promotion, Development and Management of Indigenous Knowledge Systems Bill [B6–2016].
"The objects of this Act are to — (a) protect the indigenous knowledge of indigenous communities from unauthorised use and misappropriation; (b) promote public awareness and understanding of indigenous knowledge for the wider application and development thereof; (c) develop and enhance the potential of indigenous communities to protect their indigenous knowledge; (d) regulate the equitable distribution of benefits of the use of indigenous knowledge; (e) promote the commercial use of indigenous knowledge in the development of new products, services and processes; (f) provide for registration, cataloguing, documentation and recording of indigenous knowledge held by indigenous communities; (g) establish mechanisms for the accreditation of indigenous knowledge practitioners; and (h) recognise indigenous knowledge as prior art in the determination of, and eligibility for, protection of subject matter under intellectual property laws."
https://juta.co.za/media/filestore/2016/04/B06_2016.pdf

[498] See Du Plessis et al. (2011:466) on international bodies working towards inter-governmental protection of IK/TK intellectual property right protection, in *Adams & Adams Practitioner's Guide to Intellectual Property Law*, Durban: LexisNexis. See also the "United Nations Declaration on the Rights of Indigenous Peoples" (2008) with regard to intellectual property rights in Articles 13(1), which state: "Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions".
http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

[499] IKS Bill (2016) Clause 3(h) on "Objects of the Act".

[500] IKS Bill (2016) Clause 11 on "Eligibility for protection" and Clause 10 on "Term of protection" with regard to ineligibility and the public domain.

[501] See Du Plessis et al. (2011:5 & 464) for a discussion on the use of the terms "traditional knowledge" and "indigenous knowledge" as interchangeable terms.

[502] According to WIPO, although there is "not yet an accepted definition of TK [Traditional Knowledge] at the international level, it can be said that: TK in a general sense embraces the content of knowledge itself as well as traditional cultural expressions, including distinctive signs and symbols associated with TK. TK in the narrow sense refers to knowledge as such, in particular the knowledge resulting from intellectual activity in a traditional context, and includes know-how, practices, skills, and innovations", "Traditional Knowledge", at http://www.wipo.int/tk/en/tk/

[503] ''indigenous community'' is defined in the IKS Bill (2016) as "any recognisable community of people developing from, or historically settled in, a geographic area or areas located within the borders of the Republic characterised by social, cultural and economic conditions which distinguish them from other sections of the national community, and who identify themselves and are recognised by other groups as a distinct collective".

> knowledge of a functional nature; (b) knowledge of natural resources; and (c) indigenous cultural expressions;[504]

Indigenous cultural expressions as defined in the Bill thus include "expressions that have a cultural content" such as phonetic or verbal expressions; musical or sound expressions; expressions by action; and action tangible expressions.[505]

In the National Heritage Resources Act No. 25 of 1999, "living heritage" is defined in relation to inherited culture, including cultural tradition, oral history, performance, ritual, public memory, skills and techniques, indigenous knowledge systems, and holistic approaches.[506] The preamble of this Act states the national importance of heritage conservation as a source that "educates, deepens our understanding of society and encourages us to empathise with the experience of others. It facilitates healing and material and symbolic restitution, and it promotes new and previously neglected research into our rich oral traditions and customs."[507]

Arguably, "neglected" information should be accessible to the wider research community to facilitate conducting new research and "redressing past inequalities".[508, 509] Heritage material is often required in electronic format for researchers to fully utilise the vast array of technological resources for purposes such as studies using quantitative or computer-based approaches, data mining, data visualisation and supporting other digital humanities[510] initiatives. Although the role played by museums, libraries, archives and cultural institutions is regarded as "invaluable" with regard to preservation and access, it gives rise to intellectual property challenges, especially in the digital environment.[511]

---

[504] IKS Bill (2016) Chapter 1: Definitions.

[505] ''indigenous cultural expression'' is defined as: "expressions that have a cultural content that developed within indigenous communities and have assimilated into their cultural and social identity, including but not limited to — (a) phonetic or verbal expressions; (b) musical or sound expressions; (c) expressions by action; and (d) action tangible expressions" in the IKS Bill (2016) Chapter 1: Definitions. See Owen D & Dyer A (2014:342) on examples for each of the expression categories, in Dean & Dyer: *Introduction to intellectual property law*, Cape Town Oxford University Press.

[506] Heritage Resources Act (1999) Section 2(d)(xxi) on "Definitions".

[507] Heritage Resources Act (1999), "Preamble". See also Section 5(c) on "General principles for heritage resource management" in relation to reconciliation, respect, and South African identity.

[508] Heritage Resources Act (1999) "Preamble".

[509] Specifically in the South African context, with regard to calls for decolonisation of the higher education curriculum, see for example the Unsettling Paradigms programme at the University of Pretoria, focused on the Decolonial Turn in the Humanities Curriculum at Universities in South Africa, at https://www.up.ac.za/unsettlingparadigms

[510] See ALLEA e-Humanities Working Group Report (2015) "Going Digital: Creating Change in the Humanities", at https://www.allea.org/wp-content/uploads/2015/07/Going-Digital_digital-version.pdf and Schmidt et al. (2016:5–6).

[511] IP and Museums, Libraries and Archives, at http://www.wipo.int/tk/en/resources/museums.html See also Pantalony AE (2013) *Managing Intellectual Property for Museums*, Geneva: WIPO; and WIPO (2017) *Documenting Traditional Knowledge – A Toolkit*, Geneva: WIPO.

The WIPO *Traditional Knowledge Toolkit*, however, warns that careful consideration should be taken when traditional knowledge is to be made available to the public by uploading it to the Internet.[512] When embarking on mass digitisation projects of historical and heritage collections, the repository manager needs to adhere to the national legislation and ensure that a digital archive is legally compliant. This includes being aware of "unauthorised use, misappropriation and misuse",[513] using traditional knowledge in a manner that is not "disrespectful or derogatory",[514] and secondary copyright infringement by the user of the online materials.[515]

3. OPEN ACCESS INSTITUTIONAL REPOSITORY: UPSPACE

UPSpace[516] was established in 2006 as a publicly accessible platform to preserve the research reputation of the University. This was followed by the 2009 policies on mandatory depositing of electronic theses and dissertations (ETDs) as well as scholarly articles on UPSpace. The University of Pretoria is also a signatory of the Berlin Declaration (since 2011) and employs an Open Scholarship Manager[517] to support diverse open initiatives on behalf of the University. Former open scholarship ambassador at the Department of Library Services, Monica Hammes, indicated in a 2012 internal report that

> open access is good for everybody and particularly advantageous for researchers and research institutions. OA publications are more visible, retrievable, and usable – even by computers – for a bigger audience which convert to career building and reputation in the research community. For the university, a complete and permanent record of intellectual effort can be showcased on its repository which can also be useful for review and assessment.[518]

3.1 A challenging start

In line with international research, low self-archiving rates and lack of mandatory policies are two of the institutional weaknesses of the green route open access approach in the local context. When the UPSpace repository was established in 2006, some researchers at the University of Pretoria viewed the institutional open access strategy negatively. Some saw it as time consuming and a duplication of their own website uploads; while others voiced copyright and plagiarism

[512] WIPO (2017:13–14).
[513] National Heritage Resources Act (1999) Section 3 on "Objects of the Act".
[514] See Owen D & Dyer A (2014:345). See also National Heritage Resources Act (1999) Section 5(5) on "dignity and respect for cultural values".
[515] See Chapter 5 on contract agreements when utilising archival resources.
[516] http://repository.up.ac.za/
[517] Different institutions use different job descriptions for repository services. At the University of Pretoria the Open Scholarship Manager was responsible for the Open Scholarship Programme, Repository services and Digitisation services. The staff consisted of the following: Repository administrator, Collection developer and Data capturers (submitters).
See Finlay C & Sugimoto C (2015) for different descriptions, in "Scholarly Communication as a Core Competency: Prevalence, Activities, and Concepts of Scholarly Communication Librarianship as Shown Through Job Advertisements" *Journal of Librarianship and Scholarly Communication*, 3(1), p.eP1236. DOI: http://doi.org/10.7710/2162-3309.1236
[518] Hammes M (2012:1) "Open access by default: Implications for the University of Pretoria" [Internal institutional document].

fears if works were to be made available on the Web. They also wanted to keep good relations with editors and/or publishers (wanting to be in "good standing") and thus did not want to place pressure on publishers to obtain permission for post-prints to be archived. Furthermore, researchers did not want post-print versions to be publicly accessible, as they wanted the published version to be the only available version. In addition, they could not always supply a copy of the post-print version due to online journal workflow programmes, and some did not support the concept of open access in general.[519]

However, the scholarly landscape changed rapidly over the last few years due to research-related technological development in support of open science. Public dissemination is no longer the only important focus of the repository; an institutional repository now also requires the utilisation of products and tools, such as researcher identifiers, alternative article level metrics, and support for open data initiatives to enhance increased research transparency. The Confederation of Open Access Repositories (COAR) is driving the "next generation repository" initiative to ensure that the repository sector shifts its focus from human users to improving services for machine users.[520] According to its 2016/2017 mission, repositories must contribute to the global knowledge commons to ensure the development of value-added services to be built *on* their content.[521] This will assist with some of the challenges faced by repositories that were developed over 20 years ago for "passive recipients" of research outputs – a system that is in dire need of enablement in support of Web-centric interoperability.[522]

3.2 UPSpace material type analysis

UPSpace is described as a full-text, open-access institutional repository that serves as "an open access electronic archive collecting, preserving and distributing digital materials created, owned and hosted by the University of Pretoria".[523] As a research-intensive institution, it produces (on average) 2 500 accredited journal articles and issues 1 800 postgraduate degrees annually.[524] In accordance with the Directory of Open Access Repositories (OpenDOAR) material type categorisation, the complete UPSpace repository collection is calculated at 55 129 individual records uploaded into the system between 2006 and 2018. A summary of the material types can be presented as follows:

---

[519] Presentation by Moropa R & Olivier E (2010) (slide 27), at https://repository.up.ac.za/handle/2263/15061

[520] COAR (2017a) draft for public comment, at https://www.coar-repositories.org/files/COAR-Next-Generation-Repositories-February-7-2017.pdf

[521] See the report for COAR (2015b), at https://www.coar-repositories.org/files/COAR-State-of-Repositories-May-2015-final.pdf and the COAR (2017b) report on the future of repositories, at https://www.coar-repositories.org/files/NGR-Final-Formatted-Report-cc.pdf

[522] COAR (2017a:6).

[523] http://repository.up.ac.za/

[524] Information supplied by the University of Pretoria Division of Research Support (2017) in an e-mail on 25 August 2017 and the Department of Institutional Planning in an e-mail on 24 August 2017.

Table 7: Type of material hosted on UPSpace	Number of records
Journal articles (including pre-print and post-print articles)	24 806
Theses and dissertations (including mini dissertations)	15 065
Images (photographs & drawings)	7 380
Conference and working papers	3 763
Other (unidentified materials)	2 708
Other special item types (including archival materials)	516
Books, chapters and sections (including historical books)	449
Unpublished reports and working papers	276
Journal & periodical collections (items)	91
Multimedia and audio-visual materials	56
Data sets	11
Learning objects	8
Patents	–
Software	–
Bibliographic references	–
Total	**55 129**

In line with national and international archiving trends, the two largest collections hosted on UPSpace are journal articles (24 806 items) and theses and dissertations (15 065 items). The repository also preserves books and chapters from books, published or unpublished conference proceedings, a variety of archival materials and a limited number of data sets as required by publisher or funder copyright policies. The utilisation of learning objects in support of open educational resources (OER) (8 items) is rather low, but a number of collections (listed here as multimedia, audio-visual, and other special types of material) can be included in the category on learning objects. Different faculties and academic disciplines produce different kinds of material. Natural Sciences produce the highest number of research articles, while conference proceedings and research reports are important research outputs produced by the Engineering faculty. Open educational materials, produced by means of mass digitisation projects, form part of an important knowledge resource to the Veterinary Sciences and Health Sciences faculties as well as the Department of Architecture.[525] Despite the diversity of publicly accessible materials, the repository does not contain any software or patents.

3.3 UPSpace usage statistics

UPSpace was ranked among the top 100 repositories in the world by the Webometrics ranking (2017).[526] It is a well utilised repository that generated high usage statistics for the period July

[525] See section 4.4 for examples of educational resources hosted on UPSpace.
[526] http://repositories.webometrics.info/en/About_Us It was announced on 30 October 2017 that the repository ranking "has been cancelled definitively".

2011 to July 2018,[527] affirming the important role of the institutional repository disseminating its institutional research production. The usage statistics can be summarised as follows:

Table 8:
UPSpace download statistics (2011–2018)

Searches Performed	Item Views	Bitstream Views (downloads)	OAI Requests (harvesting)
51 016 086	42 861 331	80 516 139	109 563

The top ten UPSpace items collectively received 254 509 downloads, representing some of the pressing issues of South African society at large. This includes research publications on the role of the public protector,[528] public administration,[529] public policy,[530] service delivery,[531] and the importance of legislation.[532]

John Willinsky comments on the importance of public access in support of the democratic agenda and the benefits to the development and sustainability of a more just society: "Public access to research provides its own support for freedom of speech. Not only does it enable greater participation in scholarly communication, but it facilitates the informed deliberation on which democracies depend."[533] He deems public access to academic research a necessary and "substantial alternative source of public information"[534] allowing the development of a multi-voiced society that can oppose government as a single source of information where necessary.[535]

4. THE CASE SUDY OF UPSPACE

All related policies at the University clearly state that the University "honours legal commitments made by researchers and abides by publishers' copyright regulations and the archiving conditions of research funders. The University actively supports international initiatives to influence the current copyright practices of publishers and authors in order to expand the rights of its authors

[527] Statistics are available only from 5 July 2011 to 31 December 2016 because statistics were not exported with the necessary version upgrades of UPSpace.
[528] "The role of the public protector" (Thornhill C), at http://repository.up.ac.za/handle/2263/17720
[529] "Public administration theory: Justification for conceptualisation" (Thornhill C & Van Dijk HG), at http://repository.up.ac.za/handle/2263/14976
[530] "Public policy making and policy analysis in South Africa amidst transformation, change and globalisation: Views on participants and role-players in the policy analytic procedure" (Roux NL), at http://repository.up.ac.za/handle/2263/3881 and "Mapping the factors that influence policy implementation" (Brynard PA), at http://repository.up.ac.za/handle/2263/12231
[531] "Service delivery in the South African public service: Implementation of the Batho Pele principles by Statistics South Africa" (Crous M), at http://repository.up.ac.za/handle/2263/3916
[532] "Importance of legislation" (De Jager H), at http://repository.up.ac.za/handle/2263/14758
[533] Willinsky (2006:52). See also Cohen N (2012) in *You can't read this book: Censorship in an age of freedom*, London: Fourth Estate.
[534] Willinsky (2006:133).
[535] See also Greenwald G (2014:6) *No place to hide: Edward Snowden the NSA and the US surveillance state*, London: Hamish Hamilton.

and researchers."[536] UPSpace is managed in accordance with strict institutional regulations as well as an internal institutional repository policy (UPSpace Policy). The UPSpace Policy was drafted to provide extensive guidance on matters pertaining to licensing, copyright and broader intellectual property right.[537]

4.1 Journal articles

Publishers require authors to assign their copyright[538] as part of the publication process. Authors may instead provide a licence to publish (LTP), which ensures that they do not sign over *all* their copyrights to the publisher.[539] Researchers at the University argued that a mandatory approach on retaining some rights would jeopardise their chances of being published, and the preferred route had to be "toned [...] down and [it was] merely recommended that it be used".[540] This practice has seen no uptake at the University. However, the University supports open access by means of a Senate-approved policy, yet the policy on paper does not mean that the repository is filling up. Although the policy is mandatory, there is no form of institutional enforcement to ensure researchers adhere to the policy. Over the years UPSpace managed to secure a very high response rate on post-print requests to be archived on behalf of the researcher.[541] Owing to the low self-archiving rate, the UP Open Scholarship Office makes use of a journal alert system[542] to identify all the materials published by its authors,[543] determine the copyright status of an article, and process it as either open access by means of the gold route or open access by means of the green route. A data capturer uploads gold route articles to the institutional repository directly, applying the Creative Commons licence, but green route open access articles require contact with the individual authors.

Pre- and post-print versions of articles are formally requested from authors and archived on their behalf. When receiving the correct version of the article, graphic materials (normally submitted as

[536] University of Pretoria OA Policy (research papers) (2009b:1). See also University of Pretoria UPSpace Policy (2013:6).
[537] UPSpace Policy (2013) sections 2.1, 3.2, 4, 5.2, 5.3, 6.2, 9, 11.1 & 14.
[538] Olivier E (2008:418) "Open Scholarship eCopyright@UP. Rainbow options: Negotiating for the proverbial pot of gold" *Proceedings ELPUB (2008) Conference on Electronic Publishing* – Toronto Canada.
[539] The SPARC Author Addendum, at https://sparcopen.org/our-work/author-rights/
[540] "University of Pretoria Open Access Mandate" by Hammes M & Olivier, E (2009:2).
[541] In support of strict control over material that is uploaded to the repository, researchers are not allowed to submit materials directly to the repository. Researchers can submit materials to the Open Scholarship Office that will deposit on behalf of them.
[542] An added benefit for the open scholarship programme included the use of the UPSpace data to provide annual support for the research subsidy that the university receives from the DHET by means of comparing UPSpace information with the RIMS/InfoEd database to exchange information and contribute non-captured materials on the latter system. The Open Scholarship Office contributed millions of Rand's worth of undisclosed research in accordance with its mission to archive and preserve research outputs produced by the institution.
[543] Alerts on publications affiliated to the University of Pretoria are received from the Scopus, Web of Science, and Sabinet.

a separate document to the journal) are placed in the correct position in the document,[544] and the post-print version is formatted according to institutional formatting standards before being converted to PDF format and submitted to the system. These post-print articles have to adhere to the requirements and restrictions of the publisher (embargo periods of between six and 48 months), and are therefore embargoed with an automatic embargo function on the repository system that allows public access as soon as the embargo has expired.[545] Copyright policies change over time, and it is important that submitters revisit these policies regularly to ensure compliance. Due to the use of online publishing workflow systems, researchers cannot always supply the requested version for archiving purposes.[546]

The Confederation of Open Access Repositories' report on "Open access clauses in publishers' licenses" states that, "checking deposit rights on an article-by-article basis has become standard operating procedure for repository managers and authors when they are submitting articles into an open access repository".[547] This is a labour-intensive undertaking and both copyright clearance and archiving are conducted for each individual record. Bulk submissions and an automated workflow system is costly without the necessary in-house technical expertise, and copyright clearance on an article-by-article basis increase the workload significantly.

In the case of funded research, researchers need to adhere first to the funding agreement and secondly to the publisher's agreement. The researcher cannot sign an agreement with a publisher that does not adhere to the requirements of the funder as this will be in breach of contract. The repository manager also needs to ensure that the funder requirements are adhered to with regard to the necessary recognition in the metadata record.

4.2 Digitisation projects in relation to copyright law

Challenging examples of large-scale digitisation projects of archival materials for the purpose of public accessibility included the following:

[544] Article sharing guidelines by Elsevier warn that accepted manuscripts should not be "enhanced in any way to appear more like, or to substitute for, the published journal article", at https://www.elsevier.com/about/policies/sharing

[545] See also Suber P (2015) on the concept of "dark deposits", at https://legacy.earlham.edu/~peters/fos/overview.htm

[546] Researchers often do not have a copy of the final version of the submitted paper due to online workflow processes, or due to poor research management practices.

[547] COAR report (2013:5) "Open access clauses in publishers' licenses – Current state and lessons learned", at https://www.coar-repositories.org/files/OA-Clauses-in-Publishers-Licenses.pdf

- **Literary and resistance magazines**[548]

  The South African literary community played its part in critiquing the Apartheid regime, strict censorship of publications,[549] and lack of freedom expression. This gave rise to a number of informal publications containing creative expressions such as poems, short stories, artworks, photographs, as well as articles and commentary. The formal literary magazines were funded by commercial publishers at the time (such as Nasionale Pers and Taurus), whilst resistance magazines were published by literary movements (such as the Congress of South African Writers (COSAW)) or individuals that compiled the editions and printed them by hand on small printing presses. The resistance journal (or "little magazine" as it is known) was produced in extremely limited print runs. Where editors are still alive, they can be approached for letters of permission to digitise these journals and make them public. In many cases, these editors have passed away in recent years, and there is no legal way to obtain permission for public access digitisation.

- **Handwritten literary submissions to *Huisgenoot***

  This involves a private collection of handwritten literary texts submitted to *Huisgenoot* in its early years. Most of these texts are now published in anthologies with commercial publishers; thus, they cannot be digitised without the permission of the author if the work is not in the public domain.

- ***Huisgenoot***

  This popular Afrikaans magazine used to play an important role in documenting cultural historical issues of the day. As the magazine still exists today, the publisher did not agree to the digitisation of the collection for public access. A published edition is defined in the Copyright Act as "the first print by whatever process of a particular typographical arrangement of a literary or musical work"[550] that is protected for a period of 50 years.[551] Despite the publisher not granting permission to digitise the material, all volumes published before 1968 (in 2018) can legally be digitised for public access purposes.

---

[548] For an overview of South African literary and resistance journals see, Kleyn L (2016) in "Patriot, protesteerder of stofpoepertjie? – 'n Blik op Afrikaanse literêre tydskrifte, "little magazines", boektydskrifte, boekbylaes en akademiese tydskrifte", in Van Coller (ed.) *Perspektief en profiel. 'n Afrikaanse Literatuurgeskiedenis*, Pretoria: Van Schaik, pp. 296–376; and Gardiner M (2005) *South African Literary Magazines 1956–1978*. Catalogue. Johannesburg: Warren Siebrits Gallery.

