OPEN ACCESS PUBLISHING IN THE 21ST CENTURY: A PERISCOPE OF SCHOLARLY PUBLISHING STRUCTURE

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Abstract

In the recent time Internet has inspired multiple movements toward greater openness to scholarly content, the most prominent one among this movement is Open Access (OA) scholarly publishing. This paper was aimed at providing an insight on the existing publishing structure alongside with the transformation witnessed in scholarly publishing landscape as a result of information and communication technology and monopoly of commercial publishers as against open access. Furthermore, the paper stressed the need for Open Access in relieving access barriers, arguing that Open Access has the tendency to become unsustainable for research communities if high-cost options are allowed to continue to prevail in a widely unregulated scholarly publishing market. It is further argue that the badly damaged system of academic publishing will not be restored to full health by OA per se, but at most by the scientists themselves taking greater control over their publications. The paper concludes that the world of scholarly communication stands at a crossroads. On the one hand, there is much potential and actual innovation; on the other hand, cultural, commercial, and technological barriers are limiting this potential. A policy environment that is simply permissive of innovation has been insufficient. Instead, we need a policy environment that will shape a positive future for scholarly communications and so the research system itself.

Keywords: Open access, Scholarly Communication, Scholarly Publishing

Introduction

Open Access (OA) movement has gains considerable tractions over the past two decades, in the scholarly community; this development was possible as a result of advancement in information and Communication Technologies (ICT). Publishing now takes place through blogs, social networks, and social media sites. Included in this evolution is the way we think about scholarly communication. Publishing can now be an immediate process accessible by anyone in the world with an Internet connection (Joshi & Nikose, n.d).

The open access movement is increasingly guiding the publishing practices of scholarly research. According to Das and Kumar (2015) in the beginning years of the 21st Century, scholarly communities got engaged with the global OA movements for opening up scholarly resources, more particularly research literature, to worldwide researchers' communities without any access fee or subscription cost. Kelly (2017) stated that throughout the globe there been a shifts from print to electronic access, faster time to print, and the development and uptake of new models such as Open Access.

The philosopher of science Helen Longino argued that 'the social [dimension of knowledge] is not a corrupting but a validating element in knowledge' (Longino, 2002). John Willinsky builds upon this argument by noting that 'the global scale of knowledge's circulation is critical to its very claim as knowledge (Willinsky, 2006). Therefore it could be said that OA movement is a step in a right direction toward

circulating publicly funded knowledge to public domain hence, publicly funded scientific research should be freely accessible.

According to Kingsley, Kennan and Richardson (2022) the advantages of Open Access for authors and readers are obvious. The greater the audience, the greater the visibility and impact of the author's work. It also provides readers with free access to literature that would otherwise be restricted by payment. Many people wonder if open access journals will put traditional journal publishers out of business. Indeed, publishers are now taking advantage of the visibility generated by OA to attract subscriptions, submissions, readers, and citations by making OA available to selected articles in each issue and all back issues.

While new forms of scholarly communication are beginning to impact the way the publishing industry operates, a trend which may have lasting effects (Joshi, & Nikose, n.d). "No one can predict the future, but beginnings can result in creatures that change over time escaping the initial interests of parents. Perhaps that will happen in the best of possibilities" (Caldararo, 2013).Therefore, this paper it aimed at looking the developments in the open access movement, how open access affects scholarly communication, what is the position of scholar about Open Access, vis-a-vis Subscription based journals and print and lastly projecting the future of scholarly publishing.

Scholarly Publishing in the 21st Century

Scholarly publishing has been defined as 'the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use' (Association of Research Libraries 2014).Scholarly communication is a wide term "that refers to the many different ways [emphasis added] in which authors and creators of scholarly and scientific work share information" (Anderson, 2018), with everyone—inside and outside academia—about the work they are doing and their findings. It is important to note that the system of creation, evaluation, dissemination, use, and preservation of writings that comprises scholarly communication (Wright, 2019) is diverse and inclusive. The diversity and inclusiveness of scholarly communication must be appreciated and featured in the contents of scientific journals, which are the main support for the dissemination of research results (Luchilo, 2019).

Over 34,000 years ago Cro-Magnon man was scratching images onto cave walls to communicate. The earliest research journals such as Philosophical Transactions of the Royal Society and Journal de Scanvans of Paris (1655 AD) became a means for learned societies to record proceedings of their meetings and summarize scientific and technical information. Philosophical Transactions was published under the editorship of Henry Edinburgh (1665), who wrote in the first issue of the Philosophical Transactions that potential contributors are invited and encouraged to search, try, and find out new things, impart their knowledge to one another, and contribute what they can to the Grand design of improving Natural knowledge ... all for the glory of God, the Honour and Advantage of these Kingdoms, and the Universal Good of Mankind.