[549] This is in relation to the Publications and Entertainments Act No. 26 of 1963 and the establishment of the Publications Control Board. See McDonald, P (2009) for a comprehensive discussion in *The Literature Police: Apartheid Censorship and its Cultural Consequence*. New York: Oxford University Press.

[550] Copyright Act No. 98 of 1978, see also Section 11A.

[551] Copyright Act No. 98 of 1978 Section 3(2)(c).

- **Architectural drawings**

  The University receives donations of works from authors or their heirs who fail to assign copyright in the works to the University. The result is that although the University owns the works and archives them, it may not reproduce them through digitisation. One typical example is donations of collections of architectural drawings that are not yet in the public domain.

- **Art Collection**

  Since 1970 the University of Pretoria has managed the Bureau for South African Art documentation, gathering information on all South African Art. It contains over 100 000 documents, photographs and other art-related matter from museums, art associations, the Federated Union of Black Artist, libraries and collectors.[552] These records need to be reviewed individually to determine the legal eligibility before being made publicly available as the collection includes newspaper clippings, photographs, letters, documents and exhibition and sale catalogues.

4.3 Digitisation projects in relation to other South African Acts

With regard to collection development challenges not related to copyright, but other South African laws (explained in section 2.2.3), the following examples are presented:

- **Van Warmelo archaeological collection**[553]

  This is a collection of photographs and documents collected on African tribes. None of the materials were produced by Professor Van Warmelo, but were merely collected by him.[554] Furthermore, the materials were produced during his term as State Ethnologist in the erstwhile Department of Bantu Affairs. Materials are not all dated but are old enough to be

[552] Information supplied by Gerard De Kamper, Chief Curator, Ceramics and Collections Management at UP Arts.

[553] Nikki Haw from Special Collections at the Department of Library Services supplied the following description: "The Van Warmelo Collection, donated to the University, comprises 540 manuscripts concerning different South African indigenous groups and collected whilst he was in the employment of the Department of Bantu Affairs as the State Ethnologist. These include manuscripts on the Xhosa, Zulu, Swazi, Tsonga, South Sotho (Sesotho), Tswana, North-Sotho (Sepedi) and Venda (Tshivenda). Most of these manuscripts were written in the original African language. [...] Dr Van Warmelo collected this information over a period of 30 to 40 years and it forms part of his unpublished legacy, which will be invaluable to future generations of researchers. The collection also includes a number of photographs, albums, and cultural samples."

[554] See Section 1(xii) of the National Archives of South Africa Act 43 of 1996 in relation to "non-public record" donated by an individual; and Section 1((xiv) in relation to a "public record" received by a governmental body. The collection was distributed among the National Archives (original documentation), University of Johannesburg (photographs and cultural artefacts), and the University of Pretoria (photocopies of the original handwritten texts with original typed transcriptions and a series of photographs). It would be good practice to take into account the restrictions in Section 12 of the Act with regard to public access of both public and non-public donated records.

believed to be in the public domain. Although the material is categorised as traditional knowledge that could be protected by the IKS Bill,[555] the online archive is a non-commercial project for public access purposes. Photographs uploaded to the repository could be regarded as "disrespectful or derogatory"[556] if they are viewed outside the context of the collection as a whole. For example, there are unusually high usage statistics on downloads of photographs portraying women in traditional wear – a warning sign that the materials are viewed for questionable purposes.

- **Woodhouse Rock Art collection**[557]

  HC Woodhouse has made an immense contribution to the study of rock art in South Africa. In 2000 the collection was managed by the Centre for Indigenous Knowledge (SINDEK). When the Centre closed down the collection reverted to the Department of Anthropology and Archaeology, who in turn transferred it to the Department of Library Services in 2005. The library is in possession of a signed agreement by Woodhouse in support of the material being made publicly accessible on an online platform. However, the National Heritage Resources Act No. 25 of 1999 makes specific reference to rock art as an archaeological heritage resource, defining it as "being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years [...]".[558] The Act should thus be taken into consideration when publicly identifying heritage sites by way of farm name description and GPS coordinates.[559]

4.4 Resources for educational purposes

Development of open educational resources (unlike at the universities of Cape Town,[560] the Witwatersrand,[561] and the Western Cape[562]) is rather low at the University of Pretoria.[563, 564] The

[555] The manuscripts include detailed information on, among others, history, traditions, way of life, cultural practices, dress, laws, warfare and religion.
[556] See also the National Heritage Resources Act (1999) Section 5(5) on "dignity and respect for cultural values".
[557] The Woodhouse collection includes mounted 35mm slides, slide film, personal notes, conference papers, correspondence, photographs, transparencies, maps and some personal effects.
[558] Section 2(ii)(b) on "Definitions".
[559] See Sections 27(19) in relation to safeguarding, conditions of use and regulating admission; and Section 32(9): in relation to information which may identify the location. See section 4.5 for examples of infringement.
[560] http://www.cilt.uct.ac.za/cilt/moocs-uct See also the Cape Town Open Education Declaration, and Schonwetter et al. (2010:260–266) in relation to copyright and open educational resources at UCT.
[561] https://www.edx.org/school/witsx
[562] Wang J (2013:185) *Copyright: Rebalancing the public and private interests in the areas of education and research,* unpublished dissertation, University of Stellenbosch, at http://scholar.sun.ac.za/handle/10019.1/85834
[563] Late in 2017 the Centre for Human Rights at the University of Pretoria introduced a MOOC in collaboration with UNESCO on Freedom of Expression in Africa, at http://www.chr.up.ac.za/index.php/centre-news-a-events-2017/1954-call-for-enrollments-mooc-on-the-

faculty of Veterinary Sciences collaborates with the African Veterinary Information Portal (Afrivip.org) by contributing information that aims to support "life-long learning opportunities about uniquely African veterinary and allied science matters".[565] The AfriVIP portal/initiative is regarded as a research source that greatly reduces the cost of material that is usually expensive to produce. The materials raise the academic profile of the faculty (internationalisation) and improve the quality of teaching.[566] As indicated in the internal report on Open Educational Resources, "open licenced educational materials have tremendous potential to contribute to the quality, accessibility, and effectiveness of education".[567] Faculties of veterinary sciences on the African continent would derive particular benefit from the initiative, as the materials can be adapted in accordance with different contexts.[568] The Faculty of Health Sciences uses the repository to archive multimedia materials that could also be used for OER/MOOC development, yet although all of these materials are publicly accessible, they are copyright-protected instead of being licenced for re-use purposes. The repository also includes large numbers of digital copies of historical and archival collections from the special collection section of the library, as well as a large digital architecture archive from the Department of Architecture that is also utilised for educational purposes.[569]

The University does not have a policy that specifically regulates the use of UP-generated course materials in support of open educational resources, but the IP Policy of the University claims teaching and learning materials as the property of the University.[570] A possible reason for not supporting open educational resource development might be the commercialisation of short courses through the Enterprises division,[571] which presents over 500 short courses annually to thousands of alumni, government departments and professionals. However, Enterprises makes

---

international-and-african-legal-framework-on-freedom-of-expression-access-to-information-and-the-safety-of-journalists.html

564 See Levine S (2016) in relation to copyright issues with the development of MOOCs, at https://theconversation.com/how-online-courses-can-bring-the-world-into-africas-classrooms-63773

565 Department of Library Services, OER report (2016:4).

566 Department of Library Services, OER report (2016:4).

567 Department of Library Services, OER report (2016:4).

568 Department of Library Services, OER report (2016:5).

569 See section 4.2 and 4.3 on copyright challenges.

570 The UP IP Policy (2009c:10) states that: "All works created by staff of the University in the normal course and scope of their duties, including their tuition, research and community-interaction functions, shall, unless otherwise agreed, be deemed to be works originating within the scope of the staff members' employment obligations. These include works that are created in the performance of a staff member's normal duties, or in the execution of specific tuition, research or community-interaction projects assigned to the staff member. Such works shall include, inter alia, the following: all course material, including WebCT or similar web-based modules; class notes; transparencies; test and examination papers and scripts, and all other material for use in contact and distance education; and informal and non-formal tuition functions, e.g. community education; as well as software, databases, and video and multimedia material developed by the staff member whether for tuition purposes or not."

571 http://www.enterprises.up.ac.za/

use of open access articles on the UPSpace portal for the Continuous Professional Development (CPD) programmes.

4.5 Examples of infringement

All staff members submitting to UPSpace have some knowledge of copyright and the consequences of copyright infringement. In an attempt to ensure high levels of legal compliance, the repository is regulated by an internal repository policy, established work-flow processes and strict limitations with regard to archiving rights. This is not an infallible system, however. Infringement might take place due to staff changes, lack of expert knowledge, wrong interpretations of the law, poor copyright record-keeping practices, inconsistent work practices, non-adherence to policy regulations and human error. Issues pertaining to the content in relation to plagiarism[572] and secondary copyright infringement might also arise.

The following are six noteworthy infringements that UPSpace experienced during my term as Open Scholarship Manager (2013–2017):

- Blatant infringement by scanning chapters of published works. A letter of consent was provided by an author requesting that a number of book chapters be digitised and made publicly available. The researcher stated in the letter that he is the author and rights owner and therefore in a position to grant permission without having to consult with the publisher. This was a flawed argument as the author was not the copyright owner of the published edition.[573] The collection was permanently embargoed after the documents were discovered on the system.

- The automatic embargo protections function on UPSpace malfunctioned after a software upgrade, making publicly available large numbers of embargoed records for a short period of time, in breach of the publisher's copyright agreement. Documents in breach were identified by means of the metadata field displaying the embargo date. All relevant records were re-embargoed. A strict embargo-checking process was also put in place to ensure embargo compliance on different versions of DSpace.

- GPS co-ordinates and farm names for rock art heritage sites were made public in contravention of the National Heritage Resources Act 25 of 1999. The online collection as a whole was permanently embargoed and the collection was temporarily moved to the Rock Art Research Institute at the Origins Centre of the University of the Witwatersrand to be digitised and taken up into a national online collection.

[572] See Owen D & Dyer A (2014:44–45) on the difference between copyright infringement and plagiarism.
[573] With reference to Section 11A of the Copyright Act.

- Retrospective digitisation and online accessibility of a dissertation caused a former student to complain about the public accessibility of her thesis. She feared her research might lead to a land claim due to historic information that was documented at a time when the information would not have been deemed sensitive. The library did not obtain permission from the student to digitise for public access via the Web and the University was not in possession of a written licence agreement with regard to copyright. The library was in the wrong and the sensitive information in the chapter was embargoed. Permission was granted by the student for the rest of study to be re-archived.

- A complaint of character defamation was received in relation to a theological article. The article was published in an institutional open access scholarly journal also preserved on the repository. The journal did not have a formal retraction policy.[574] The article in question was retracted by the editor of the journal and the publisher was informed to draft an appropriate retraction notification to replace all versions of the article publically available.

In general, UPSpace can be regarded as moderately compliant with national legislation, agreements, internal institutional policy, and its contribution to public accessibility of institutional research. Senior staff members are experienced in the use of publishers' policy tools such as SHERPA/RoMEO, but none of the staff has formal legal training. The workflow system complies with a "double check" copyright approach (as illustrated in Figure A8). Due to the lack of a dedicated technical system developer for IT support, there is a risk of system hacking and embargoed material being scraped from the system.

CONCLUSION

Institutional repositories are often regarded as obligatory for academic libraries, but the support needed to maintain these systems requires expert technical and operational knowledge. Libraries battle with technical expertise such as that related to system upgrades, customisation, automisation of work processes, and general maintenance. On the operational side, they battle to obtain materials in the formats required, and depositing is a time-consuming exercise that requires specialised training and knowledge to support the growth of the repository. On the technical side, the term "open source" is often interpreted as *free*, when in fact the saving obtained from the use of open source software requires financial investment in training of staff and system maintenance. Regarding the operational side, the challenge lies in the notion of lifelong learning and self-training, as there are very limited formalised training opportunities. Yet,

[574] https://retractionwatch.com/

copyright training can be obtained as a formal qualification, should librarians be willing to attend and/or enrol for these educational opportunities.

South African statistics for establishment institutional repositories can be regarded as positive, but the population and maintenance of these systems seem to be the biggest challenge. This is a cumbersome position with regard to the COAR next generation repository findings, as South African libraries in general will struggle to keep up with international trends in this regard. This situation is not limited to the smaller, under-resourced libraries that lack human resources and capital. Although UPSpace has developed a very successful, highly ranked and well utilised repository, there are still a number of challenges. The analysis of the UPSpace institutional repository highlights these challenges, which are difficult to bridge without the necessary legal skills and knowledge.

Copyright reform is urgently needed (see Chapter 3). Changes regarding fair use, enforceable repository mandates and contractual agreements will have a great influence on the role that the library and the institutional repository play in future developments in access to a variety of inaccessible resources – those behind paywalls and those gathering dust on the shelves of archives, special collections and libraries.

“It is an obligation of a minimum commitment to the defence of public space. Simply because knowledge, in a democratic society, should be a common good.”

Pablo Gentilli

CHAPTER 5 | GUIDELINES IN RELATION TO LEGAL COMPLIANCE OF INSTITUTIONAL REPOSITORIES

Following on the case study of UPSpace presented in Chapter 4, this chapter serves as an overview of the regulatory challenges that librarians and repository service staff need to take notice of. Whereas Chapter 4 presented the categories of legal and institutional regulatory systems, Chapter 5 identifies and explains the diverse types of materials hosted on the repository in more detail. Attention is paid to the role and responsibility of the repository manager in terms of legal compliance as well as the importance of a repository policy to serve as a compliance guideline. The legal skills and knowledge requirements for information specialists in support of effective services to be delivered to researchers are listed and annotated with relevant examples. The chapter concludes with a list of legal and other useful resources.

1. OPEN ACCESS AS A PUBLIC CONTRIBUTION

General access to scholarly communication (knowledge production) is needed to ensure availability and the promotion of locally produced research to a wider academic and public audience. Wider dissemination attempts to boost the effect of local research and improve ways of addressing some of the dire needs of the developing world. The aim is to achieve improved research relevance[575] and societal impact;[576] increase research dissemination and visibility;[577] enhance research collaboration and ensure public participation in science.[578] The continent at large is in need of open science policy developments. The result of a more open and collaborative research environment should assist developing countries to make the change from being users of first-world produced knowledge to becoming knowledge producers in their own right.[579]

South Africa is lagging[580] in the international movement towards openness and accessibility of information. This is due to the lack of national support and cohesion in promoting open science,

[575] Van Zyl W (2016), at https://theconversation.com/how-the-funding-of-science-research-in-south-africa-can-be-overhauled-65272
[576] Butler-Adam J (2016), at https://theconversation.com/investing-in-science-can-help-put-food-on-africas-plates-64017
[577] See Czerniewicz L & Goodier S (2014:6–7) on open access through the hybrid model leading to a decrease in research visibility for Africa, in "Open access in South Africa: A case study and reflections" *South African Journal of Science* (SAJS), 110(9/10): 1–9.
[578] Gray E (2016a), at https://mg.co.za/article/2016-12-09-00-open-access-open-data-open-science
[579] Gadagkar R (2016:1). This view is echoed by UNESCO in its Science Report (2015:4) and COAR/UNESCO Statement (2016) that "the creation and transfer of scientific knowledge are critical to building and sustaining socio-economic welfare and integration in the global economy. In the long run, no region or nation can remain a simple 'user' of new knowledge but must also become a 'creator' of new knowledge."
[580] See Czerniewicz & Goodier (2014); and Trotter et al. (2014) on the South African state of open access and scholarly publication, in *Seeking impact and visibility: Scholarly communication in Southern Africa*, Cape Town: African Minds.

open access, open data, open knowledge, and open educational resources. Although South African higher education libraries might be moving slowly in the right direction, the country must overcome a long list of challenges before it can fully participate in these new developments. Slow but consistent growth towards the development of open access platforms has been evident over the last decade. Seven South African research institutions[581] adopted institutional open access policies, and 20 institutional repositories are hosted by higher education institutions and research councils.[582] About 20%[583] of repositories hosted on the African continent[584] are based at South African research-related institutions. The present challenge lies in furnishing and maintaining these repositories with knowledgeable repository staff, adequate institutional infrastructure and technical support, promoting willingness of institutions and researchers to partake in the public access initiative and overcoming legal restrictions.

2. ROLE AND RESPONSIBILITY OF REPOSITORY MANAGERS

Repository managers have a responsibility to honour copyright legislation and contractual agreements.[585] Managers need to develop, provide and adhere to policies related to intellectual property and funded research, and establish effective collaboration with internal institutional services such as institutional research and innovation offices.[586] It is suggested by UNESCO's repository training materials that a repository needs a copyright expert to "serve as knowledge expert for copyright issues, provide training and negotiate copyright clearance with copyright owners, and respond to queries from end-users".[587] A trusted institutional repository[588] requires governance by means of an institutionally approved policy[589] that manages licensing of unpublished materials, copyright adherence, privacy issues, publishers' policies, and contract

[581] See presentation by Matizirofa L & Ramalibana K (2015) (slide 3), at http://ir.nrf.ac.za/handle/10907/128
[582] SUNScholar-Libopedia, at http://wiki.lib.sun.ac.za/index.php?title=SUNScholar/Ranking
[583] OpenDOAR statistics reflect the position on 11 August 2018, at http://www.opendoar.org
[584] The African continent now hosts 158 repositories (4.4% of world repositories) and the South African contribution (33 registered) represents about 20% of African repositories. OpenDOAR statistics generated on 11 August 2018, at http://www.opendoar.org
[585] See Dawson PH & Yang SQ (2016:10) "Institutional repositories open access and copyright: What are the practices and implications?" *Science & Technology Libraries*, 35(4):1–16; and Bonilla-Calero A (2013:433) "Good practice in an institutional repository service: Case study of Strathprints" *Library Review*, 62(6/7):429–436.
[586] UNESCO (2015c:33 & 35) *Open access infrastructure* (OA curricula for Library Schools Booklet 2). UNESCO: Paris.
[587] UNESCO (2015c:35).
[588] A number of tools for determining trusted repositories, such as:
Trusted Repositories Audit & Certification (TRAC), at http://www.dcc.ac.uk/resources/repository-audit-and-assessment/trustworthy-repositories
Trustworthy Digital Archives DIN standard 31644, at https://data-archive.ac.uk/curate/trusted-digital-repositories/standards-of-trust?index=3
Audit and certification of trustworthy digital repositories (ISO 16363:2012), at https://www.iso.org/standard/56510.html
[589] UNESCO (2015c:44).

agreements. Furthermore, in a division of time management for repository staff, 50% is allocated to reviewers and copyright experts[590] (see Figure A9). Good copyright clearance practice (as shown in Figure A8) should be conducted by means of a double clearance process whereby the workflow process should begin with the copyright clearance process, followed by a review process before the approval stage.[591] It is also advised that repository managers should require either author confirmation of non-infringement or signed authorisation from the researcher, as well as publicly present copyright policy compliance, and include all necessary copyright information linked to the original work as part of the metadata record.

3. MATERIAL TYPE DISTINCTIONS FOR COPYRIGHT PURPOSES

The material that is archived and preserved in the repository should all relate to the host institution in some way or other. This can include materials produced by, published by, preserved by, or owned by the institution or members of the institution. Broadly, for copyright purposes, these can be categorised as[592]

- materials produced by the institution and published commercially (Category 1: Commercial);
- unpublished materials produced by the institution that are protected under the Intellectual Property Policy of a university (Category 2: Institutional);
- educational materials protected by the Intellectual Property Policy of a university – or policies in relation to Open Educational Resources (Category 3: Educational);
- published or unpublished research or institutional materials produced by departments in the institution that might be copyright protected (e.g. conference proceedings or hosted conferences), protected by the Intellectual Property Policy of a university (e.g. unpublished conference proceedings) or can be regarded as internal publications (e.g. newsletters or annual reports) (Category 4: Departmental);
- societal publications affiliated with the institution (Category 5: Societal); and
- materials owned but not produced by the institution, such as manuscripts, documents, art collections, legislative resources and government publications (Category 6: Archival).

Each category requires knowledge of relevant legal implications in relation to public access. Formats of materials currently archived and accessible to the public via the Web are tabled and described for each of the six identified sections and are listed in Tables 9–14. Were applicable the following is discussed: methods of obtaining copyright permission, interpretations of relevant

590 UNESCO (2015c:32).
591 UNESCO (2015c:36).
592 Not all institutions support hosting diverse categories of institutional materials. The universities of Stellenbosch and Cape Town, for example, host separate repositories for archival materials. The list of materials presented in this chapter is based on the UPSpace repository.

national legislation, contracts, rights protection at institutional level through policy and regulations, and the challenges each of the categories poses. Commercial publications (Section 3.1), grey literature (Section 3.2), and archival materials (Section 3.6) will be demonstrated to be the most challenging in terms of copyright legislation.

3.1 Commercial publications

Table 9	
1. Commercial content	Materials produced by members of the institution that are published commercially and for which the individual signs over copyright (in most cases) to the publisher.
1.1 Research articles	Research produced by institutional researchers that is published in scholarly journals.
1.2 Books	Books (authored or edited by institutional researchers) published by commercial academic publishers or university presses.
1.3 Chapters from books	Single chapters in books (authored by institutional researchers) published by commercial academic publishers or university presses.
1.4 Scholarly journals	Scholarly journals published by commercial publishers (could also include non-commercial or societal publications).
1.5 Published conference proceedings	Proceedings (produced by institutional researchers) published in commercial conference publications or scholarly journals (could also be published in non-commercial special edition societal publications).

Scholarly publishing practices in the commercial publishing system include journal and book publishing by commercial publishers, for-profit academic publishers (such as academic or university presses) and non-commercial publishers (such as scientific societies). From the perspective of the institutional repository, these materials are strictly governed by copyright law. In most cases, researchers are required to sign over all rights to a book, chapter, published proceedings, or research paper to the publisher in exchange for the publication of the material. In a few cases, publishers make provision for the use of licences (such as Creative Commons) thus granting a licence to publish the material in an open format for public access.

At the forefront of the Open Access movement is the archiving of research articles. It is estimated that over 60% of all research materials uploaded to repositories are journal articles.[593] An open access article (gold route open access with a Creative Commons licence) allows the final publisher's PDF document to be archived in a repository. Papers that are not published without a clear re-use licence require more meticulous care in the interpretation of the copyright holders' policy as to the version allowed for archiving and the embargo period that needs to be adhered to. Thus submissions to the repository should be checked individually against the SHERPA/RoMEO database, interpreted, and embargoed correctly on the repository. Where

[593] See UNESCO (2015e:25).

information on archiving policies is not available, attempts should be made by either the researcher or the repository manager to obtain a copy of the necessary policy or a letter of permission. According to the SHERPA/RoMEO publisher's database, 41% allow pre-print and post-print archiving, 33% allow post-print archiving, 7% allow pre-print archiving only, and 19% are categorised as "archiving not formally supported".[594] A second challenge is the embargo period that applies to the version that is allowed to be archived according to the publishers' policy. This could allow for immediate, delayed (embargo periods of between six and 48 months), transient or temporary access.[595]

The publisher policy analysis (between 2004 and 2015) conducted by Gadd & Covey shows that the growth of gold route open access is on par with increased restriction from publishers. They state that their data "strongly suggest that achieving RoMEO green [thus allowing for pre-print or post-print filing] status has become a target for publishers rather than a commitment to open access per se". The argument continues: "It is apparent that in many cases changes to publisher open access policies over time enabled the illusion of full support (sufficient to secure RoMEO code green), but in reality discourages self-archiving in a manner consistent with author preferences for discovery, reservation, re-use and increased impact." They conclude that the conditions for compliance could be regarded as "almost unmanageable" for researchers and repository managers.[596] Green route open access increased by 8% between 2004 and 2015, but the redefined RoMEO green category decreased by 35%.

Books and chapters allow fewer public access options. If it is not published under a licence, written permission should be requested from the publisher. The rate of agreement is very low but with open access book publishing on the rise, the situation might look different in the near future. In a recent study conducted by SpringerNature, the development of a hybrid model for scholarly book publishing – with slower uptake than with journal articles – open access books and hybrid chapters are reported to receive more downloads, citations and mentions on social media and media platforms than non-open access books do.[597] In the qualitative part of the

[594] Data representing 2 559 publishers on 1 August 2018, at http://www.sherpa.ac.uk/romeo/statistics.php?la=en&fIDnum=|&mode=simple

[595] Archambault et al. (2014:2) "Proportion of open access papers published in peer-reviewed journals at the European and world levels—1996–2013". RTD-B6-PP-2011-2: Study to develop a set of indicators to measure open access [Commissioned by the European Commission by Science-Metrix], at http://science-metrix.com/sites/default/files/science-metrix/publications/d_1.8_sm_ec_dg-rtd_proportion_oa_1996-2013_v11p.pdf

[596] Gadd & Covey (2016:13–14) "What does 'green' open access mean? Tracking twelve years of changes to journal publisher self-archiving policies" *Journal of Librarianship and Information Science*, July: 1–17.

[597] SpringerNature (2017:4) "The OA effect: How does open access affect the usage of scholarly books?" White paper, at http://resource-cms.springer.com/springer-cms/rest/v1/content/15176744/data/v2/The+OA+effect%3A+How+does+open+access+affect+the+usage+of+scholarly+books%3F

study, it was apparent that authors wanted the maximum dissemination of their works, to make it available to those for whom it will not be affordable. Some even saw it as an ethical issue to make government-funded research available to the broader public.[598]

Published conference proceedings, especially when they are sold for commercial purposes, require permission before archiving. In some cases, the same rules that apply to journal articles and books also apply to published conference papers.

For all the above-mentioned scholarly publications, it is also important to ensure compliance with funder requirements in relation to version, embargo period, and research data. The SHERPA/Juliet database can be utilised to determine and comply with funder policies.

3.2 Unpublished research materials

Table 10	
2. Institutional content	Materials produced by students, part-time and full-time members of the institution that are not published but could be regarded as useful research materials (also known as grey literature).
2.1 Theses and dissertations	Electronic versions of full research theses and dissertations (as covered by the UP Policy) and mini dissertations produced by students from the institution when requested by the department, supervisor or student.
2.2 Data	Electronic versions of data sets that could accompany published research outputs such as journal articles. It could also be a dataset in general (published or unpolished).
2.3 Reports	Electronic versions of a variety of reports produced by members of the institution including research reports, technical reports, and non-corporate research outputs.
2.4 Conference papers and presentations	Electronic versions of proceedings (produced by institutional researchers) that are not published in commercial conference publications or special editions of scholarly journals.
2.5 Hosted conferences	Electronic versions of conference papers presented at a conference hosted by the institution (include materials from researchers not affiliated with the institution).
2.6 Other	Electronic versions of institutional executive speeches, expert lectures and inaugural addresses.

Archiving of unpublished materials (grey literature) for public access is regulated mostly by the Intellectual Policy of the institution and/or permission granted by the creator of the material.[599]

[598] SpringerNature (2017:13). The White paper indicated that some respondents "remained sceptical" with regard to the role open access plays in the increased visibility of their publications, attributed quality, reputation, topic and marketing as other possible factors also playing a positive role.

[599] See also Thistlethwaite P (2013:275) "Publish Perish? The academic author and open access publishing" in Chris C & Gerstner D A (eds) *Media authorship*, New York: Routledge, pp.273–284; and Suber P (2012:104–106) *Open access*, Cambridge: MIT Press.

Research conducted on online theses and dissertations at the Virginia Tech University (VTU) (for the period 1997–2007) showed a 701% increase in readership and a 145 000% increase in electronic visits as compared to the paper versions on the library shelves.[600] Institutions, however, need to ensure that a policy is in place that clearly states the conditions for archiving theses and dissertations in electronic format for the purposes of public access.

Two exceptions are noted, however: research that might be developed into a patent (as governed by the IPR–PFRD Act (2008)), and hosted conferences that include the materials from individuals not affiliated to the institution. In the case of a conference presented by a specific institution, the copyright might reside with the host institution. The repository of the host institution will archive all conference papers on the repository – even if the authors are from diverse institutions. Repository Managers from other institutions will have the right to archive the conference paper produced by their institutionally affiliated researchers on their repositories only if written permission is granted by the host institution. If permission is not granted, the affiliated institution can create a metadata record on their repository system and link to the handle of the hosting repository.

Data[601] is becoming an important research output in its own right, not only as complimentary to the published paper,[602] and it is proposed that publishers allow data sets to be licenced and packaged for data mining purposes (if data is available in a re-usable format).[603] Open research data will ensure re-use of data and reproducibility of research results,[604] reduce duplication of data collection, and prevent publishers from withholding supporting data, selling supporting data, or obtaining copyright of datasets accompanying published research papers. However, with regard to the reluctance among researchers to share their data, the lack of an incentive system for data publication (as with research publications), user friendliness of data repositories, and the outdated current publishing system,[605] it is hard to say how fast open data will grow and where best to host it.

---

[600] Thistlethwaite (2013:3).

[601] See Allison D et al. (2016) on "substantial or invalidating errors", at https://www.nature.com/news/reproducibility-a-tragedy-of-errors-1.19264; Baker M (2015) on smart software for the use of identifying statistic errors, at http://www.nature.com/news/smart-software-spots-statistical-errors-in-psychology-papers-1.18657; Baker M (2016a) on the need for transparency due to faulty data interpretations (Stat-checking), at https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970; Phillips N (2017) on the seek-and-blastn tool, at https://www.nature.com/news/online-software-spots-genetic-errors-in-cancer-papers-1.23003; and Van Noorden (2014) on the withdrawal of gibberish papers (SCigen tool), at https://www.nature.com/news/publishers-withdraw-more-than-120-gibberish-papers-1.14763

[602] Ajai-Ajagbe P (2016:15), at https://www.acu.ac.uk/publication/download?publication=634

[603] See Bartling & Friesike (eds.) (2014:26) for more information on open data, in Bartling S & Friesike S (eds.) *Opening Science The evolving guide on how the internet is changing research collaboration and scholarly publishing*, Heidelberg: SpringerOpen.

[604] Baker M (2016a), at https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970

[605] See the presentation by Hodson S (2017) (slide 31) on barriers to sharing of data.

3.3 Educational materials in support of open educational resources (OERs)

Table 11	
3. Educational content	Materials that are made available for the purpose of teaching and learning, or produced (by students, for example) in the process of teaching and learning.
3.1 Open lectures	Recordings of lectures and course material
3.2 Slide collection	Visual materials
3.3 Multimedia	Electronic files that might include PowerPoint presentations, video material, films, etc.
3.4 Student projects	Student projects including essays, structural designs, 3-D models, etc.

Although the institutional repository does not serve as an online open course platform,[606] nor intend to fulfil that purpose, materials intended for educational purposes can be archived. Repository managers should ensure that these materials are archived in accordance with all relevant institutional policies on teaching and learning materials, checked for secondary copyright infringement, and allocated a copyright or re-use licensing rights.

3.4 Non-research (departmental) materials

Table 12	
4. Departmental content	Materials produced by members of the institution for a specific event, or for events hosted and presented by departments in the institution (this might include materials produced by members from other institutions). This serves showcasing and preservation purposes.
4.1 Expert profiles	Expert collections house materials related to a specific individual and might include media columns (published), photo albums, radio and television interviews (commercial), research articles (published), speeches, etc.
4.2 Working papers	Electronic versions of unpublished materials made available by a member of the institution for public comment or engagement before formal publication.
4.3 Media	Digital copies of published or unpublished materials that appear in the general media, such as media columns, or that are regarded as institutionally produced communiqués (such as announcements and newsletters).
4.4 Other presentations	Electronic versions of presentations delivered by members of the institution as well as members from other institutions, at formal or informal events hosted by a department in the institution. This could include colloquiums and festschrifts, workshops, seminars, symposiums.
4.5 Departmental collections	Miscellaneous collections by specific non-academic departments in the institutions promoting presentations, events, reports, conferences, seminars, symposia, workshops, and informal publications.
4.6 Annual reports	Departmental annual reports for long-term digital preservation and public access purposes.

[606] Such as the open-source learning management system Moodle, at https://moodle.org/

Requests are often made for non-research materials to be archived for the purpose of showcasing and preservation, such as presentations, public lectures, invited talks, and institutionally hosted events. These requests are made by academic as well as non-academic departments. Archiving remains the prerogative of the repository manager, as these materials might be excluded from the scope of the (research) focus of the repository as indicated in the institutional repository policy. Researchers that require publications to be archived dating back to a time when they had no affiliation to the current institution, should clear such publications with both the repository manager of the institutions the researcher was affiliated at the time of publication, as well as adhering to the copyright requirements of the publisher.

Materials produced by individuals not affiliated with the institution require written permission from the author for speeches, PowerPoint presentations and video recordings of public addresses delivered at a university.[607] Materials already published in the media by commercial publishers in different formats (for instance radio and television interviews, media columns, and general articles in newspapers and popular magazines) are copyright protected and require a letter of permission from the publisher or the media house before they can be archived. It is the responsibility of the author to present the material together with a letter of permission from the publisher before archiving the material on the institutional repository.

Other unpublished material such as working papers, reports, presentations, communiqués, and newsletters should be governed by the Intellectual Property Policy of the university.

3.5 Societal journals

Table 13	
5. Societal content	Materials hosted and archived online on behalf of specific scientific societies with a relation to the institution.
5.1 Scholarly journals	Online archives of complete scholarly journals that might also include digitised versions of older print-copy only versions.

Societal journals can be published either by societies or by commercial publishers. In the case of societal ownership, permission for the archiving of content can be obtained by a letter of permission from the Editor-in-chief or societal body. Societal journals are often associated with an institution due to the academic position of the Editor-in-chief, or the unique academic or research programme presented at a specific institution. Institutional and journal repositories are often utilised for this purpose to increase Web visibility. Website hosted[608] journals do not have the

[607] The Copyright Act, Section 12(6)(a), makes provision for public addressers, but this does not mean that the institution has the right to reproduce the material (such as slides from PowerPoint presentations) without the permission of the presenter.
[608] Gadd & Covey (2016:13).

benefit of advance indexing by harvesters due to the lack of content crawling.[609] Copyright challenges arise when older paper copies are digitised for online archiving, journals do not have clear public access policies for content, or Editors-in-chief resign from journals or move between institutions. Often, it is not possible to ensure long-term digital preservation and dissemination of a journal in its entirety on a single institutional repository.

3.6 Archival materials

Table 14	
6. Archival content	Materials not produced by the institution but owned by the institution and are regarded as having research merit, public access value, or showcasing value.
6.1 Photographs	Digital copies of photographic materials that include historical photographs, as well as official institutional photographic projects.
6.2 Artefacts	Digital copies of documents or manuscript materials owned by the institution (but different to materials donated to the institution as listed in Section 6.5).
6.3 Architectural drawings	Digital copies of original architectural drawings.
6.4 Historical journals, magazines and newspapers	Digital copies of historical journals, magazines, or newspapers.
6.5 Private collections	Digital copies of personal documents, manuscripts, correspondence, photographs, and publications from collections donated to the institution.
6.6 Works of art	Digital copies of works of art owned by the institution, such as portraits, sculptures, ceramics, photographs, or paintings. This can also include digital collections of materials collected as institutional photographs (for example, special student projects).
6.7 Books	Digital copies of historical books in the public domain.
6.8 Maps	Digital copies of maps owned by the institution.
6.9 Legal documents	Digital copies of government-produced materials such as court cases and law statutes used for research purposes.
6.10 Government publications	Digital copies of publications produced by government departments, such as governmental journal or magazine publications deemed to have research value.

Sub-divisions of universities (such as libraries, archives and even academic departments) often own large collections of material donated to them before the digital era and the possibility of large-scale digitisation for public access existed. The research value of these collections often requires electronic access. Yet delivering these services in electronic format is not always possible due to copyright restrictions.[610] Elizabeth Griffin argues the loss of "heritage data" stored in formats not accessible due to a lack of format shifting is reason for concern, as these data are

[609] See UNESCO (2015d:7) on the importance of metadata for indexing purposes, in *Interoperability and retrieval* (OA curricula for Library Schools Booklet 4). UNESCO: Paris.
[610] See ALLEA report (2015:12, 17–18, 28 & 36–37).

lost to future generations.[611] According to Yaniv Benhamou, museums face some of the same challenges: copyright, image rights, data protection, traditional knowledge, and contract laws. Dissemination of works is prohibited and there is a burdening responsibility in relation to re-sharing of copyrighted works in the public domain. This could be through social media, limited rights of reproductions for catalogues or websites, the constructive use of orphan works, and challenges faced due to differences in IP rights between different jurisdictions.[612]

The repository manager should ensure that the necessary copyright permission is obtained before embarking on a mass digitisation project for public access purposes. Donations often include collections of materials that were *collected* and not *created* by the donor – such as newspaper clippings, magazines and photographs. Moreover, a large part of the material might not have the necessary provenance, such as donation agreements, identifiable donors or clear indications of ownership, documented restrictions on the collections, and/or relevant documented permission to make these collections publicly available in digital format.

The University of Johannesburg does not allow for online public access to archival records, unless the records are in the public domain or published by the university or a precursor institution, and of which the intention was to make it available publicly. They drafted an agreement whereby researchers undertake to recognise the institution as the provider of the information, to cite the Special Collections division together with the specific source, not to make the material available to a third party without written consent, and not to alter the material in any manner. Furthermore, the agreement requires compliance with the institutional policy on intellectual property and the Copyright Act of 1978.[613]

4. REGULATORY MEASURES

Institutional repositories are imbedded in the research activities of the institution. Therefore, it is important that the repository is supported and regulated by institutional policies. These policies should serve the institutional research vision and adhere to all institutional regulatory means. A repository policy should also be drafted to ensure, among other things, a clear institutionally aligned vision, responsible workflow practices, adequate record keeping, retraction procedures, legal compliance, and quality assurance. According to the DATAD-R Institutional Repository Review Instrument developed by the Association of African Universities (AAU) & Academy of Science of

[611] Griffin E (2017), at https://www.nature.com/news/rescue-old-data-before-it-s-too-late-1.21993 See also Nicholson DR (2017c:3) "Course packs provision in Section 13B(2)(a) of Copyright Amendment Bill fully supported by educational research and library sector", prepared for Parliamentary hearing.
[612] Benhamou Y (2016), at http://www.wipo.int/wipo_magazine/en/2016/03/article_0005.html
[613] Information supplied via e-mail by Riette Zaaiman, Manager: Archives & Special collections, UJ Library on 13 August 2018.

South Africa (ASSAf),[614] policy and strategy form a very important part of the development of a trusted repository. Institutional strategies and the policies that govern these decisions will assist with responsible institutional repository management.

The repository should be managed in accordance with the following minimum standards, policies and guidelines:

- Ensure open science initiatives are regulated by means of Senate approved institutional policies or mandates. Open access policy pertaining to the repository service needs to align with institutional processes and procedures, regulations, and related policies.
- Develop an institutional repository policy to determine the types of materials to be uploaded to the repository and the services to be delivered. Ensure clear guidelines for collection development and establish criteria for the digitisation of materials to be archived.
- Draft a code of conduct for the repository and establish means to measure adherence thereto.
- Design and establish adequate workflow processes for submitters, reviewers, discipline specialists and metadata editors. Regulate and control materials through workflow processes to ensure public access without copyright infringement, secondary copyright infringement or breach of contract.
- Indicate copyright, non-exclusive rights licences, and open licences on every record in relation to the use and re-use right as part of the descriptive provenance in the metadata.
- Embargo policies should stipulate the different forms of embargoes and the materials they will apply to, such as metadata, bitstreams or full record suppression.
- Determine the minimum number of metadata fields to be populated on the system, and ensure that metadata is compliant with publishers' copyright policy requirements. Where necessary, make provision for additional metadata schemas such as technical, administrative and preservation metadata.
- Govern ethical compliance in relation to archived data, data sets, and e-person privacy. Ensure that all datasets adhere to the required institutional standards of ethical research conduct.
- Ensure that grey materials are branded with an institutional watermark to ensure that harvested materials are identifiable when full text records are shared to other platforms.
- Formulated policies on re-use rights of materials pertaining to the harvesting of metadata, the conditions that allow for harvesting, and the way in which the harvesting should be done.

[614] See for example the African DATAD-R Institutional Repository Review Instrument, at http://bit.ly/datad-r

- Ensure adequate long-term record keeping of written permission and the conditions of making the materials publicly available.
- Ensure that the repository has as disclaimer notice to avoid liability with regard to the accuracy of content, bitstreams and assigned metadata.
- Ensure adequate documenting of withdrawn or retracted items from the repository and the reasons for the actions taken. Describe the reasons for the retraction in the metadata and allow for a digital "tombstone" to remain after retraction.
- Put measures in place to ensure long-term preservation through persistent identifiers such as Digital Object Identifiers (DOIs), and off-site preservation in dark archives such as LOCKSS and CLOCKSS nodes.

5. SKILLS AND KNOWLEDGE REQUIREMENTS

The librarian of the future will be required to deliver a variety of services for which legal knowledge will be important.

5.1 Legal services to be delivered

Service already delivered to the academic community include, but are not limited to the following:

- Ensure that the institutional open access policy is up to date and supports the most recent open science developments.
- Establish training programmes and services in open science, open data, open educational resources, and open access initiatives within the regulatory framework of the institution.
- Establish training programmes to assist researchers with legal compliance in relation to research dissemination, open data and licensing agreements for materials hosted on databases *not* affiliated to the institution.
- Advise researchers on the copyright infringement implications of materials to be uploaded to the institutional repository for public access.
- Assist researchers in using relevant tools such as SHERPA/RoMEO and SHERPA/Juliet to ensure legal compliance in relation to publisher and funder requirements.
- Advise researchers on the use of Creative Commons licences for research publications and grey literature.
- Assist researchers in optimal dissemination of research outputs while at the same time ensuring that all public access to research publication is done in a responsible and legally compliant manner.
- Advise researchers on author rights and retaining of rights by means of Copyright Transfer Agreements (CTA) and Licences to Publish (LTP).

- Partake in institutional open access advocacy in a responsible and legally compliant manner.
- Support responsible research data management practices.
- Develop and support open source services at institutional level to support responsible open access journal publication, conference systems and open book presses.

5.2 The need for legal knowledge

The continuous debate with regard to scholarly publishing reform and development of open science as the new norm, requires that the information specialist not only keep up to date with technological developments and changes, but also with the legal changes that are inherently part of this changing landscape. This will include the need for up-to-date knowledge of, among other things, the following:

- Applied knowledge of South African copyright law in terms of the broader context of intellectual property law.
- International intellectual property treaties, national intellectual property legislation,[615] and contract law.
- National and international legislative change in support of open access.[616]
- Open access policies – whether national,[617] institutional,[618] publisher[619] and/or funder[620] related.
- National and international cases in relation to copyright infringement,[621] piracy by means of shadow libraries,[622] mass digitisation, fair use and fair dealing.[623]

---

[615] South Africa is a signatory to a number of multilateral treaties and has a number of South African IP statutes that need to be considered. See complete list of laws (68 texts), implementing rules/regulations (11 texts), geographical indications (1 text), and treaty membership (48 texts), at http://www.wipo.int/wipolex/en/profile.jsp?code=ZA

[616] Legislation in Argentina, Mexico, and Peru requires federally funded research to be archived on an open access platform, in the COAR report (2015b:9) "Promoting Open Knowledge and Open Science: Report of the Current State of Repositories"; with Venezuela, Brazil, Germany, in Holcombe A & Brembs B (2017), at https://www.timeshighereducation.com/blog/open-access-germany-best-deal-no-deal; Poland, by Swan A (2012:41) in "Policy Guidelines for the Development and Promotion of Open Access" UNESCO: Paris; and South Africa (Copyright Amendment Bill [B13–2017] Section 12B(4)) in the process of considering legislative change.