In the last two decades scholars are undergoing a fundamental and difficult transition - from a mode of publication that has reigned for the 335 years since the printing of the first scientific journals to a new mode made possible by computer science and the Internet. This transition will continue to occur within the next decade or two, and it is now important for both scientists and publishers to influence its pace and its form. The desired properties of scientific publishing - accessibility, economy, quality, innovation, and retrieval -seem obvious, and it seems equally obvious

that most or all of these properties can be more readily achieved with electronic methods (Varmus, 2001). Today anyone with an Internet connection and basic skills with a computer has the global capability to publish instantly on any subject through electronic media. The most potent changes in publishing have occurred in the last decade with the increasing decline of print in favour of rapid expansion of electronic capabilities, content, and the importance technology companies (Masood, El-Faham & Heba Maram, 2012).

Peter and Niels (2017) stated that the formal scientific communication system is currently undergoing significant change. This is due to four intertwined developments: the digitisation of formal science communication; the increasing relevance of profit-making on the part of many academic publishers and other providers of information (in short: 'economisation); an increase in the self-observation of science by means of publication, citation and utility-based indicators; and an intensified observation of science by the mass media ('medialisation').There is no doubt since the beginning of the twenty-first century, politicians, managers, librarians and some researchers have told a standard narrative about OA. Frequently found on the relevant websites, the narrative goes something like this: "OA will usher in a new era in the history of academic publishing by making available all the knowledge produced by the worldwide scientific community, free of charge, to anyone with an internet connection. There should be no more barriers to science in the global exchange of information and ideas, no more obstacles for ordinary citizens wishing to keep abreast of the latest scientific developments. Such prospects sound attractive since, by associating the free circulation of knowledge with the economically motivated hope for increased creativity and efficiency, they allow the sciences to play their part in the global competition for resources and innovation" (Varmus, 2001). Now is a time of great opportunity for those willing to master new technologies and experiment courageously with new ways of seeing, thinking and doing things.

Publishing Structure in the New **Era**

Communicating and publishing the results of scientific research is at the core of the scientific enterprise. Since the publication of the first journal in 1665 (Philosophical Transactions of the Royal Society of London), (Mabe, 2009), scientists have been actively writing and publishing research and review articles. During the past four centuries, the medium for scholarly publishing has largely been, printed journals to which individuals, libraries, and institutions subscribe (Aziz, & Benfield, 2010). With the advancement in Internet technology as public good has made possible the worldwide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds." There is no doubt that the public interests vested in funding agencies, universities, libraries, and authors, together with the power and reach of the Internet, have created a compelling and necessary momentum for open access. It won't be easy, and it won't be inexpensive, but it is only a matter of time Frank, (2013) Digital technology enhanced access to journal content, but it did not appreciably reduce the cost of publication. Although paper and postage costs were eliminated, they were replaced by costs associated with online submission-and-review systems and hosting platforms. Online journals did not reduce the cost of acquisition for libraries (Frank, 2013).

According to Aziz and Benfield (2010), the scientific community around the world is now realizing that the current system for scholarly publishing cannot continue in the same way that it has done for the past four centuries, in a pre-Internet world. Recent developments indicate profound changes in the scholarly communication landscape. For

example, Joung and Rowley (2017), while reporting the recent development of open access scholarly communication in Korea, stressed that the country was devoted to the creation of a paradigm of scholarly communication that includes a large OA component and shares many of the fundamental features of open access in other nations, such as stakeholder groups and approaches to managing intellectual property rights. Despite this progress, the study suggests that there are also local variations in each of these areas, which could potentially inform advancement in less-developed countries.

The technology is now available and the environment is sufficiently conducive to allow scholars to invent novel publication models that are not restricted by numbers of pages or other print-specific problems. Under such models, articles are not static or unchangeable once printed; they are not hidden or restricted to the elite but available to all; they are not pre-selected based on subjective criteria or prejudged by outdated journal-level metrics; and their review by peers is a never-ending process, through discussions and debates that start the moment the article is published.