[617] Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research (2015).

[618] Seven South African universities have open access policies, in presentation by Matizirofa & Ramalibana (2015, slide 3).

[619] SHERPA/RoMEO database, at http://www.sherpa.ac.uk/romeo/index.php

[620] SHERPA/Juliet database, at http://v2.sherpa.ac.uk/juliet/

[621] Moneyweb (Pty) Ltd. v. Media 24 Ltd. 2016 (4) SA 591 (GJ).

[622] Elsevier Inc. et al. v. Sci-Hub et al. No. 1:2015cv04282 - Document 53 (S.D.N.Y. 2015) requesting a motion for preliminary injunction and alternative service of process; Elsevier Inc. v. Sci-Hub, No. 1:15-cv-4282-RWS [Dkt. No. 87] (S.D.N.Y. June 21, 2017), and American Chemical Society, v. John Does 1-99, et al., No. 1:17-cv-00726-LMB-JFA.

[623] Fair dealing is discussed in Section 12 of the Copyright Act. See a list of legal cases related to fair use, at https://fairuse.stanford.edu/overview/fair-use/cases/

- Understanding of fair dealing and copyright exceptions[624] in current national copyright legislation.
- Other South African legislation that might relate to the digitisation of and public access to knowledge resources such as historical documentation.[625]
- Countercultures such as open licensing systems – Creative Commons, and Copyleft.[626]
- Follow national debate on copyright reform[627] and other legislative changes in relation to intellectual property,[628] indigenous knowledge[629] and national heritage.[630]
- Institutional expenditure on access to information – e-resources, article processing charges, inter-library loans, copyright fees and administration fees.
- Developments in the broader field of open science.[631]
- National and international initiatives to promote open science.[632]

[624] Sections 12–19B of the Copyright Act deal with exceptions, as well as the Copyright Regulations 1978 (as amended by GN 1375 in GG 9807 of June 28, 1985). See also *WIPO study on Limitations and Exceptions for Copyright and Related Rights for Teaching in Africa* (2009); the *WIPO Study on Limitations and Exceptions for Libraries and Archives* (2015); the "IFLA Proposal for a Treaty on Limitation and Exceptions for Libraries and archives" (2013); and "EIFL Draft Law on Copyright Including Model Exceptions and Limitations for Libraries and their Users" (2016) in relation to Sections 12, 16, 17C.

[625] See Chapter 4.

[626] UNESCO booklet (2015g) *Intellectual Property Rights* (OA curricula for Researchers, Booklet 3). *UNESCO: Paris*, at http://unesdoc.unesco.org/images/0023/002322/232208E.pdf and *Creative Commons Licensor Guide for South Africa*, at https://open.uct.ac.za/bitstream/handle/11427/9045/CC_Guidelines_092014TS.pdf?sequence=1

[627] Parliamentary Monitoring Group, at https://pmg.org.za/

[628] The Draft Intellectual Property Policy of the Republic of South Africa, Phase 1 (Department of Trade and Industry, 2017). According to the Department of Science and Technology Annual Performance Plan [report] (2017b:37), the IPR–PFRD Act is in the process of being updated, and the Department of Trade and Industry is aiming at changing to a "substantive search-and-examination system" in place of the current "depository system" for filing patents, in Urbach J (2017), at https://www.businesslive.co.za/bd/opinion/2017-08-24-lack-of-skills-will-hobble-patent-system/

[629] Protection, Promotion, Development and Management of Indigenous Knowledge Systems Bill [B6–2016].

[630] National Heritage Resources Act No. 25 of 1999. See also the Legal Deposit Act, 1997, Act No. 54, 1997, which plays an important role in the preservation of the cultural heritage in South Africa. The Act sets out to "provide for the preservation of the national documentary heritage through legal deposit of published documents; to ensure the preservation and cataloguing of, and access to, published documents emanating from, or adapted for, South Africa; to provide for access to government information; to provide for a Legal Deposit Committee; and to provide for matters connected therewith."

[631] See Bartling & Friesike (2014) *Opening Science – The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing* edited by online available at http://www.openingscience.org/get-the-book/ and FOSTER Open Science Training Courses, at https://www.fosteropenscience.eu/toolkit

[632] The Academy of Science of South Africa (ASSAf) presented the Department of Science and Technology with an Open Science proposal (2016), following a high-level stakeholders' meeting on open research (2016) hosted in partnership with UNESCO and the Data Intensive Research Initiative of South Africa (DIRISA) with both national and international representation.

6. HELPFUL RESOURCES

Due to lack of adequate formal training opportunities in the field of institutional repository management, the following might serve as helpful legal resources.

6.1 Online resources

The following open access online resources can assist information specialists with legal issues related to the South African context:

- **Adams & Adams Practical Guide to Intellectual Property in Africa**

  A comprehensive guide to Intellectual Property Laws and Procedures in Africa: http://www.pulp.up.ac.za/legal-compilations/adams-adams-practical-guide-to-intellectual-property-in-africa

- **Creative Commons South Africa**

  Creative Commons helps to legally share knowledge and creativity to build a more equitable, accessible, and innovative world — unlocking the full potential of the internet to drive a new era of development, growth and productivity: https://za.creativecommons.org/

  Creative Commons South Africa: Licensor Guidelines: https://open.uct.ac.za/handle/11427/9045

  Open Content – A Practical Guide to Using Creative Commons Licenses: https://meta.wikimedia.org/wiki/Open_Content_-_A_Practical_Guide_to_Using_Creative_Commons_Licenses

- **Laws of South Africa**

  The website contains: Updated or consolidated legislation. All amendments are included; "Current legislation" gives you access to the latest or "in force" version; Regulations to Acts (where the full text is not available, this may be requested): http://www.lawsofsouthafrica.up.ac.za/

- **Online legislation (South Africa)**

  South African IP laws and treaties: http://www.wipo.int/wipolex/en/profile.jsp?code=ZA

- **PULP Guide: Finding legal information in South Africa**

  A guide on South African law and law resources: http://www.pulp.up.ac.za/pulp-guides/pulp-guide-finding-legal-information-in-south-africa-fourth-edition

- **SPARC Author Addendum to Publication Agreement**: http://sparc.arl.org/resources/authors/addendum-2007

- **WIPO Lex**

  WIPO Lex is a global database that provides free of charge access to legal information on intellectual property (IP) such as treaties administered by WIPO, other IP-related treaties, and laws and regulations of the Members States of WIPO, the United Nations and the World Trade Organization: http://www.wipo.int/wipolex/en/profile.jsp?code=ZA

- **WIPO Publications**
  Digital versions of publications, studies and information products are available for download free-of-charge. Some of the publications can also be purchased in paper format through print-on-demand services: http://www.wipo.int/publications/en/

- **Wits Copyright Libguide**
  A useful guide on international, regional and South African copyright that include information on copyright, fair dealing, fair use, author rights, Creative Commons, open access, and other relevant resources: https://libguides.wits.ac.za/Copyright_and_Related_Issues

6.2 Tools

The following list of online tools can assist with tracking and monitoring open access, identifying trusted open access journals, and policy information:

- **DATAD-R Institutional Repository Review Instrument**
  The DATAD-R Review instrument consists of various criteria institutional repositories need to adhere to, in order to be harvested by DATAD-R. Interested African repositories are encouraged to request an independent peer-review by experts in the field of IRs: http://bit.ly/datad-r

- **Directory of Open Access Journals (DOAJ)**
  Online directory that indexes and provides access to high quality, open access, peer-reviewed journals: https://doaj.org/

- **OpenDOAR for Institutional Repositories**
  OpenDOAR is the quality-assured global directory of academic open access repositories. Tools and support enable both repository administrators and service providers to share best practices and improve the quality of the repository infrastructure:
  http://v2.sherpa.ac.uk/opendoar/information.html

- **re3data for Data Repositories**
  By offering detailed information on more than 2 000 research data repositories, re3data has become the most comprehensive source of reference for research data infrastructures globally: https://www.re3data.org/

- **ROAR for Institutional Repositories**
  The aim of ROAR is to promote the development of open access by providing timely information about the growth and status of repositories throughout the world. Open access to research maximises research access and thereby also research impact, making research more productive and effective: http://roar.eprints.org/

- **ROARMAP for Open Access Policies**
  A searchable international registry charting the growth of open access mandates and policies adopted by universities, research institutions and research funders that require or request their researchers to provide open access to their peer-reviewed research article output by depositing it in an open access repository: https://roarmap.eprints.org/

- **SHERPA/Juliet**
  SHERPA Juliet is a searchable database and single focal point of up-to-date information concerning funders' policies and their requirements on open access, publication and data archiving: http://v2.sherpa.ac.uk/juliet/

- **SHERPA/RoMEO**
  SHERPA RoMEO is an online resource that aggregates and analyses publisher open access policies from around the world and provides summaries of self-archiving permissions and conditions of rights given to authors on a journal-by-journal basis:
  http://www.sherpa.ac.uk/romeo/index.php

6.3 Courses

The listed courses and online course materials can serve as a basis for obtaining both legal and general knowledge in relation to open access and open science initiatives:

- **Creative Commons Certificate**
  The Certificate is an in-depth course about CC licences, open practices and the ethos of the Commons: https://certificates.creativecommons.org/

- **FOSTER Open Science Training Courses**
  Courses include: What is Open Science?; Best Practices; Managing and Sharing Research Data; Open Source Software and Workflows; Data Protection and Ethics; Licensing; Open Access Publishing; Sharing Preprints; Open Peer Review; and Open Science and Innovation: https://www.fosteropenscience.eu/toolkit

- **UNESCO's Open Access (OA) Curriculum for Researchers and Library Schools**
  A Curriculum for Library Schools includes booklets for librarians on the Introduction to Open Access, Open Access Infrastructure, Resource Optimization, and Interoperability and Retrieval. A Curriculum for Researchers include booklets on the introduction to Scholarly Communications, Concepts of Openness and Open Access; Intellectual Property Rights, Research Evaluation Metrics, and Sharing your Work in Open Access:
  http://www.unesco.org/new/en/communication-and-information/resources/news-and-in-focus-articles/all-news/news/unescos_open_access_oa_curriculum_is_now_online/

- **WIPO Academy**
  The Academy is the center of excellence for intellectual property (IP) education and training for WIPO member states, in particular developing countries, least-developed countries (LDCs) and countries in transition. The Academy works to help build human capacity in IP, which is essential to innovation: http://www.wipo.int/academy/en/

6.4 Listserves

The following listserves can help to keep information specialists up to date with important issues in relation to scholarly publishing, copyright, and openness in general:

- **Copyright & A2K Issues mailing list**
  A free online international information service covering various topics, including copyright, plagiarism and other IP matters, Open Access, open publishing, open learning resources, institutional repositories, scholarly communication, digitization and library matters, mobile technologies, issues affecting access to knowledge (A2K), particularly in developing countries; WTO and WIPO treaties and matters; Free Trade Agreements and TRIPS Plus; useful websites, conference alerts, etc. Subscribe at
  http://lists.wits.ac.za/mailman/listinfo/copyrightanda2kinfo

- **IRTalk**
  General Open Access, Open Scholarship, Open Journals, Open Conferences, Open institutional repositories, Open source, Open Science, Open Data, Digital Curation, Digital Preservation, Digitization and other related topics. Subscribe at irtalk@lists.lib.sun.ac.za

- **Open Data Science Mailing Lists**
  The African Open Science Platform initiative (AOSP) is a pan-African project for Africa by Africa. Join the Data Science Mailing Lists at
  https://groups.google.com/forum/#!forum/african-open-science-platform

6.5 Books

The following books can assist to better understand the South African legal landscape:

- Klopper H, Pistorius T, Rutherford B, Tong L, Van der Spuy P & Van der Merwe A (2011) *Law of intellectual property in South Africa*, Durban: LexisNexis.
- Owen D & Dyer A (2014) *Dean & Dyer: Introduction to intellectual property law*, Cape Town: Oxford University Press.

The following (open access) publications explain the drive for openness more broadly:

- Bartling S & Friesike S (eds) (2014) *Opening Science: The evolving guide on how the internet is changing research collaboration and scholarly publishing*, Heidelberg: SpringerOpen, at http://www.openingscience.org/get-the-book/
- Suber P (2012) *Open access*, Cambridge: MIT Press, at https://mitpress.mit.edu/sites/default/files/9780262517638_Open_Access_PDF_Version.pdf

CONCLUSION

The institutional repository serves the purpose of public access and long-term availability of institutionally produced or hosted materials. These materials can include, but are not limited to, research outputs, grey materials, educational resources, and archival records. Each and every record made available on the repository for purposes of public access should adhere to all national and international and institutional regulatory systems, such as policies, legislation and contract law. Creative Commons licences can assist with identifying the use and re-use right of the materials, whereas copyright restrictions apply to non-licenced materials. Repository managers are responsible for ensuring that the repository can be regarded as a trusted and well-regulated institutional platform. It is thus of the utmost importance to ensure that all relevant staff members working on the repository have the necessary legal knowledge. Regulatory measures with regard to internal policies, workflow processes, and general standards need to be put in place to ensure that the institutional policy will adhere to the requirements of a trusted repository. Furthermore, the repository manager needs to put in place measures and means to test and determine the levels of compliance. Although there are limited formal and informal training opportunities for institutional repository managers, there are a number of resources that can be utilised to assist with legal challenges. Although collection development and the growth of the repository are important institutional factors to ensure increased visibility and dissemination

of research, as well as showcasing other institutionally related materials and events, it remains the responsibility of the repository manager to ensure legal compliance while supporting public access in its broadest form.

"The idea of a universal library containing all the knowledge of the world has always been a powerful Utopian myth, running from Babel to Alexandria to the Google books project."

Lawrence Liang

CHAPTER 6 | CONCLUSION

Developing and sustaining an open access repository requires long-term commitment that includes infrastructure, human capital and a strong sense of belief.[633] These factors are often not in place. Librarians working for institutions in developing countries do not have the specialised knowledge and skills, nor the human capital to invest in these systems. UNESCO training materials advise that dedicated staff be assigned to fulfil the tasks of a full-time repository manager and a part-time systems engineer, metadata specialist, digitisation specialist, copyright specialist, as well as reviewers, collection administrators, and metadata editors. UNESCO also cautions that future developments should be taken into account: "As the IR expands in scope and functionality, management and support efficiencies will have to increase simultaneously. Provision should be made in the library annual budget for developing the IR and additional staff"[634] – a practice that is not always possible given the current financial constraints of higher education libraries in the developing world.

Despite the challenges that libraries face with regard to institutional repositories, the initiative needs to continue. In fact, it needs to scale up. Download statistics show that these platforms are increasingly used as a means to access scholarly information. With the development of open science (also as a national priority), the role of the librarian will change even faster, requiring skill development and participation in these developments. Now, more than ever, it is important for librarians working in the field of scholarly communication to obtain the necessary skills related to copyright and the broader field of intellectual property to support not only open access but also the looming challenge of open data and open science development. This requires understanding that is not limited to the current legal framework but extends to alternatives such as licensing options, following international copyright reform, and actively participating in current South African copyright reform. Too often, we take a self-established safe route to copyright due to the fear of infringement – this approach needs to change to well-informed legal decision making.

Librarians need to learn that openness and all its components are not hand-me-downs, but rather a system that requires active participation and contribution to the cause – a two-way street. Openness is more than a job – for some it is an approach to information; for others it is a system of belief.

[633] Burns CS et al. (2013), at at: http://www.dlib.org/dlib/january13/burns/01burns.html
[634] UNESCO (2015c:8) *Open access infrastructure* (OA curricula for Library Schools Booklet 2). UNESCO: Paris.

CHAPTER SUMMARY

The study attempted to show the extent of legal challenges that South African librarians encounter with regard to open access services such as institutional (research) repositories. It made use of a social-legal approach as a form of interdisciplinary research combining library and information science with intellectual property law. The focus is on the legal challenges institutional repository managers face in managing online, publicly accessible platforms in a legally compliant manner.

Chapter 1 served as a motivation for the proposed study through a research statement, a rationale for the study, research methodology, and validation for the interdisciplinary approach to the work presented. The chapter presented a contextualisation of the library landscape and the future challenges.

Chapter 2 explored the landscape of access to information in a proposed open society. It served as a theoretical basis in the field of open science by using the five schools of thought on open science. The chapter explained the Open Access movement as part of the broader open science approach and a possible solution to the "serial crisis", taking into account the different approaches to open access, such as the green and gold route approaches. It further presented institutional repositories as a legal alternative to public access to institutionally produced research.

Chapter 3 focused on the legal framework in which the study was conducted. It discussed the challenges of finding a balance between copyright legislation and public access to (commercially) produced research resources. The legal challenges that were explored in the study included not only intellectual property challenges but also counter-balance attempts, contractual agreements, non-disclosure agreements, open licences and copyright policies. Furthermore, the chapter discussed misconceptions about open access initiatives (such as ResearchGate and Academia.edu) and civil disobedience (as exercised by shadow libraries such as Sci-Hub). The chapter concludes with a discussion of the Copyright Bill [Draft 2] and explored the role a new Bill would play in supporting access to publically funded research.

Chapter 4 presented a case study of UPSpace (institutional repository of the University of Pretoria) in the context of the research and internationalisation goals of the institution. The chapter presented a variety of regulatory systems (policies and legislation) and examples of challenges that repository managers face when populating public access portals.

Chapter 5 deducted good legal practices for institutional repositories from Chapter 4, presenting a variety of materials and the legal challenges that they present. The chapter also focused on the regulatory measures, skills and knowledge requirements, and concluded with a list of helpful resources.

“Reading is the luxury of the poor,
the sick, prisoners, retirees, students.”
Gabriel Zaid

BIBLIOGRAPHY

1. BOOKS & CHAPTERS

Anderson, C (2010) *Free: How Today's Smartest Businesses Profit by Giving Something for Nothing*. London: Random House.

Armstrong C, De Beer J, Kawooya D, Prabhala A & Schonwetter T (2010) *Access to Knowledge in Africa: The Role of Copyright*. Cape Town: UCT Press.

Aufderheide, P & Jaszi, P (2011) *Reclaiming Fair Use: How to Put Balance Back in Copyright*. Chicago: The University of Chicago Press.

Banakar, R & Travers, M (2005) *Theory and Method in Socio-Legal Research.* Portland: Hart Publishing.

Barnes, P (2006) *Capitalism 3.0: A Guide to Reclaiming the Commons*. Oakland: Berrett–Koehler Publishers.

Barnett, R (ed.) (2011) *The Future University: Ideas and Possibilities*. New York: Routledge.

Bartlett, J (2014) *The Dark Net: Inside the Digital Underworld* London: William Heinemann.

Bartling, S & Friesike, S (eds.) (2014) *Opening Science: The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing*. Heidelberg: SpringerOpen. Available in open access format online at: http://www.openingscience.org/get-the-book/

Batke, P (2010) *Google Books: Google Book Search and Its Critics*. Self-publication.

Benkler, Y (2006) *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven: Yale University Press.

Bodó, B (2018) "The Genesis of Library Genesis", Karaganis J (ed.) *Shadow Libraries: Access to Knowledge in Global Higher Education*, Cambridge: MIT Press, 25–51.

Bollier, D (2008) *Viral Spiral: How the Commoners Built a Digital Republic of Their Own*. New York: New York Press.

Chris, C & Gerstner, DA (eds.) (2013) *Media Authorship*. New York: Routledge.

Cohen, N (2012) *You Can't Read This Book: Censorship in an Age of Freedom*. London: Fourth Estate.

Dean, O & Dyer, A (2014) *Dean & Dyer: Introduction to Intellectual Property Law*. Cape Town: Oxford University Press.

Dempsey, L & Malpas, C (2018) "Academic Library Futures in a Diversified University System", in Gleason (ed.) *Higher Education in the Era of the Fourth Industrial Revolution*, Singapore: Palgrave Macmillan, pp. 65–89.

Doctorow, C (2014) *Information Doesn't Want to Be Free: Laws for the Internet Age*, San Francisco: McSweeney's.

Du Plessis, E (ed.) (2011) *Adams & Adams Practitioner's Guide to Intellectual Property Law*, Durban: LexisNexis.

Du Plessis H, Sehume J & Martin L (eds.) (2013) *The Concept and Application of Transdisciplinarity in Intellectual Discourse and Research*. Johannesburg: Mistra.

Fecher, B & Friesike, S (2014) "Open Science: One Term, Five Schools of Thought", in Bartling & Friesike (eds.) *Opening Science: The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing*. Heidelberg: SpringerOpen. pp. 17–47.

Gardiner, M (2005) *South African Literary Magazines 1956–1978*. Catalogue. Johannesburg: Warren Siebrits Gallery.

Gleason, NW (ed.) (2018) *Higher Education in the Era of the Fourth Industrial Revolution*. Singapore: Palgrave Macmillan.

Greenwald, G (2014) *No Place to Hide: Edward Snowden, the NSA, and the U.S. Surveillance State*. London: Hamish Hamilton.

Harms, LTC (2013) *The Enforcement of Intellectual Property Rights: A Case Book.* New York: WIPO.

Haupt, A (2008) *Stealing Empire: P2P, intellectual property and hip-hop subversion*. Pretoria: HSRC Press. Available in open access format online at: http://www.hsrcpress.ac.za/product.php?productid=2219

Hyde, L (2006) *The Gift: How the Creative Spirit Transforms the World*. New York: Vintage Books.

Isin, E & Ruppert, ES (2015) *Being Digital Citizens*. London: Rowman & Littlefield.

Karaganis, J (2018) "Introduction: Access from Above, Access from Below" in Karaganis J (ed.) *Shadow Libraries:* Access to Knowledge in Global Higher Education, Cambridge: MIT Press, 1–24.

Karaganis, J (ed.) (2018) *Shadow Libraries: Access to Knowledge in Global Higher Education*, Cambridge: MIT Press.

BIBLIOGRAPHY

Karatani, K (2014) *The Structure of World History: From Modes of Production to Modes of Exchange*. Durham: Duke University Press.

Klein, N (2014) *This Changes Everything: Capitalism vs. the Climate*, UK: Penguin Random House.

Kleyn, L (2016) in "Patriot, protesteerder of stofpoepertjie? – 'n Blik op Afrikaanse literêre tydskrifte, "little magazines", boektydskrifte, boekbylaes en akademiese tydskrifte", in Van Coller (ed.) *Perspektief en Profiel. 'n Afrikaanse Literatuurgeskiedenis*. Pretoria: Van Schaik, pp. 296–376.

Klopper H, Pistorius T, Rutherford B, Tong L, Van der Spuy P & Van der Merwe A (2011) *Law of Intellectual Property in South Africa*. Durban: LexisNexis.

Leadbeater, C (2009) *We-Think: Mass Innovation, Not Mass Production*. London: Profile Books.

Lessig, L (2002) *The Future of Ideas: The Fate of the Commons in a Connected World*. New York: Vintage Books.

Lessig, L (2004) *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*. New York: The Penguin Press.

Liang, L (2010) "Piracy creativity and infrastructure: Rethinking access to culture", in Subramanian & Katz (eds.) *The Global Flow of Information: Legal Social and Cultural Perspectives*. New York & London: New York University Press, pp. 54–89.

Liang, L (2018) "India: The Knowledge Thief", in Karaganis (ed.) *Shadow Libraries: Access to Knowledge in Global Higher Education.* Cambridge: MIT Press, 181–222.

Loizides, F & Schmidt, B (eds.) (2016) *Positioning and Power in Academic Publishing: Players, Agents and Agendas*. Fairfax: IOS Press Inc.

Malcomb, J (2005) *The Silent Woman: Sylvia Plath & Ted Hughes*. London: Granta Books.

Mason, P (2016) *PostCapitalism: A Guide to Our Future*. London: Penguin Books.

McDonald, P (2009) *The Literature Police: Apartheid Censorship and its Cultural Consequence*. New York: Oxford University Press.

McSherry, C (2001) *Who Owns Academic Work? Battling for Control of Intellectual Property*. Cambridge: Harvard University Press.

Nickson, J (2017) *Our Common Good: If the State Provides Less, Who Will Provide More?*. London: Biteback Publishing.

Okediji, RL (2018) *Creative Markets and Copyright in the Fourth Industrial Era: Reconfiguring the Public Benefit for a Digital Trade Economy*. Geneva: International Centre for Trade and Sustainable Development (ICTSD).

Pantalony, AE (2013) *Managing Intellectual Property for Museums*, Geneva: WIPO.

Peters, J (2016) *The Idealist: Aaron Swartz and the Rise of Free Culture on the Internet*. New York: Scibner.

Pistorius, T (2011) "Copyright law" in Klopper, et al. (ed.) *Law of Intellectual Property in South Africa*. Durban: LexisNexis.

Raju, J (2017) *LIS Professional Competency Index for the Higher Education Sector in South Africa*. Cape Town: University of Cape Town Libraries. Available in open access format online at: http://openbooks.uct.ac.za/LISindex/index.php/LISindex/catalog/download/2/1/26-6?inline=1

Rifkin, J (2015) *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism*. New York: St. Martin's Griffin.

Rushkoff, D (2016) *Throwing Rocks at the Google Bus: How Growth Became the Enemy of Prosperity*. London: Penguin.

Salter, M & Mason, J (2007) *Writing Law Dissertations: An Introduction and Guide to the Conduct of Legal Research*. Harlow: Longman.

Scheufen, M (2015) *Copyright Versus Open Access: On the Organisation and International Political Economy of Access to Scientific Knowledge*. Cham: Springer.

Schmidt B, Calarco P, Kuchma I & Shearer K (2016) "Time to Adopt: Librarians' New Skills and Competency Profiles" in Loizides F & Schmidt B (eds.) *Positioning and Power in Academic Publishing: Players, Agents and Agendas*. Fairfax: IOS Press Inc.

Schmidt, E & Cohen, J (2013) *The New Digital Age: Reshaping the Future of People, Nations and Business*. London: John Murray.

Schonwetter, T (2010) "South Africa" in Armstrong C, et al. *Access to Knowledge in Africa: The Role of Copyright*. Cape Town UCT Press.

Schwab, K (2017) *The Fourth Industrial Revolution*. London: Penguin.

Smith, MD & Telang, R (2016) *Streaming, Sharing, Stealing: Big Data and the Future of Entertainment*. London: MIT Press.

Suber, P (2012) *Open Access*. Cambridge: MIT Press. Available in open access format online at: https://mitpress.mit.edu/sites/default/files/9780262517638_Open_Access_PDF_Version.pdf

Subramanian, E & Katz, R (eds.) (2011) *The Global Flow of Information: Legal Social and Cultural Perspectives*. New York & London: New York University Press.

Sunder, M (2012) *From Goods to a Good Life: Intellectual Property and Global Justice*. London: Yale University Press.

Surowiecki, J (2004) *The Wisdom of Crowds*. New York: Random House.

Thistlethwaite, P (2013) Publish. Perish? The academic author and open access publishing. In: Chris & Gerstner (eds.) *Media Authorship*. New York: Routledge: pp. 273–284.

Trotter H, Kell C, Willmers M, Gray E & King T (2014) *Seeking Impact and Visibility: Scholarly Communication in Southern Africa*. Cape Town: African Minds. Available in open access format online at: http://www.africanminds.co.za/wp-content/uploads/2014/05/9781920677510-content2.pdf

Van Coller, HP (ed.) (2016) *Perspektief en Profiel. 'n Afrikaanse Literatuurgeskiedenis*. Pretoria: Van Schaik.

Van Hoecke, M (ed.) (2011) *Methodologies of Legal Research: Which Kind of Method For What Kind of Discipline*, Portland: Hart Publishing.

Waelde C, Brown S, Kheria S & Cornwell J (2011) *Contemporary Intellectual Property: Law and Policy*. Oxford: Oxford University Press, pp. 29–83.

Waghid, Y (2011) "The Decline of the University in South Africa: Reconstituting the Place of Reason", in Barnett (ed.) *The Future University: Ideas and Possibilities*. New York: Routledge. pp. 71–83.

Wang, J (2018) *Conceptualizing Copyright Exceptions in China and South Africa: A Developing View from the Developing Countries*. Cham: Springer.

Watt, R (ed.) (2014) *Handbook of the Economics of Copyright*. Cheltenham: Edward Elgar.

Willinsky, J (2006) *The Access Principle: The Case for Open Access to Research and Scholarship*. Cambridge: The MIT Press.

WIPO (2008) *WIPO Intellectual Property Handbook: Policy, Law and Use*. Geneva: WIPO.

Witt, S (2015) *How Music Got Free: The Inventor, The Mogul and the Thief*. London: Vintage.

Žižek, S (2015) *Trouble in Paradise: From the End of History to the End of Capitalism*. London: Penguin Books.

2. SCHOLARLY ARTICLES

Alberani V, Pietrangeli PDC & Mazza AMR (1990) The use of grey literature in health sciences: a preliminary survey. *Bulletin of the Medical Library Association*, 78(4): 358–363.

Alperin, JP (2013) Ask not what altmetrics can do for you, but what altmetrics can do for developing countries. *Bulletin of the Association for Information Science and Technology*, 39(4) April/May: 18–21.

Bergstrom, TC (2014) Evaluating big deal journal bundles, *PNAS* 111 (26): 9425–9430.

Björk, BC (2017) Gold, green and black open access, *Learned Publishing*, 30: 173–175.

Björk, BC (2014) Open access subject repositories: An overview. *Journal of the Association for Information Science and Technology*, 65: 698–706.

Bodó, B (2016) On information smugglers, in "Pirates in the library – An inquiry into the guerrilla open access movement. *Social Science Research Network*. Online at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2816925

Bonilla-Calero, A (2013) Good practice in an institutional repository service: case study of Strathprints. *Library Review*, 62(6/7): 429–436.

Burns CS, Lana A & Budd JM (2013) Institutional Repositories: Exploration of Costs and Value. *D-Lib Magazine (The Magazine of Digital Library Research)*, 9(1/2). Online at: http://www.dlib.org/dlib/january13/burns/01burns.html

Carter H, Snyder CA & Imre A (2007) Library Faculty Publishing and Intellectual Property Issues: A Survey of Attitudes and Awareness. *Libraries and the Academy*, 7(1): 65–79.

Chadwell, F & Sutton, SC (2014) The future of open access and library publishing. *New Library World*, 115(5/6): 225–236.

Czerniewicz, L & Wiens, K (2013) The online visibility of South African knowledge: Searching for

poverty alleviation. *The African Journal of Information and Communication*, 13: 1–12.

Czerniewicz, L & Goodier, S (2014) Open access in South Africa: A case study and reflections. *South African Journal of Science (SAJS)*, 110(9/10): 1–9.

Dawson, PH & Yang, SQ (2016) Institutional Repositories, Open Access and Copyright: What Are the Practices and Implications? *Science & Technology Libraries*, 35(4): 1–16.

Ellers J, Crowther TW & Harvey JA (2017) Gold open access publishing in mega-journals: Developing countries pay the price of Western premium academic output. *Journal of Scholarly Publishing*, 49(1): 89–102.

Fecher, B & Wagner, GG (2016) Open access innovation and research infrastructure. *Publications*, 4(2): 5–6.

Finlay, C & Sugimoto, C (2015) Scholarly Communication as a Core Competency: Prevalence, Activities, and Concepts of Scholarly Communication Librarianship as Shown Through Job Advertisements. *Journal of Librarianship and Scholarly Communication*, 3(1): 1–27.

Gadagkar, R (2016) The "pay-to-publish" model should be abolished. *Notes and records of the Royal Society of London*, 70(4): 403-404.

Gadd, E & Covey, D (2016) What does 'green' open access mean? Tracking twelve years of changes to journal publisher self-archiving policies. *Journal of Librarianship and Information Science*, July: 1–17.

Ghosh, SB & Das, AK (2007) Open Access and Institutional Repositories — A Developing Country Perspective: A case study of India. *IFLA Journal*, 33(3): 229–250.

Gray, E (2010) Access to Africa's Knowledge: Publishing Development Research and Measuring Value. *The African Journal of Information and Communication*, 10: 4–19.

Johnson A, Goldberg T & Detmering R (2017) Dissertation to Book? A Snapshot of Dissertations Published as Books in 2014 and 2015, Available in Open Access Institutional Repositories. *Journal of Librarianship and Scholarly Communication*, 5 (General Issue): 1–20.

Larivière V, Haustein S & Mongeon P (2015a) The Oligopoly of Academic Publishers in the Digital Era. *PLoS ONE*, 10(6): 1–15.

Larivière V, Haustein S & Mongeon, P (2015b) Big publishers, bigger profits: How the scholarly community lost the control of its journals, *Media Tropes eJournal*, 5(2): 102–110.

Margoni T, Caso R, Ducato R, Guarda P & Moscon V (2016) "Open access, open science, open society" *Trento Law and Technology Research Group Research Paper Series 27*. Online at: https://iris.unitn.it/handle/11572/138385

Oßwald A, Schöpfel J & Jacquemin B (2016) Continuing Professional Education in Open Access – a French-German Survey. *LIBER Quarterly*, 26(2): 43–66.

Pinfield S, Bath J, Hubbard B, Millington P, Anders JHS & Hussain A (2014) Open-access repositories worldwide, 2005–2012: Past growth, current characteristics and future possibilities. *Journal of the Association for Information Science and Technology*, 65(12): 2404–2421.

Pistorius, T (2006) Developing countries and copyright in the information age – the functional equivalent implementation of the WCT. *Potchefstroom Electronic Law Journal (PELJ)*, 9(2): 149–175.

Raju, J (2014) Knowledge and skills for the digital era academic library. *The Journal of Academic Librarianship*, 40(2): 163–170.

Roux, TR (2015) The Incorporation Problem in Interdisciplinary Legal Research: Some Conceptual Issues and a Practical Illustration. *Erasmus Law Review*, 8(2): 55–64.

Schrama, W (2011) How to carry out interdisciplinary legal research: Some experiences with an interdisciplinary research method. *Utrecht Law Review*, 7(1): 147–162.

Siems, MM (2009) The Taxonomy of Interdisciplinary Legal Research: Finding the Way Out of the Desert. *Journal of Commonwealth Law and Legal Education*, 7: 5–17.

Smart, P (2014) The big picture: Scholarly publishing trends. *Science Editing*, 1(2): 52–57.

Sotudeh H, Ghasempour Z & Yaghtin M (2015) The citation advantage of author-pays model: The case of Springer and Elsevier OA journals. *Scientometrics*, 104(2): 581–608.

Spezi V, Wakeling S, Pinfield S, Creaser C, Fry J & Willett P (2017) Open-access mega-journals: The future of scholarly communication or academic dumping ground? A review. *Journal of Documentation*, 73(2): 263–283.

Verstak A, Acharya A, Suzuki H, Henderson S, Iakhiaev M, Chiung YLC & Shetty N (2014) On the

Shoulders of Giants: The Growing Impact of Older Articles. arXiv:1411.0275.

Wenzler, J (2017) Scholarly communication and the dilemma of collective action: Why academic journals cost too much". *College and Research Libraries*, 78(2): 183–200.

Wirtén, E (2010) Colonial Copyright, Postcolonial Publics: the Berne Convention and the 1967 Stockholm Diplomatic Conference Revisited. *SCRIPTed: A Journal of Law, Technology & Society*, 7(3), pp. 532–550.

3. PRINT MEDIA

Cookson, R (2015) Elsevier leads the business the internet could not kill. *Financial Times*, 15 November. Online at: https://www.ft.com/content/93138f3e-87d6-11e5-90de-f44762bf9896

Gray, E (2016) Open access, Open data, Open science. *Mail & Gaurdian*, 9 December. Online at: https://mg.co.za/article/2016-12-09-00-open-access-open-data-open-science

Gray, J & Lawson, S (2016) It's time to stand up to greedy academic publishers. *The Guardian*, 18 April. Online at: https://www.theguardian.com/higher-education-network/2016/apr/18/why-academic-journals-expensive

Joubert, M (2015) Recognise scientists who engage with the public. Advertising Supplement to the *Mail & Guardian*, 11 December: 11–17. Online at: http://mg.co.za/article/2015-12-11-00-recognise-scientists-who-engage-with-the-public viewed on 12 December 2015.

Kariuki, T (2015) Africa produces just 1.1% of global scientific knowledge – but change is coming. *The Guardian*, 26 October. Online at: http://www.theguardian.com/global-development-professionals-network/2015/oct/26/africa-produces-just-11-of-global-scientific-knowledge viewed on 3 December 2015.

Leetaru, K (2016) The Future Of Open Access: Why Has Academia Not Embraced The Internet Revolution? *Forbes*, 29 April. Online at: https://www.forbes.com/sites/kalevleetaru/2016/04/29/the-future-of-open-access-why-has-academia-not-embraced-the-internet-revolution/#7e5155dc45eb viewed on 23 November 2017.

Qhobela, M (2018) Scientific research is SA's future. *Mail & Guardian*, 27 July. Online at: https://mg.co.za/article/2018-07-27-00-scientific-research-is-sas-future

Solon, O (2013) Elsevier clamps down on academics posting their own papers online. *Wired*, 17 December. Online at: http://www.wired.co.uk/article/elsevier-versus-open-access viewed on 18 November 2017.

Stein, J (2015) Baby, You Can Drive My Car, and Do My Errands, and Rent My Stuff... *Time*, 29 January. Online at: http://time.com/magazine/us/3687285/february-9th-2015-vol-185-no-4-u-s/

Wild, S (2015) Door 'slammed on open access' to academic work. *Mail & Guardian*, 26 June. Online at: http://mg.co.za/article/2015-06-25-door-slammed-on-open-access-to-academic-work viewed on 12 December 2015.

Williams, G (2017) *Wired* science. *Wired* [editorial.], 17 December.

4. ELECTRONIC RESOURCES

Ajai-Ajagbe, P (2016) Open science: Who should be involved? *Realising Research*, May. Online at: https://www.acu.ac.uk/publication/download?publication=634 viewed on 15 October 2016.

Allison DB, Brown AW, George BJ & Kaiser KA (2016) Reproducibility: A tragedy of errors. *Nature* | Comment, 3 February. Online at: https://www.nature.com/news/reproducibility-a-tragedy-of-errors-1.19264 viewed on 4 December 2017.

Anderson, K (2016) 96 Things Publishers Do (2016 Edition). *The Scholarly Kitchen*, Society for Scholarly Publishing, 1 February. Online at https://scholarlykitchen.sspnet.org/2016/02/01/guest-post-kent-anderson-updated-96-things-publishers-do-2016-edition/ viewed on 28 March 2018.

Anderson, R (2015) Open Access and Academic Freedom. *Inside Higher Education*, 15 December. Online at: https://www.insidehighered.com/views/2015/12/15/mandatory-open-access-publishing-can-impair-academic-freedom-essay viewed on 5 December 2015.

BIBLIOGRAPHY

Andrus, S (2018) Is the Research Article Immune to Innovation? *The Scholarly Kitchen*, Society for Scholarly Publishing, 3 July. Online at: https://scholarlykitchen.sspnet.org/2018/07/03/guest-post-research-article-immune-innovation/ viewed on 5 December 2015.

Arenstein, J (2015) OpenGov Fellows 'Liberate' 100s Of Government Datasets [blog.] Online at: https://medium.com/code-for-africa/opengov-fellows-liberate-100s-of-government-datasets-ebcfffbdea82 viewed on 4 December 2017.

Bains, S (2013) Teaching 'old' librarians new tricks. *SCONUL Focus*, 58: 8–11. Online at: https://www.sconul.ac.uk/sites/default/files/documents/Bains.pdf viewed on 9 April 2017.

Baker, M (2015) Smart software spots statistical errors in psychology papers. *Nature* | News, 28 October. Online at: http://www.nature.com/news/smart-software-spots-statistical-errors-in-psychology-papers-1.18657 viewed on 4 December 2017.

Baker, M (2016a) Is there a reproducibility crisis in science? *Nature* 533: 452–454. Corrected version online at: https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970 viewed on 9 April 2017.

Baker, M (2016b) Stat-checking software stirs up psychology. *Nature* | Toolbox. Online at: http://www.nature.com/news/stat-checking-software-stirs-up-psychology-1.21049 viewed on 4 December 2017.

Benhamou, Y (2016) Copyright and Museums in the Digital Age. *WIPO Magazine*, June. Online at: http://www.wipo.int/wipo_magazine/en/2016/03/article_0005.html viewed on 30 December 2017.

Bosch, S & Henderson, K (2016) Fracking the Ecosystem | Periodicals Price Survey. Online at: http://lj.libraryjournal.com/2016/04/publishing/fracking-the-ecosystem-periodicals-price-survey-2016/# viewed on 4 December 2017.

Brembs, B (2016a) How gold open access may make things worse [blog.] Online at http://bjoern.brembs.net/2016/04/how-gold-open-access-may-make-things-worse/ viewed on 28 September 2018.

Brembs, B (2016b) Sci-Hub as necessary, effective civil disobedience [blog.] Online at http://bjoern.brembs.net/2016/02/sci-hub-as-necessary-effective-civil-disobedience/ viewed on 28 September 2018.

BusinessTech (2015) What you need to know about university fees in South Africa. 23 October. Online at: http://businesstech.co.za/news/general/102010/what-you-need-to-know-about-university-fees-in-south-africa/viewed on 10 January 2016.

Butler, D (2013a) Sham journals scam authors. *Nature*, 495: 421–422. Online at: http://www.nature.com/news/sham-journals-scam-authors-1.12681 viewed on 5 December 2015.

Butler-Adam, J (2015) Opening up access to research and information isn't a luxury – it's a necessity. *The Conversation*, 20 October. Online at: https://theconversation.com/opening-up-access-to-research-and-information-isnt-a-luxury-its-a-necessity-49302 viewed on 5 December 2015.

Butler-Adam, J (2016) Investing in science can help put food on Africa's plates. *The Conversation*, 21 August. Online at: https://theconversation.com/investing-in-science-can-help-put-food-on-africas-plates-64017 viewed on 28 September 2018.

Cerilli, D (2017) How Open Science and Copyleft Can Help Find Cures. IP OSGOODE, 29 March. Online at: http://www.iposgoode.ca/2017/03/how-open-science-and-copyleft-can-help-find-cures/ viewed on 9 April 2017.

Chapman, AR (1999) A Human Rights Perspective on Intellectual Property, Scientific Progress, and Access to the Benefits of Science. Online at: www.wipo.int/edocs/mdocs/tk/en/wipo_unhchr.../wipo_unhchr_ip_pnl_98_5.doc viewed on 3 January 2017.

Chawla, DS (2017a) Publishers take ResearchGate to court, alleging massive copyright infringement. *Science*, 6 October. Online at: http://www.sciencemag.org/news/2017/10/publishers-take-researchgate-court-alleging-massive-copyright-infringement viewed on 17 November 2017.

Chawla, DS (2017b) Mystery as controversial list of predatory publishers disappears. *Science*, 17 January. Online at: http://www.sciencemag.org/news/2017/01/

mystery-controversial-list-predatory-publishers-disappears viewed on 28 September 2018.

Confederation of Open Access Repositories (COAR) (2017a) Next Generation Repositories: Introduction, Rationale and User Stories. [Draft for public comment.] February 7. Online at: https://www.coar-repositories.org/files/COAR-Next-Generation-Repositories-February-7-2017.pdf viewed on 19 November 2017.

Creative Commons (2017) Support CC Open Education. Newsletter via e-mail, 5 December.

Crotty, D (2016) What Should We Make of Secret Open Access Deals? *The Scholarly Kitchen*, Society for Scholarly Publishing, 16 February. Online at: https://scholarlykitchen.sspnet.org/2016/02/16/what-should-we-make-of-secret-open-access-deals/ viewed on 28 September 2018.

Curley, M (2016) Twelve principles for open innovation 2.0. *Nature*, 17 May. Online at: http://www.nature.com/news/twelve-principles-for-open-innovation-2-0-1.19911 viewed on 22 November 2017.

Czerniewicz, L (2016) Is it piracy? How students access academic resources. *The Conversation*, 16 March. Online at: https://theconversation.com/is-it-piracy-how-students-access-academic-resources-55712 viewed on 13 November 2017.

De Knecht, S (2017) How Elsevier plans to sabotage Open Access. [Hackermoon blog], 25 March. Online at: https://hackernoon.com/how-elsevier-plans-to-sabotage-open-access-76fbd46593ae viewed on 28 September 2018.

Dryden, J (2017) Copyright exceptions: an archivist's perspective. *WIPO Magazine*, August. Online at: http://www.wipo.int/wipo_magazine/en/2017/04/article_0003.html viewed on 12 November 2017.

Else, H (2018) Europe's open-access drive escalates as university stand-offs spread. *Nature*, 17 May. Online at: https://www.nature.com/articles/d41586-018-05191-0 viewed on 28 September 2018.

Esposito, J (2018) Why Hasn't the Academy Taken Back Control of Publishing Already? *The Scholarly Kitchen*, Society for Scholarly Publishing, 16 July. Online at: https://scholarlykitchen.sspnet.org/2018/07/16/hasnt-academy-taken-back-control-publishing-already/ viewed on 28 September 2018.

Eve, MP (2012) Open Access needs terminology to distinguish between funding models: Platinum OA/Gold NON-APC. [blog.] 31 August. Online at: https://www.martineve.com/2012/08/31/open-access-needs-terminology-to-distinguish-between-funding-models-platinum-oagold-non-apc/ viewed on 28 September 2018.

Eve, MP (2016) Referring Elsevier/RELX to the Competition and Markets Authority. [blog.] 3 December. Online at: https://www.martineve.com/2016/12/03/referring-elsevierrelx-to-the-competition-and-markets-authority/ viewed on 28 September 2018.

Fitzpatrick, K (2015) Academia, Not Edu. Planned Obsolescence: falling indelibly into the past. [blog.] 26 October. Online at: http://www.plannedobsolescence.net/academia-not-edu/ viewed on 19 November 2017.

Fortney, K & Gonder, J (2015) A social networking site is not an open access repository. [feature.] Office of Scholarly Communication, University of California, 1 December. Online at: https://osc.universityofcalifornia.edu/2015/12/a-social-networking-site-is-not-an-open-access-repository/index.html viewed on 28 September 2018.

Fourie, W (2017) Six barriers that make it difficult for African states to use research for policy. *The Conversation*, 1 November. Online at: https://theconversation.com/six-barriers-that-make-it-difficult-for-african-states-to-use-research-for-policy-86492 viewed on 10 November.

Gadd, E (2017) Academics and Copyright Ownership: Ignorant, Confused or Misled? *The Scholarly Kitchen*, Society for Scholarly Publishing, 31 October. Online at: https://scholarlykitchen.sspnet.org/2017/10/31/guest-post-academics-copyright-ownership-ignorant-confused-misled/ viewed on 28 September 2018.

Griffin, E (2017) Rescue old data before it's too late. *Nature* | Column, 16 May. Online at: https://www.nature.com/news/rescue-old-data-before-it-s-too-late-1.21993 viewed on 20 December 2017.

Harington, R (2017) ResearchGate: Publishers Take Formal Steps to Force Copyright Compliance. *The Scholarly Kitchen*, Society for Scholarly Publishing, 6 October. Online at: https://scholarlykitchen.sspnet.org/2017/10/06/researchgate-publishers-take-formal-steps-force-copyright-compliance/ viewed on 18 November.

Harnad, S & Lewandowski, T (2016) Open Access Archivangelist: The Last Interview? Online at: https://otwartanauka.pl/in-english/experts-on-open-access?id=1090 viewed on 19 November 2017.

Harnad, S & McGovern, N (2009) Topic 4: Institutional repository success is dependent upon mandates. *Bulletin of the Association for Information Science and Technology*, 21 April. Online at: http://onlinelibrary.wiley.com/doi/10.1002/bult.2009.1720350410/full viewed on 28 September 2018.

Harnad, S (2016) Repositories vs. Quasitories, or Much Ado About Next To Nothing. Open Access Archivangelism. [blog.] 6 October. Online at: http://openaccess.eprints.org/index.php?/archives/1182-Repositories-vs.-Quasitories,-or-Much-Ado-About-Next-To-Nothing.html viewed 19 November 2017.

Hathcock, A (2016) Making the Local Global: The Colonialism of Scholarly Communication. [blog.] 27 September. Online at: https://aprilhathcock.wordpress.com/2016/09/27/making-the-local-global-the-colonialism-of-scholarly-communication/ viewed on 17 November 2017.

Haustein, S (2018) Never put off till tomorrow, what you can tweet today Or: How quickly research papers spread on Twitter [blog.] 5 July. Online at: https://www.altmetric.com/blog/never-put-off-till-tomorrow-what-you-can-tweet-today-or-how-quickly-research-papers-spread-on-twitter/ viewed on 28 September 2018.

Hawks, J (2015) *Homo naledi* fossil discovery a triumph for open access and education. *The Conversation*, 28 September. Online at: https://theconversation.com/homo-naledi-fossil-discovery-a-triumph-for-open-access-and-education-47726 viewed on 9 December 2015.

Hendrickson, C & Galston, WA (2017) Big technology firms challenge traditional assumptions about antitrust enforcement. Brookings: TechTank, December 6. Online at: https://www.brookings.edu/blog/techtank/2017/12/06/big-technology-firms-challenge-traditional-assumptions-about-antitrust-enforcement/ viewed on 13 December 2017.

Hicks, D (2016) OACA – the open access citation advantage. [blog.] 22 July. Online at: http://www.sciencemetrics.org/oaca-open-access-citation-advantage/ viewed on 28 September 2018.

Himmelstein DS, Romero AR, Levernier JG, Munro TA, McLaughlin SR, Greshake TB & Greene CS. (2017) Sci-Hub provides access to nearly all scholarly literature *PeerJ* | Preprints, at https://doi.org/10.7287/peerj.preprints.3100v2 viewed on 28 September 2018.

Hitchcock, S (2013) The effect of open access and downloads ('hits') on citation impact: A bibliography of studies. Online at: http://opcit.eprints.org/oacitation-biblio.html viewed on 28 September 2018.

Holcombe, A & Brembs, B (2017) Open access in Germany: the best DEAL is no deal. *Times Higher Education*, 27 December. Online at: https://www.timeshighereducation.com/blog/open-access-germany-best-deal-no-deal viewed on 28 September 2018.

Holcombe, AO (2013) Riled up by Elsevier's take-downs? Time to embrace open access. *The Conversation*, 12 December. Online at: https://theconversation.com/riled-up-by-elseviers-take-downs-time-to-embrace-open-access-21405 viewed on 15 December 2015.

Holmwood, J (2013) Markets versus Dialogue: The debate over open access ignores competing philosophies of openness. LSE Impact Blog, 21 October. Online at: http://blogs.lse.ac.uk/impactofsocialsciences/2013/10/21/markets-versus-dialogue/ viewed on 28 September 2018.

Hooper, R (2016) UK's Copyright Hub: A license to create. *WIPO Magazine*, April. Online at: http://www.wipo.int/wipo_magazine/en/2016/02/article_0007.html viewed 8 November 2017.

Kelly, É (2016) Wellcome Trust launches new open access platform. *Science | Business*, 20 July. Online at: https://sciencebusiness.net/news/79876/Wellcome-Trust-launches-new-open-access-platform viewed on 28 September 2018.

Kennerly, M (2016) The Jurisdiction Problem In Elsevier's Lawsuit Against Sci-Hub. Litigation and Trial blog, 14 February. Online at: https://www.litigationandtrial.com/2016/02/articles/attorney/elsevier-vs-sci-hub/ viewed on 28 September 2018.

Kravets, D (2016) Piracy site for academic journals playing game of domain-name Whac-A-Mole. ARS Technica, 5 May. Online at: https://arstechnica.com/tech-policy/2016/05/piracy-site-for-academic-journals-playing-game-of-domain-name-whac-a-mole/ viewed on 28 September 2018.

Langer, L & Stewart, R (2016) The science of using research: Why it starts with the policymaker. *The Conversation*, 19 May. Online at: https://theconversation.com/the-science-of-using-research-why-it-starts-with-the-policymaker-59265 viewed on 10 November 2017.

Lavizzari, CS & Viljoen, R (2015) Open Access Licensing. PRC Guides. Online at: http://publishingresearchconsortium.com/index.php/prc-guides-main-menu/166-open-access-licensing-0215 viewed on 28 September 2018.

Lawson, S & Meghreblian, B (2014) Freedom of Information requests uncover the lack of transparency in journal subscription costs. The Impact Blog. Online at: http://blogs.lse.ac.uk/impactofsocialsciences/2014/10/15/foi-requests-uncover-lack-of-transparency/ viewed on 5 December 2015.

Lawson, S (2016) Publicly available data on international journal subscription costs. [blog.] 9 July. Online at: http://stuartlawson.org/2016/06/publicly-available-data-on-international-journal-subscription-costs/ viewed on 28 September 2018.

Levine, S (2016) How online courses can bring the world into Africa's classrooms. *The Conversation*, 18 August. Online at: https://theconversation.com/how-online-courses-can-bring-the-world-into-africas-classrooms-63773 viewed on 12 November 2017.

Lifshitz-Goldberg, Y (2010) Orphan Works. WIPO Seminar, May 2010. Online at: http://www.wipo.int/edocs/mdocs/sme/en/wipo_smes_ge_10/wipo_smes_ge_10_ref_theme11_02.pdf viewed on 28 September 2018.

Masukume, G & Heilman, J (2016) Why getting medical information from Wikipedia isn't always a bad idea. *The Conversation,* 24 May. Online at: https://theconversation.com/why-getting-medical-information-from-wikipedia-isnt-always-a-bad-idea-59708 visited on 20 November 2017.

Matthews, D (2016) Wellcome criticises publishers over open access. *Times Higher Education*, 24 March. Online at https://www.timeshighereducation.com/news/wellcome-criticises-publishers-over-open-access viewed on 28 September 2018.

McKenzie, L (2017) Sci-Hub's cache of pirated papers is so big, subscription journals are doomed, data analyst suggests. *Science*, 27 July. Online at: http://www.sciencemag.org/news/2017/07/sci-hub-s-cache-pirated-papers-so-big-subscription-journals-are-doomed-data-analyst viewed on 28 September 2018.

Meadows, A (2017) What Does Transparent Peer Review Mean and Why is it Important? *The Scholarly Kitchen*, Society for Scholarly Publishing, 3 August. Online at: https://scholarlykitchen.sspnet.org/2017/08/03/transparent-peer-review-mean-important/ viewed on 28 September 2018.

Moody, G (2016) Open access: All human knowledge is there – so why can't everybody access it? *ArsTechnica*, 7 June. Online at: https://arstechnica.com/science/2016/06/what-is-open-access-free-sharing-of-all-human-knowledge/ viewed on 20 December 2017.

Moorem, K (2017) Introducing ZivaHub: Open Data UCT. *University of Cape Town News*, 7 November. Online at: https://www.news.uct.ac.za/article/-2017-11-07-introducing-zivahub-open-data-uct viewed on 10 November 2017.

Mower, A (2016) Sci-Hub: Home. University of Utah Research Guides. Online at: http://campusguides.lib.utah.edu/scihub viewed on 28 September 2018.

Nayyar, F (2017) What happens in an internet Minute in 2017? AFTechs, 4 August. Online at: https://aftechs.com/what-happens-in-an-internet-minute-in-2017/ viewed on 28 September 2018.

Nobes, A (2016) Open Access plays a vital role in developing-country research communication. Practising Development. [blog.] 10 March.

Online at: http://blog.inasp.info/open-access-plays-vital-role-developing-country-research-communication/ viewed on 20 December 2017.

Ojanperä, S & Graham, M (2017) Africa risks fading from digital knowledge economy. SciDevNet, 15 June. Online at: http://www.scidev.net/global/knowledge-economy/opinion/africa-digital-knowledge-economy.html viewed on 17 November 2017.

Pelcastre, IF & Correa, FG (2016) The current system of knowledge dissemination isn't working and Sci-Hub is merely a symptom of the problem. LSE Impact Blog, 26 September. Online at: http://blogs.lse.ac.uk/impactofsocialsciences/2016/09/26/the-current-system-of-knowledge-dissemination-isnt-working-and-sci-hub-is-merely-a-symptom-of-the-problem/ viewed on 28 September 2018.

Phillips, N (2017) Online software spots genetic errors in cancer papers. *Nature* | News, 20 November. Online at: https://www.nature.com/news/online-software-spots-genetic-errors-in-cancer-papers-1.23003 viewed on 4 December 2017.

Poynder, R (2016) Institutional Repositories: Response to comments. Open and Shut, 7 October. Online at: https://poynder.blogspot.co.za/2016/10/institutional-repositories-response-to.html viewed 19 November 2017.

Poynder, R (2017) The State of Open Access: Some New Data. Open and Shut, 3 August. Online at: https://poynder.blogspot.co.za/2017/08/the-state-of-open-access-some-new.html viewed on 28 September 2018.

Rapple, C (2016) Getting noticed in an open access world. Research Information, 15 March. Online at: https://www.researchinformation.info/news/analysis-opinion/getting-noticed-open-access-world viewed on 22 November 2017.

Schwab, K (2016) The Fourth Industrial Revolution: what it means, how to respond. World Economic Forum, 14 January. Online at: https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/ viewed on 22 November.

Shah, D (2017) 200 universities just launched 600 free online courses. Here's the full list. QUARTZ. Online at: https://qz.com/1169363/afropunk-johannesburg-puts-the-city-on-the-map-of-global-black-culture/

Smith, C (2018) Q&A about the cancellation of the agreement with Elsevier commencing 1 July. OpenAccess.se, 20 July. Online at: https://openaccess.blogg.kb.se/2018/06/20/qa-about-the-cancellation-of-the-agreement-with-elsevier-commencing-1-july/ viewed on 28 September 2018.

Solomon DJ, Laakso M & Björk BC (2016) Converting scholarly journals to open access: A review of approaches and experiences. Digital access to scholarship at Harvard. Online at: http://nrs.harvard.edu/urn-3:HUL.InstRepos:27803834

Stone, M (2015) Is a Giant Academic Publisher Trying to Paywall Wikipedia? GIZMODO, 17 September. [blog.] Online at: https://gizmodo.com/is-elsevier-trying-to-paywall-wikipedia-1731522201 viewed on 23 November 2017.

Suber, P (2015) Open Access Overview [website.] Online at: https://legacy.earlham.edu/~peters/fos/overview.htm viewed on 28 September 2018.

Taylor, M (2016) On moral dimensions of open. Sauropod Vertebra, SV-POW! posts. Online at: https://svpow.com/papers-by-sv-powsketeers/ansolabehere-et-al-2016-on-moral-dimensions-of-open/ viewed on 28 September 2018.

UNESCO (2015a) *Introduction to Open Access* (OA curricula for Library Schools, Booklet 1). Paris: UNESCO. Online at: http://unesdoc.unesco.org/images/0023/002319/231920E.pdf viewed on 5 December 2015.

UNESCO (2015b) *Resource Optimization* (OA curricula for Library Schools, Booklet 3). Paris: UNESCO. Online at: http://unesdoc.unesco.org/images/0023/002322/232201E.pdf viewed on 5 December 2015.

UNESCO (2015c) *Open Access Infrastructure*. (OA curricula for Library Schools, Booklet 2). UNESCO: Paris. Online at: http://unesdoc.unesco.org/images/0023/002322/232204E.pdf viewed on 5 December 2015.

UNESCO (2015d) *Interoperability and Retrieval*. (OA curricula for Library Schools, Booklet 4). UNESCO: Paris. Online at:

http://unesdoc.unesco.org/images/0023/002321/232199E.pdf

UNESCO (2015e) *Scholarly communications* (OA curricula for Researchers, Booklet 1). UNESCO: Paris. Online at: http://unesdoc.unesco.org/images/0023/002319/231938e.pdf viewed on 5 December 2015.

UNESCO (2015f) *Concepts of Openness and Open Access*. (OA curricula for Researchers, Booklet 2). UNESCO: Paris. Online at: http://unesdoc.unesco.org/images/0023/002322/232207E.pdf viewed on 5 December 2017.

UNESCO (2015g) *Intellectual Property Rights* (OA curricula for Researchers, Booklet 3). UNESCO: Paris. Online at: http://unesdoc.unesco.org/images/0023/002322/232208E.pdf

Urbach, J (2017) Lack of skills will hobble patent system. *BusinessLive*, 24 August. Online at: https://www.businesslive.co.za/bd/opinion/2017-08-24-lack-of-skills-will-hobble-patent-system/ viewed on 31 December 2017.

Van Noorden, R (2013) Open access: The true cost of science publishing. *Nature* | News, 27 March. Online at: https://www.nature.com/news/open-access-the-true-cost-of-science-publishing-1.12676 viewed on 28 September 2018.

Van Noorden, R (2014) Publishers withdraw more than 120 gibberish papers. *Nature* | News, 24 February. Online at: https://www.nature.com/news/publishers-withdraw-more-than-120-gibberish-papers-1.14763 viewed on 4 December 2017.

Van Zyl, W (2016) How the funding of science research in South Africa can be overhauled. *The Conversation*, 19 September. Online at: https://theconversation.com/how-the-funding-of-science-research-in-south-africa-can-be-overhauled-65272 viewed on 28 September 2018.

Vincent, P (2017) Introducing Canary Haz: discovering article PDFs with one click. LSE Impact Blog, 6 June. Online at: http://blogs.lse.ac.uk/impactofsocialsciences/2017/06/06/introducing-canary-haz-discovering-article-pdfs-with-one-click/ viewed on 20 November 2017.

Walji, S (2016) A role for Open Education in the #feesmustfall movement in South African Higher Education. ROER4D, 24 November. Online at: http://roer4d.org/2696 viewed on 20 October 2017.

Wellcome Trust (2017) Wellcome and COAF Open Access spend 2014/15. [website.] Online at: https://wellcome.ac.uk/news/wellcome-trust-and-coaf-open-access-spend-2014%E2%80%9315 viewed on 28 September 2018.

Yolland, L & Tennant, J (2016) The Cost of Knowledge. Science Disrupt, 16 May. Online at: https://sciencedisrupt.com/posts/2016/5/20/jon-tennant-the-cost-of-knowledge viewed on 28 September 2018.

5. REPORTS

Archambault É, Amyot D, Deschamps P, Nicol A, Provencher F, Rebout L & Roberge G (2014) Proportion of Open Access Papers Published in Peer-Reviewed Journals at the European and World Levels: 1996–2013. RTD-B6-PP-2011-2: Study to develop a set of indicators to measure open access, 22 October. [Commissioned by the European Commission by Science-Metrix]. Online at: http://science-metrix.com/sites/default/files/science-metrix/publications/d_1.8_sm_ec_dg-rtd_proportion_oa_1996-2013_v11p.pdf

Calarco P, Shearer K, Schmidt B & Tate D (2016) Librarians' Competencies Profile for Scholarly Communication and Open Access. Joint Task Force on Librarians' Competencies in Support of E-Research and Scholarly Communication. Online at: https://www.coar-repositories.org/files/Competencies-for-ScholComm-and-OA_June-2016.pdf

Castagné, M (2013) Institutional repository software comparison: DSpace, EPrints, Digital Commons, Islandora and Hydra. Report for the University of British Columbia. Online at: https://open.library.ubc.ca/cIRcle/collections/42591/items/1.0075768

Commonwealth of Learning (2017) Open Educational Resources: Global Report 2017. Online at: http://oasis.col.org/handle/11599/2788

Confederation of Open Access Repositories (COAR) (2013) Open Access Clauses in Publishers' Licenses – Current State and Lessons Learned. COAR Report. Online at:

https://www.coar-repositories.org/files/OA-Clauses-in-Publishers-Licenses.pdf

Confederation of Open Access Repositories (COAR) (2015b) [produced by Katheleen Shearer]. Promoting Open Knowledge and Open Science: Report of the Current State of Repositories. 21 May. Online at: https://www.coar-repositories.org/files/COAR-State-of-Repositories-May-2015-final.pdf

Confederation of Open Access Repositories (COAR) (2016) Librarians' Competencies for E-Research and Scholarly Communication. Online at: https://www.coar-repositories.org/activities/support-and-training/task-force-competencies/

Confederation of Open Access Repositories (COAR) (2017b) Next Generation Repositories Behaviours and Technical Recommendations of the COAR Next Generation Repositories Working Group, November 28. Online at: https://www.coar-repositories.org/files/NGR-Final-Formatted-Report-cc.pdf

Council on Higher Education (CHE) (2016) South African Higher Education Reviewed: Two Decades of Democracy. 8 Task Team Reports. Pretoria: CHE.

Department of Science & Technology (DST) (2017) Department of Science & Technology Annual Performance Plan 2017–2018. Online at: http://www.dst.gov.za/images/2017/2017_pdfs/Annual-Performance-Plan-2017_2018.pdf

Finch, J (2016) Accessibility, sustainability, excellence: how to expand access to research publications: Report of the Working Group on Expanding Access to Published Research Findings. Online at: https://www.acu.ac.uk/research-information-network/finch-report-final

Flynn, S & Palmedo, M (2018) The User Rights Database: Measuring the Impact of Copyright Balance. Online at: http://infojustice.org/wp-content/uploads/2018/05/User-Rights-Database-Report-May-2018.pdf

Harris, S (2013) Implementing Open Access APCs: The role of academic libraries. Online at https://us.sagepub.com/sites/default/files/apc.pdf

Lynch, CA (2013) Institutional Repositories: Essential Infrastructure for Scholarship in the Digital Age. ARL: A Bimonthly Report, no. 226 (February 2003). Online at: http://old.arl.org/resources/pubs/br/br226/br226ir~print.shtml

NASIG (2017) NASIG Core Competencies for Scholarly Communication Librarians. Online at: https://s3.amazonaws.com/amo_hub_content/Association92/files/CoreComp/CompetenciesforScholCommLibrarians_final_ver_2017-08-11.pdf

Öberg G, Fortmann L & Gray T (2013) Is interdisciplinary research a mashup? IRES Working Paper Series. Online at: https://open.library.ubc.ca/cIRcle/collections/facultyresearchandpublications/52383/items/1.0076562

Open Science Initiative (OSI) Work Group (2015) Mapping the Future of Scholarly Publishing. Report published by the National Science Communication Institute (NSCI). Online at: https://caullibrarypublishing.wordpress.com/2015/02/11/mapping-the-future-of-scholarly-publishing/

Organisation for Economic Co-operation and Development (OECD) (2015) Making Open Science a Reality. OECD Science, Technology and Industry Policy Papers, No. 25, OECD Publishing, Paris. Online at: http://dx.doi.org/10.1787/5jrs2f963zs1-en

Shamash, K (2016) [report for JISC]. Article processing charges (APCs) and subscriptions: Monitoring open access costs. Online at: https://www.jisc.ac.uk/sites/default/files/apc-and-subscriptions-report.pdf

WIPO (2009) Study on Limitations and Exceptions for Copyright and Related Rights for Teaching in Africa. Nineteenth Session Geneva, December 14 to 18, 2009. Online at: http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=130241

WIPO (2015) Study on Copyright Limitations and Exceptions for Libraries and Archives (updated and revised by Kenneth, D & Crews, JD). Online at: http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=306216

WIPO (2017) Documenting Traditional Knowledge – A Toolkit, Geneva: WIPO. Online at: http://www.wipo.int/edocs/pubdocs/en/wipo_pub_1049.pdf

6. CONFERENCE PROCEEDINGS

Loizides, F & Schmidt, B (2016) Positioning and Power in Academic Publishing: Players, Agents and Agendas. *Proceedings of the 20th International Conference on Electronic Publishing*. Amsterdam: IOS Press, pp. 75–86.

Olivier, E (2008) Open Scholarship eCopyright@UP. Rainbow Options: Negotiating for the Proverbial Pot of Gold. *Proceedings ELPUB 2008 Conference on Electronic Publishing – Toronto, Canada*, pp. 417–420.

7. PRESENTATIONS

Burgelman, JC (2017) European Perspectives on Open Science Policy, 30 November. Shared via Dropbox: https://www.dropbox.com/sh/pldwte3y56b2i20/AADRVhHlWgF8lQcEhyTfUCu6a?dl=0 on 1 December 2017.

Hodson, S (2017) Open Science: Global Perspectives, 30 November. Shared via Dropbox: https://www.dropbox.com/sh/pldwte3y56b2i20/AADRVhHlWgF8lQcEhyTfUCu6a?dl=0 on 1 December 2017.

Lipinsky, T (2017) Fair Use in the United States: Recent Lessons from the Mass Digitization Cases, 16 March.

Matizirofa, L & Ramalibana, K (2015) NRF OA Statement survey report back workshop, 18 March. Online at: http://ir.nrf.ac.za/handle/10907/128

Moropa, R & Olivier, E (2010) Establishing an Open Access mandate at the University of Pretoria. 20 October. Online at: https://repository.up.ac.za/handle/2263/15061

Nicholson, DR (2017a) SA Copyright Amendment Bill, 16 March.

Truran, G (2016/2017) Rising cost of high-quality scholarly electronic information: Evidence, issues, ideas and collective action. Undated presentation to SANLiC members only.

Wright, C & Walwyn, D (2017) The view from South Africa, 30 November. Shared via Dropbox: https://www.dropbox.com/sh/pldwte3y56b2i20/AADRVhHlWgF8lQcEhyTfUCu6a?dl=0 on 1 December 2017.

8. UNPUBLISHED MATERIALS

Academy of Science of South Africa (ASSAf) (2015) SA Scholarly Journal Landscape. Document circulated at the annual meeting for the Committee on Scholarly Publishing in South Africa (CSPiSA Standing Committee). [Internal institutional document.]

Department of Library Services (DLS) University of Pretoria (2017) Investigation of current OER activities at UP Faculties, GIBS and the Mamelodi Campus. [Internal institutional document.]

Hammes, M & Olivier, E (2009) University of Pretoria Open Access Mandate: The first African open access institutional mandate story. Online at: http://www.library.up.ac.za/openup/docs/UPmandateAfrica.pdf

Hammes, M (2012) Open Access by Default: Implications for the University of Pretoria. [Internal institutional document.]

University of Pretoria (2009a) Policy on University of Pretoria electronic theses and dissertations (S4844-46/08). [Internal institutional document.]

University of Pretoria (2009b) Policy to provide open access to research papers authored by University of Pretoria researchers (S4845/08). [Internal institutional document.]

University of Pretoria (2009c) Intellectual Property Policy (Rt181/09). [Internal institutional document.]

University of Pretoria (2013, revised) Digital Institutional Research Repository UPSpace User Policy Document. Working paper. [Internal institutional document.]

University of Pretoria (2014) Open access publishing processing charges (S4420/14). [Internal institutional document.]

University of Pretoria (2016) Five-year implementation plan 2017–2021. Draft document. [Internal institutional document.]

University of Pretoria (2017) Research Data Management Policy (S4417/17). [Internal institutional document.]

Wang, J (2013) Copyright: Rebalancing the public and private interests in the areas of education and research. Unpublished dissertation. Stellenbosch: University of Stellenbosch. Online at: http://scholar.sun.ac.za/handle/10019.1/85834

9. ONLINE TOOLS

Class Central founded by Dhawal, Shah. Online at: https://qz.com/1169363/afropunk-johannesburg-puts-the-city-on-the-map-of-global-black-culture/

Creative Commons licence obtainment. Online at: https://creativecommons.org/share-your-work/

OpenDOAR (Directory of Open Access Repositories). Online at: http://www.opendoar.org/find.php?format=charts

PKP tools (Public Knowledge Project). Online at: https://pkp.sfu.ca/

ROAR (Registry of Open Access Repositories). Online at: http://roar.eprints.org/

SHERPA/JULIET (Securing a Hybrid Environment for Research Preservation and Access). Online at: http://v2.sherpa.ac.uk/juliet/

SHERPA/RoMEO (Securing a Hybrid Environment for Research Preservation and Access) and (Rights Metadata for Open Archiving) Definitions and Terms. Online at: http://www.sherpa.ac.uk/romeo/definitions.php?la=en&fIDnum=|&mode=advanced&version=#prepostprints

SUNScholar–Libopedia developed by Hilton Gibson. Online at: http://wiki.lib.sun.ac.za/index.php?title=SUNScholar/DSpace

UNESCO's Open Access (OA) Curriculum for Library Schools and Researchers. Online at: http://www.unesco.org/new/en/communication-and-information/resources/news-and-in-focus-articles/all-news/news/unescos_open_access_oa_curriculum_is_now_online/

University of the Witwatersrand LibGuides on Copyright and Related Issues developed by Denise Nicholson. Online at: http://libguides.wits.ac.za/Copyright_and_Related_Issues

10. MANDATES, POLICIES, CHARTERS, DECLARATIONS, MANIFESTOS, WHITE PAPERS & STATEMENTS

Academy of Science of South Africa (ASSAf) (2016) Open Science proposal.

Academy of Science of South Africa (ASSAf) (2017) South African Draft Position Statement on Open Science in South Africa.

Adelphi Charter on Creativity, Innovation and Intellectual Property (2005). Online at: https://www.ictsd.org/adelphi-charter-launched-on-creativity-innovation-and-intellectual-property

All European Academics (ALLEA) (2015) Supplementary Statement on Enhancement of Open Access to Scientific Publications in Europe. Online at: http://www.allea.org/wp-content/uploads/2015/12/Supplementary-Statement_Open-Access_FINAL.pdf

All European Academies (ALLEA) (2013) Statement on Enhancement of Open Access to Scientific Publications in Europe. Online at: http://www.allea.org/wp-content/uploads/2015/08/Statement_ALLEA_Open_Access_2013-11.pdf

Berlin Declaration on Open Access (2003). Online at: http://openaccess.mpg.de/Berlin-Declaration

Bethesda Statement on Open Access Publishing. (2003) Online at: http://legacy.earlham.edu/~peters/fos/bethesda.htm

Budapest Open Access Initiative (2002). Online at: http://www.budapestopenaccessinitiative.org/

Cape Town Open Education Declaration (2008). Online at: http://www.capetowndeclaration.org/

COAR/UNESCO (2016) Joint COAR-UNESCO Statement on Open Access. 9 May. Online at: http://www.unesco.org/new/en/communication-and-information/resources/news-and-in-focus-articles/all-news/news/joint_coar_unesco_statement_on_open_access/

Confederation of Open Access Repositories (COAR) (2015a) Statement against Elsevier's sharing policy. Online at: https://www.coar-repositories.org/activities/advocacy-leadership/statements-and-guidelines/petition-against-elseviers-sharing-policy/

Dakar Declaration on Open Science in Africa (2016). Online at: https://oar.sci-gaia.eu/record/133/files/Dakar%20Declaration%20v2%20-%20for%20the%20OAR.pdf

Department of Higher Education (DHET) (2015) Research Outputs Policy.

EIFL Draft Law on Copyright Including Model Exceptions and Limitations for Libraries and their Users (2016). Online at: http://www.eifl.net/system/files/resources/201607/eifl_draft_law_2016_online.pdf

G8 Open Data Charter (2013). Online at: https://www.gov.uk/government/publications/open-data-charter/g8-open-data-charter-and-technical-annex

International Federation of Library Associations and Institutions (IFLA) (2013) Treaty Proposal on Limitation and Exceptions for Libraries and archives. Online at: https://www.ifla.org/files/assets/hq/topics/exceptions-limitations/tlib_v4_4.pdf

International Federation of Library Associations and Institutions (IFLA) (2016) Principles on Public Access in Libraries. Online at: https://www.ifla.org/publications/node/10328

Kigali Declaration on the Development of an Equitable Information Society in Africa (2016). Online at: http://unpan1.un.org/intradoc/groups/public/documents/un/unpan033853~1.pdf

National Research Foundation (NRF) (2015) Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research. Online at: http://www.nrf.ac.za/media-room/news/statement-open-access-research-publications-national-research-foundation-nrf-funded

Salvador Declaration on Open Access: The developing world perspective (2005). Online at: http://www.icml9.org/meetings/openaccess/public/documents/declaration.htm

Schimmer R, Geschuhn KK & Vogler A (2015) Disrupting the subscription journals' business model for the necessary large-scale transformation to open access. White paper for Max Planck Digital Library. Online at: http://pubman.mpdl.mpg.de/pubman/faces/viewItemOverviewPage.jsp?itemId=escidoc:2148961

SpringerNature (2017) The OA Effect: How Does Open Access Affect the Usage of Scholarly Books? White paper. November. Online at: http://resource-cms.springer.com/springer-cms/rest/v1/content/15176744/data/v2/The+OA+effect%3A+How+does+open+access+affect+the+usage+of+scholarly+books%3F

Swan, A (2012) Policy Guidelines for the Development and Promotion of Open Access. UNESCO. Online at: http://unesdoc.unesco.org/images/0021/002158/215863e.pdf

Swartz, A (2008) Guerrilla Open Access Manifesto. Online at: https://archive.org/stream/GuerillaOpenAccessManifesto/Goamjuly2008_djvu.txt

The Hague Declaration on Knowledge Discovery in the Digital Age (2015). Online at: http://thehaguedeclaration.com/the-hague-declaration-on-knowledge-discovery-in-the-digital-age/

The Presidency, National Planning Commission (2013) National Development Plan 2030: Our future – make it work. Online at: https://www.gov.za/sites/default/files/NDP-2030-Our-future-make-it-work_r.pdf

United Nations Declaration on the Rights of Indigenous Peoples (2008). Online at: http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

11. LEGISLATION (National)

Copyright Act, 1978 (Act No. 98 of 1978, as amended up to Copyright Amendment Act 2002).

Copyright Amendment Bill [B13–2017] with Memorandum on the Objects of the Copyright Amendment Bill [B13–2017 Draft 2]. Online at: http://libguides.wits.ac.za/ld.php?content_id=43311046

Copyright Regulations 1978 (as amended by GN 1375 in GG 9807 of June 28, 1985).

Draft Intellectual Property Policy of the Republic of South Africa, Phase 1 (2017).

Intellectual Property from Publicly Financed Research and Development Act, 2008 (Act No. 51 of 2008) (IPR–PFRD Act).

Legal Deposit Act, 1997 (Act No. 54, 1997).

National Heritage Resources Act, 1999 (Act No. 25 of 1999).

Patents Act, 1978 (Act No. 57 of 1978) as amended.

Protection, Promotion, Development and Management of Indigenous Knowledge Systems Bill (IKS Bill) (2016). Online at: http://libguides.wits.ac.za/ld.php?content_id=21008433

12. LEGISLATION (International)

Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement, 1995).

Berne Convention for the Protection of Literary and Artistic Works (1979).

British Copyright Act of 1956.

Jamaican Copyright Act of 1993.

United Kingdom Copyright Act of 1911.

US Copyright Act of 1976.

WIPO Copyright Treaty (WCT, 1996).

WIPO Performance and Phonograms Treaty (WPPT, 1996).

13. SUBMISSIONS TO PARLIAMENT ON PROPOSED COPYRIGHT AMENDMENT BILL (B3–2017)

Australian Digital Alliance (2017). Online at http://libguides.wits.ac.za/ld.php?content_id=33933915

Freedom of Expression Institute (FXI) (2017). Online at: http://libguides.wits.ac.za/ld.php?content_id=33934143

Google South Africa (2017). Online at: http://libguides.wits.ac.za/ld.php?content_id=33934566

International Federation of Library Associations and Institutions (IFLA) (2017). Online at: http://libguides.wits.ac.za/ld.php?content_id=33933430

Joint submission by Tobias Schonwetter & Caroline Ncube (University of Cape Town), Denise Nicholson (University of Witwatersrand), Coenraad Visser (UNISA), Sean Flynn & Peter Jaszi (American University Washington College of Law) and Andrew Rens (Duke University School of Law), Library and Information Association of South Africa (LIASA) (2017). Online at: http://libguides.wits.ac.za/ld.php?content_id=33933772

National Council for Library and Information Services (NCLIS) (2017). Online at: http://libguides.wits.ac.za/ld.php?content_id=33940984

Nicholson, DR (2017b) Comments and Recommendations on the Copyright Amendment Bill 2017. Online at: http://libguides.wits.ac.za/ld.php?content_id=33935312

Nicholson DR (2017c) in *Course packs provision in Section 13B(2)(a) of Copyright Amendment Bill fully supported by educational research and library sector*, for Parliamentary hearing.

Program on Information Justice and Intellectual Property, American University, Washington College of Law (2017):
Sean Flynn's submission online at: http://libguides.wits.ac.za/ld.php?content_id=33933872
Peter Jaszi's submission online at: http://libguides.wits.ac.za/ld.php?content_id=33935076
Michael Palmedo's submission online at: http://libguides.wits.ac.za/ld.php?content_id=33934893

Sag, M (2017) Loyola University Chicago School of Law. Online at: http://libguides.wits.ac.za/ld.php?content_id=33935047

Southern African Regional Universities Association (SARUA) (2017) Online at: http://libguides.wits.ac.za/ld.php?content_id=34242121

Universities South Africa (USAf) (2017) Online at: http://libguides.wits.ac.za/ld.php?content_id=33937008

University of Cape Town Intellectual Property Unit (UCT IP Unit) (2017) Online at: http://libguides.wits.ac.za/ld.php?content_id=33935202

WikiMedia South Africa (2017) Online at: http://libguides.wits.ac.za/ld.php?content_id=33934131

14. LEGAL CASES (National)

Biotech Laboratories (Pty) Ltd v. Beecham Group Plc and Another (494/2000) [2002] ZASCA 11.

Laugh It Off Promotions CC v. South African Breweries International (Finance) BV t/a Sabmark International and Another (CCT42/04) [2005] ZACC 7; 2006 (1) SA 144 (CC); 2005 (8) BCLR 743 (CC) (27 May 2005).

Moneyweb (Pty) Ltd. v. Media 24 Ltd. 2016 (4) SA 591 (GJ).

15. LEGAL CASES (International)

A&M Records, Inc. et al. v. Napster (No. C 99-5183 MHP No. C 00-0074 MHP), United States District Court for the Northern District of California.

American Chemical Society, v John Does 1-99, et al., No. 1:17-cv-00726-LMB-JFA.

Ashdown v Telegraph Group Ltd [2001] EWCA Civ 1142.

Associated Press v. Meltwater U.S. Holdings, Inc., 2013 WL 1153979 (S.D.N.Y).

Aimster Copyright Litigation, 252. F Supp. 2d 634, (7th Cir. 2004).

Authors Guild, Inc. v. Google, Inc., 804 F.3d 202 (2d Cir., 2015), cert. denied, 2016 WL 1551263 (April 18, 2016).

Authors Guild, Inc. v. HathiTrust, 755 F.3d 87 (2d Cir. 2014).

A.V. v. iParadigms, Ltd., 2008 WL 728389 (E.D. Va. 2008) & Weidner v Carroll, 2010 WL 310310 (S.D. Ill.).

Canadian Copyright Licensing Agency v. York University, 2017 FC 669 (CanLII).

Crookes v. Newton, [2011] SCC 47, [2011] SCR 269.

Elsevier Inc. et al v Sci-Hub et al No. 1:2015cv04282 - Document 53 (S.D.N.Y. 2015).

Elsevier Inc. v Sci-Hub, No. 1:15-cv-4282-RWS [Dkt. No. 87] (S.D.N.Y. June 21, 2017).

Field v. Google Inc., 412 F.Supp.2d 1106, 1116 (D. Nev. 2006).

Fraser-Woodward Ltd v British Broadcasting Corporation Brighter Pictures Ltd [2005] EWHC 472 (Ch).

Fox News Network, LCC TVEyes, Inc., 43 F.Supp. 3d 379 (S.D.N.Y.) & Fox News Network, LLC TVEyes, Inc., 2015WL 5025274 (S.D.N.Y).

HRH the Prince of Wales v Associated Newspapers Ltd [2006] EWHC 522 (Ch).

Hubbard v Vosper [1972] 1 All ER 1023 (CA).

Hyde Park Residence Ltd v Yelland & Ors [2000] EWCA Civ 37.

IceTV Pty Limited v Nine Network Australia Pty Limited [2009] HCA 14.

Klinger v. Conan Doyle Estate, Ltd., No. 14-1128 (7th Cir. 2014).

MGM Studios, Inc. v. Grokster, Ltd., 545 U.S. 913 (2005).

Newspaper Licensing Agency Ltd v Marks & Spencer Plc [2000] EWCA Civ 179.

Perfect 10 v. Google Inc., 487 F.3d 701, 2007 WL 1428632 (9th Cir. 2007).

Pro Sieben Media A.G. v Carlton Television Ltd & Anor [1998] EWCA Civ 2001.

Robertson v. Thomson Corp., [2006] 2 S.C.R. 363, 2006 SCC 43.

Sofa Entertainment Inc. v. Dodger Productions, Inc., 709 F.3d 1273 (9th Cir. 2013).

Svensson and Others v Retriever Sverige AB (C466/12).

Théberge *v.* Galerie d'Art du Petit Champlain inc., [2002] 2 S.C.R. 336, 2002 SCC 34.

Figure A1: "What happens in an Internet Minute" as shared on Twitter by Nayyar F (2017) at https://aftechs.com/what-happens-in-an-internet-minute-in-2017/

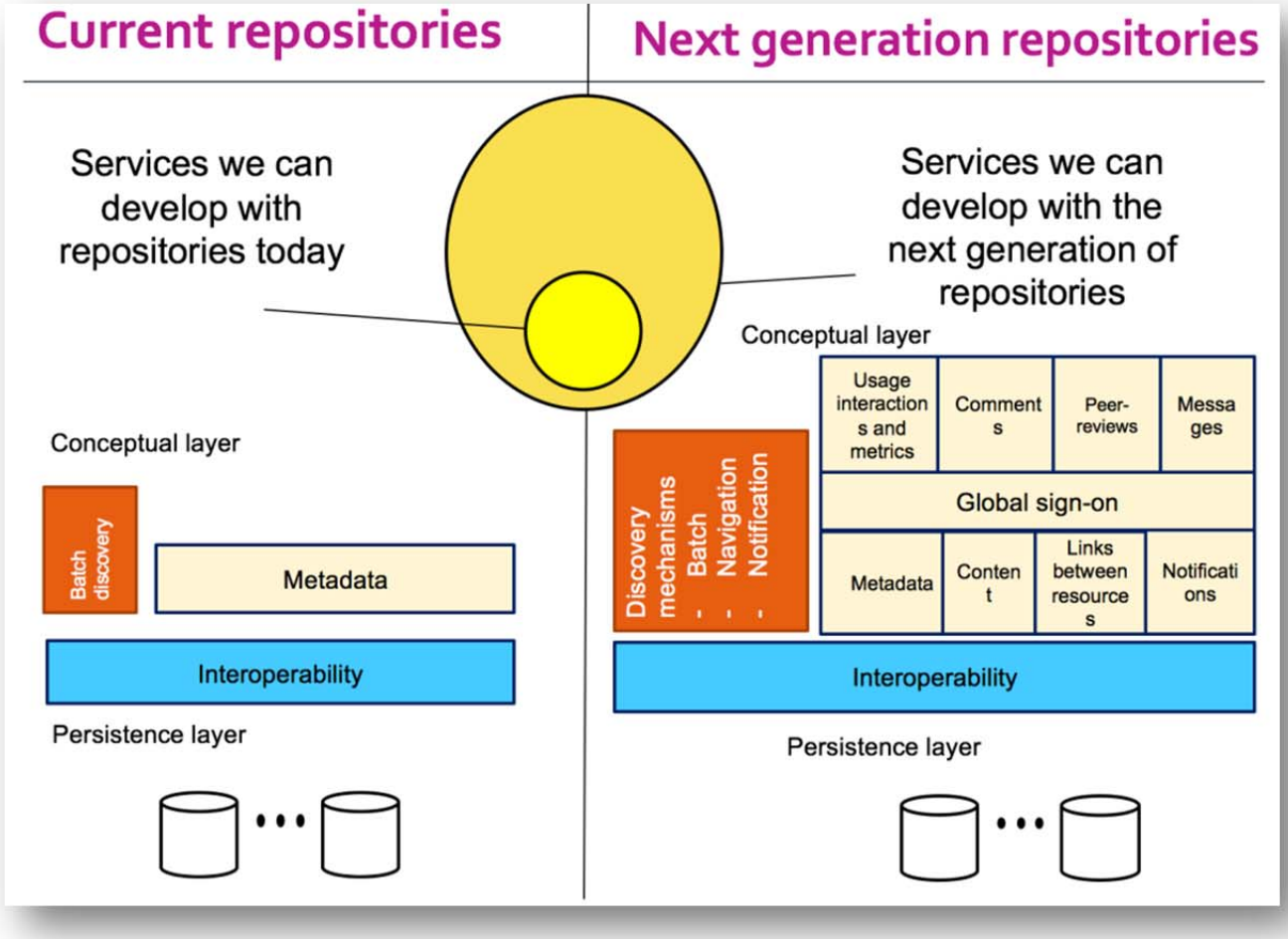


Figure A2: Image created by Petr Knoth as part of the COAR report on *Behaviours and Technical Recommendations of the COAR Next Generation Repositories Working Group* (2017). Online at: https://www.coar-repositories.org/activities/advocacy-leadership/working-group-next-generation-repositories/

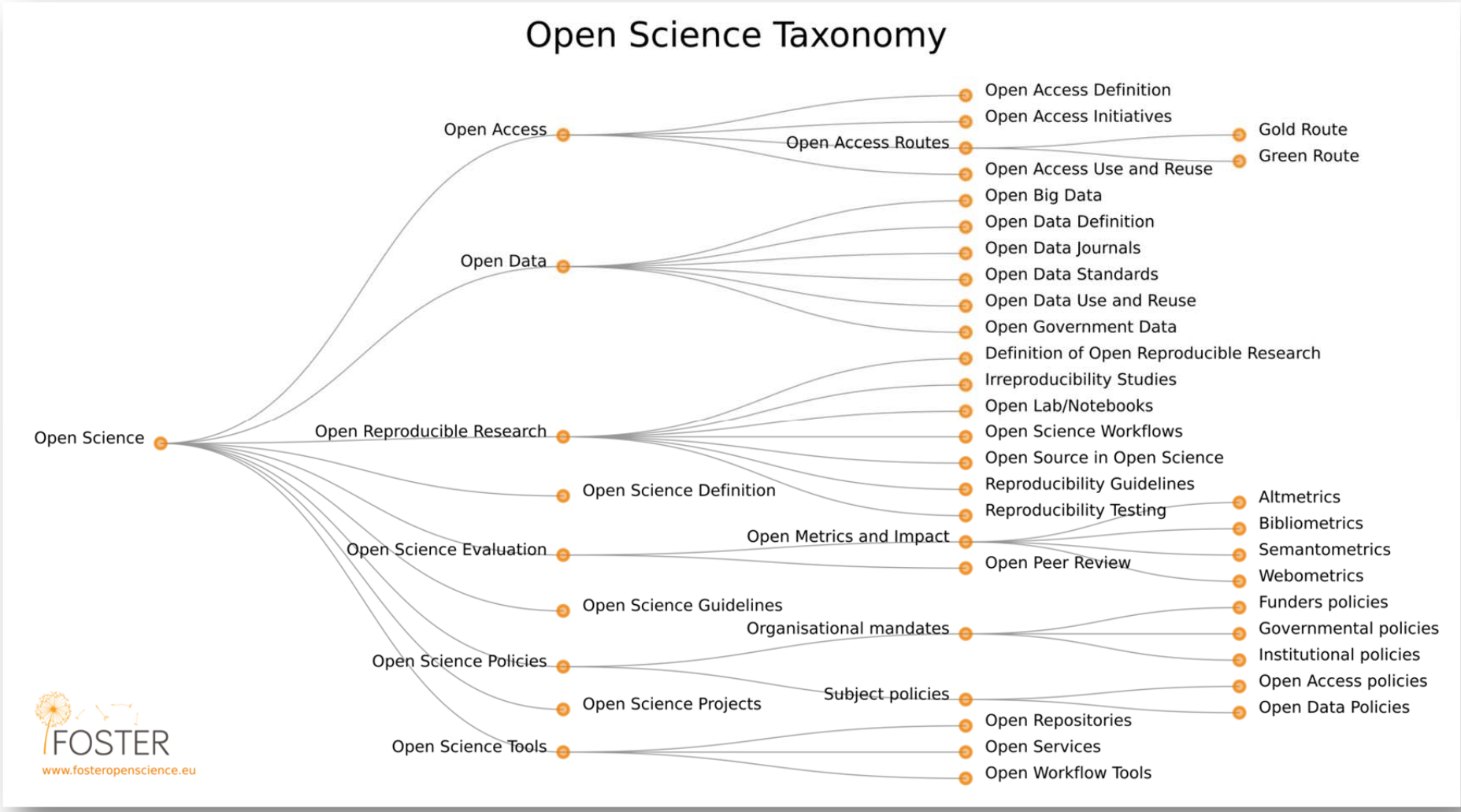


Figure A3: FOSTER "Open Science Taxonomy". Online at: https://www.fosteropenscience.eu/foster-taxonomy/open-science

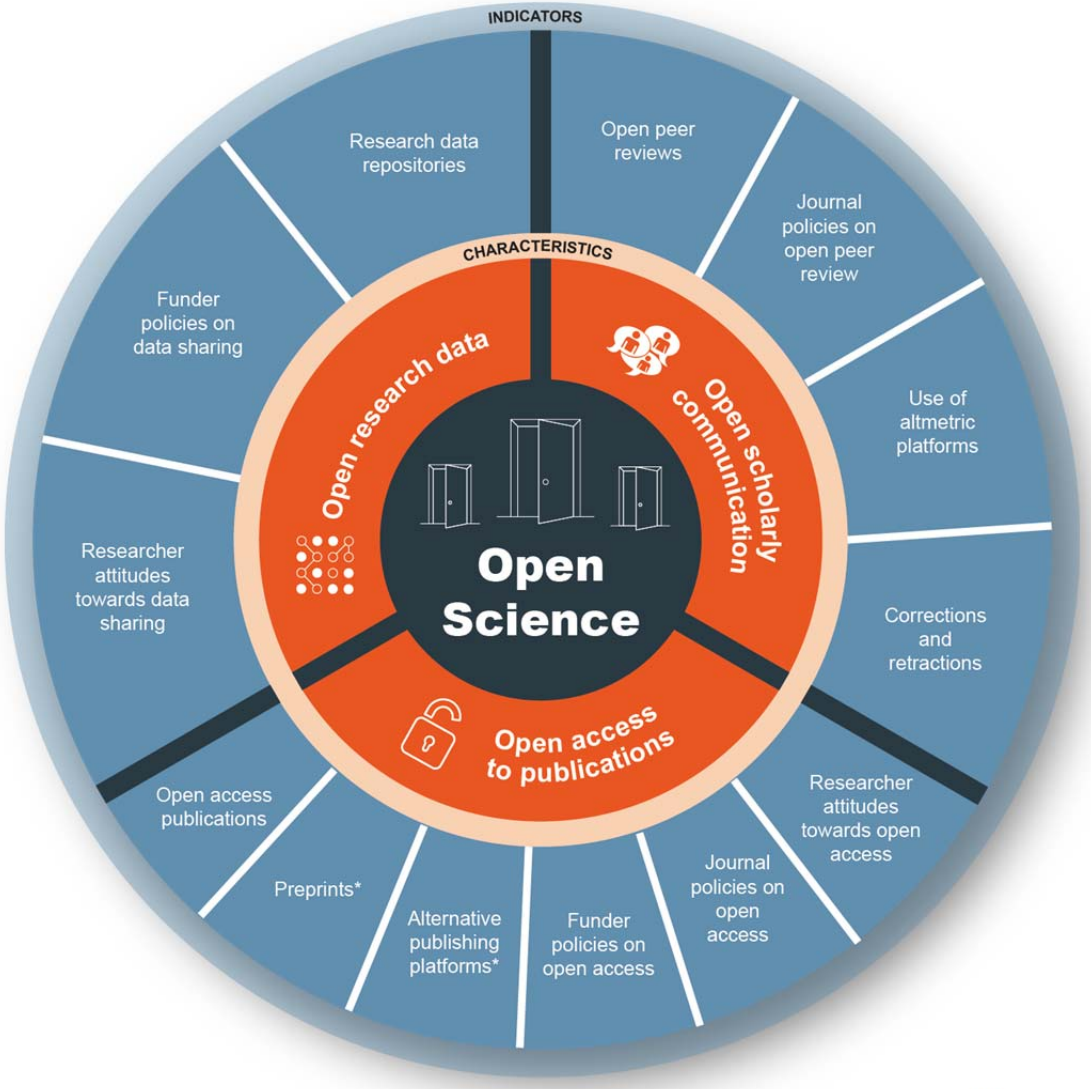
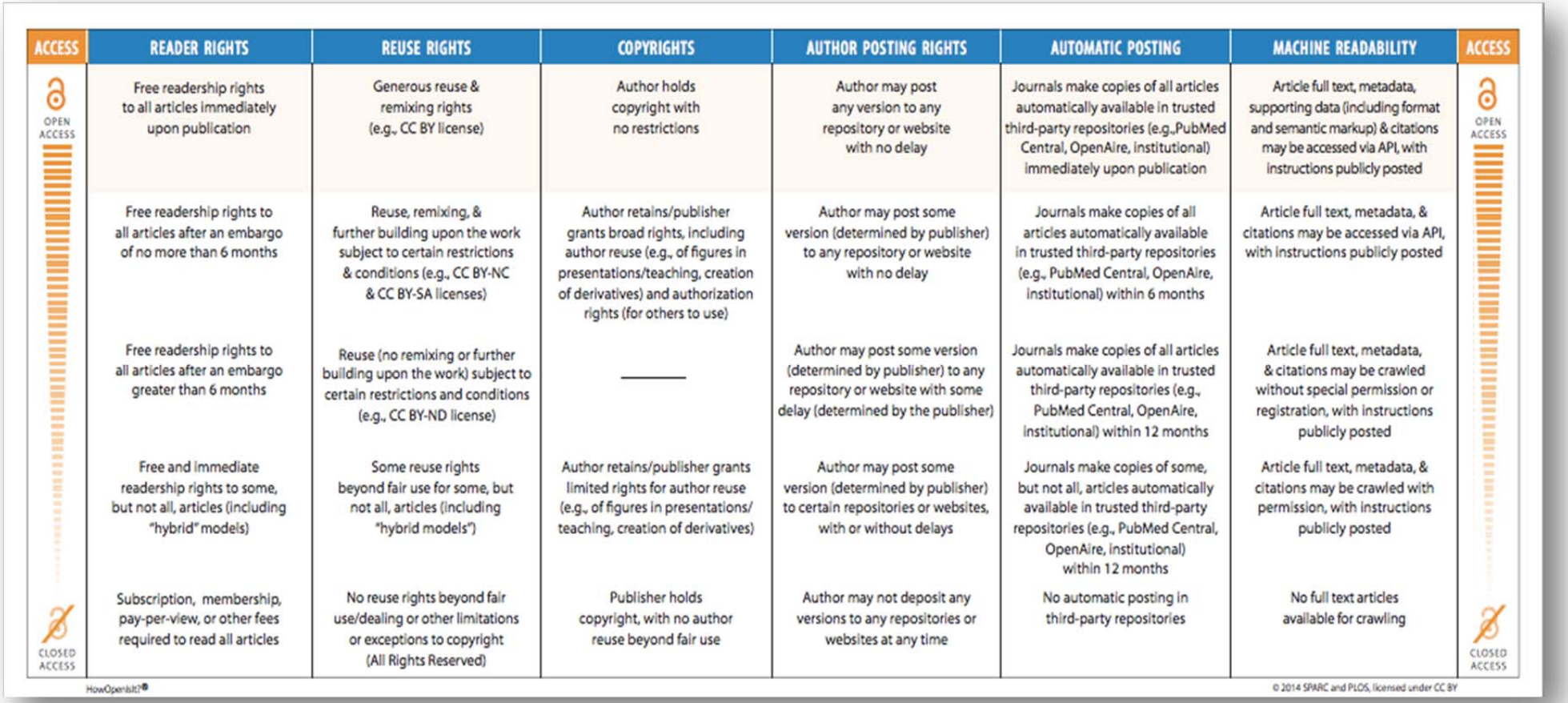


Figure A4: "Wheel of Open Science", obtained from the European Commission's Open Science Monitor tool. Online at: http://ec.europa.eu/research/openscience/index.cfm?pg=home&section=monitor

How innovation modes have evolved

Closed innovation	Open innovation	Open innovation 2.0
Dependency	Independency	Interdependency
Subcontracting	Cross-licensing	Cross-fertilization
Solo	Bilateral	Ecosystem
Linear	Linear, leaking	Nonlinear mash-up
Linear subcontracts	Bilateral	Triple or quadruple helix
Planning	Validation, pilots	Experimentation
Control	Management	Orchestration
Win–lose game	Win–win game	Win more–win more
Box thinking	Out of the box	No boxes!
Single entity	Single discipline	Interdisciplinary
Value chain	Value network	Value constellation

Figure A5: "How innovation models have evolved", obtained from the article "Twelve principles for open innovation 2.0" by Martin Curley published in *Nature* | Comment, 17 May 2016. Online at: http://www.nature.com/news/twelve-principles-for-open-innovation-2-0-1.19911



ACCESS	READER RIGHTS	REUSE RIGHTS	COPYRIGHTS	AUTHOR POSTING RIGHTS	AUTOMATIC POSTING	MACHINE READABILITY	ACCESS
OPEN ACCESS	Free readership rights to all articles immediately upon publication	Generous reuse & remixing rights (e.g., CC BY license)	Author holds copyright with no restrictions	Author may post any version to any repository or website with no delay	Journals make copies of all articles automatically available in trusted third-party repositories (e.g.,PubMed Central, OpenAire, institutional) immediately upon publication	Article full text, metadata, supporting data (including format and semantic markup) & citations may be accessed via API, with instructions publicly posted	OPEN ACCESS
	Free readership rights to all articles after an embargo of no more than 6 months	Reuse, remixing, & further building upon the work subject to certain restrictions & conditions (e.g., CC BY-NC & CC BY-SA licenses)	Author retains/publisher grants broad rights, including author reuse (e.g., of figures in presentations/teaching, creation of derivatives) and authorization rights (for others to use)	Author may post some version (determined by publisher) to any repository or website with no delay	Journals make copies of all articles automatically available in trusted third-party repositories (e.g., PubMed Central, OpenAire, institutional) within 6 months	Article full text, metadata, & citations may be accessed via API, with instructions publicly posted	
	Free readership rights to all articles after an embargo greater than 6 months	Reuse (no remixing or further building upon the work) subject to certain restrictions and conditions (e.g., CC BY-ND license)	———	Author may post some version (determined by publisher) to any repository or website with some delay (determined by the publisher)	Journals make copies of all articles automatically available in trusted third-party repositories (e.g., PubMed Central, OpenAire, institutional) within 12 months	Article full text, metadata, & citations may be crawled without special permission or registration, with instructions publicly posted	
	Free and immediate readership rights to some, but not all, articles (including "hybrid" models)	Some reuse rights beyond fair use for some, but not all, articles (including "hybrid models")	Author retains/publisher grants limited rights for author reuse (e.g., of figures in presentations/ teaching, creation of derivatives)	Author may post some version (determined by publisher) to certain repositories or websites, with or without delays	Journals make copies of some, but not all, articles automatically available in trusted third-party repositories (e.g., PubMed Central, OpenAire, institutional) within 12 months	Article full text, metadata, & citations may be crawled with permission, with instructions publicly posted	
CLOSED ACCESS	Subscription, membership, pay-per-view, or other fees required to read all articles	No reuse rights beyond fair use/dealing or other limitations or exceptions to copyright (All Rights Reserved)	Publisher holds copyright, with no author reuse beyond fair use	Author may not deposit any versions to any repositories or websites at any time	No automatic posting in third-party repositories	No full text articles available for crawling	CLOSED ACCESS

HowOpenIsIt?®

Figure A6: "HowOpenIsIt"™ resource created by SPARC in conjunction with PLOS and the Open Access Scholarly Publishers Association (OASPA). Online at: https://sparcopen.org/our-work/howopenisit/

	Open access repositories	Academia.edu	ResearchGate
Supports export or harvesting	Yes	No	No
Long-term preservation	Yes	No	No
Business model	Nonprofit (usually)	Commercial. Sells job posting services, hopes to sell data	Commercial. Sells ads, job posting services
Sends you lots of emails (by default)	No	Yes	Yes
Wants your address book	No	Yes	Yes
Fulfills requirements of UC's OA policies	Yes	No	No

Figure A7: Obtained from the feature article "A social networking site is not an open access repository" by Katie Fortney and Justin Gonder (2015) by the Office of Scholarly Communication, University of California. Online at: https://osc.universityofcalifornia.edu/2015/12/a-social-networking-site-is-not-an-open-access-repository/index.html

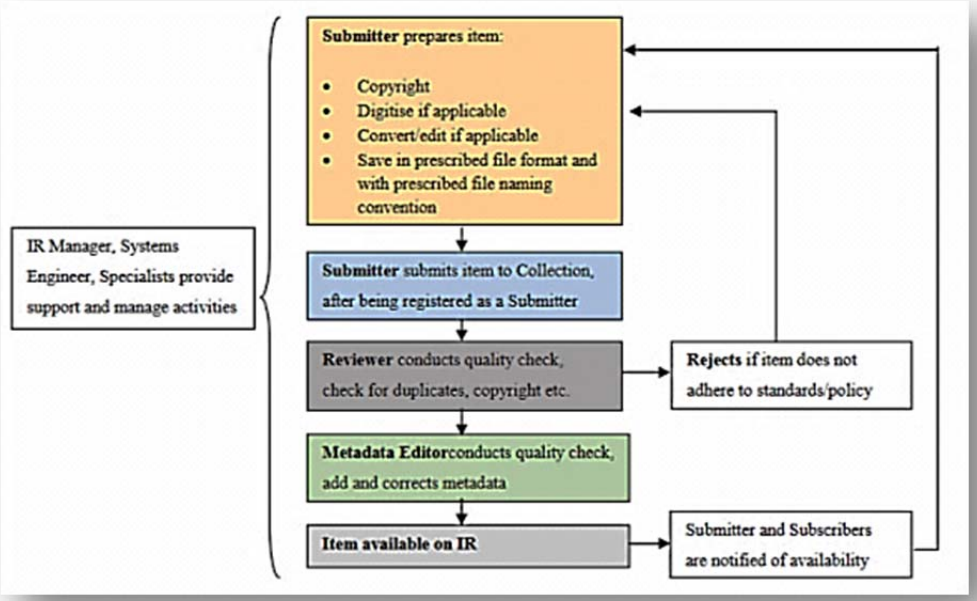


Figure A8: Role descriptions as part of formal workflow in relation to metadata as proposed by UNESCO Open Access for Library Schools Curriculum (2015c:36). Online at: http://unesdoc.unesco.org/images/0023/002322/232204E.pdf

Role	Staff Member	% Time Allocated
IR Manager (also User Support Manager)	X	100% Time
Systems Engineer (also IR IS & T Manager)	X	50% Time
Metadata Specialist	X	10% Time
Digitisation Specialist	X	10% Time
Reviewer & Copyright Specialist	X	50% Time
Collection Administrators	Faculty Librarians	10% Time
Reviewers	IR Management/Faculty Librarians	10% Time
Metadata Editors	Cataloguers	15% Time

Figure A9: IR roles as part of management and staffing (capacity planning) as proposed by UNESCO Open Access for Library Schools Curriculum (2015c:32). Online at: http://unesdoc.unesco.org/images/0023/002322/232204E.pdf