The Serials Crisis

In the 1990s journals were one of the early adopters of the Internet and eagerly encouraged digital dissemination. However this was also accompanied by substantial increases in journal subscription charges, partly due to the additional cost of processing more content and compounded by the costs of implementing new technologies, plus commercial opportunism. Meanwhile, the budgets available to libraries to purchase these journals did not increase similarly, and this led in the late 1990s to what was termed "the serials crisis"

The phrase "serials crisis" has been in use for more than a decade as shorthand for the rise in costs for academic journals and the inability of libraries to bring these costs under control. Price inflation for academic journals significantly exceeds the consumer price index. The data in 2007 show that journal prices increased at an average rate of 8% (Young, 2009). According to Panitch and Michalak (2005), cost increases for academic journals have been well documented; it should be appreciated especially to the annual statistics compiled over many years by the Association of Research Libraries (ARL). Among ARL member libraries in the period 1986-2003, the price per subscription of serials rose by 215%. Notably, the Consumer Price Index rose by only 68% during the same period. Member libraries paid 260% more for their serial subscriptions in 2003 than in 1986 despite having increased the number of subscriptions by only 14%.

There is no doubt that researches are often sponsored by public "funds but at the end the finding are hijacked by commercial publishers. Ash, (2015) lamented that, once the researchers have completed their Research the results are published in an article which has been signed over to the publisher, leaving the researcher with no control over access, dissemination and reuse of their findings. Subsequent use of such articles by the researcher and other academics is reliant upon access via a subscription or incurring other costs to license recuse, all of which is funded through public money paid to the University. This situation came to be viewed by many as unfair especially the notion of erecting barriers (such as pay-walls) to research that was publicly funded. Libraries were faced with a choice of cutting book budgets or cancelling subscriptions, thereby depriving scholars and researchers' access to material. Many academics and researchers felt that the work they had created and was paid for by the public should be available to the public, they felt it was wrong to limit access to knowledge (Ash, 2015). As Suber, pointed out:

> *"The deeper problem is that we donate time, labor and public money to create new knowledge and then hand control over the results to businesses that believe, correctly or incorrectly that their survival depends upon limiting access to that knowledge"*. (Suber, 2012).

It is against this background Open Access emerged as panacea to serial crises.

Open Access

Peter Suber (2012) defines OA "Open Access literature is digital, online, free of charge, and free of most copyright and licensing restrictions". According to Frandsen (2009), several political actions taken to support open access have resulted in a number of declarations. Suber (2008) opined that the Budapest (February 2002), Bethesda (June 2003), and Berlin (October 2003) definitions of open access are the most central and influential for the OA movement. They are collectively termed the BBB statement. These three OA declarations, commonly known as BBB declarations, in the beginning of the 21st century have shaped OA publishing environment in the successive decades. These declarations also have hinted strong philosophical foundations for supporting the ideas and principles of OA (Kumar 2015).According to the Budapest (February 2002), Open Access Means:

> [Literature which is freely available] 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 (Budapest Open Access Initiative, 2002).

To achieve broader open access to research similar international statements were devised that further supported these initiatives; including The Bethesda Statement on Open Access Publishing (2003), Open access is defined by the Bethesda Statement on Open Access Publishing as follows: An Open Access Publication is one that meets the following two conditions:

[1] The author(s) and copyright holder(s) grant(s) to all users

> a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, [2] 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).

The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) being the third "BBB definition" of

Open Access came up as a result of such broad, international commitment, According to Frandsen (2009), The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities is the most recent of the three definitions. Following a three-day conference in the Harnack House of the Max Planck Society in Berlin, the declaration was signed by the invited attendees from German and international research organizations that commit to implementing this definition of open access can sign on to the declaration with the following definition of open access:

> Open access contributions must satisfy two conditions: The author (s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use. "A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established Organization that seeks to enable open access, unrestricted distribution, inter-operability, and long-term archiving."

These series of international meetings were held from 2002-2003 in Berlin, Bethesda and Budapest. The purpose of these meetings was to bring together like-minded individuals and organizations with a common desire to make scholarship freely available online, and to work out a common term and definitions (Morrison, 2012). The Budapest Open Access Initiative (2002), the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003), and the Bethesda Statement on Open Access Publishing (2003), all include very similar definitions of open access, so that collectively this is referred to as "the BBB definition" of open access. There is more to the Budapest, Berlin, and Bethesda (BBB) statements than defining open access; each statement includes strategies for, and commitment to, implementing open access. The Budapest definition is the first and most succinct of the definitions of open access, from the (Budapest Open Access Initiative, 2002).

According to Morrison (2012), the only element considered missing from Budapest is "immediate" open access, addressed in the subsequent Bethesda statement. For instance, when publishers make back issues freely available, they are expanding access, but this.is not full open access. To avoid confusion, it is best to refer to this approach as free access to back issues. Bailey (2006) noted that, in contrast to the Budapest Open Access Initiative (BOAI), the Bethesda Statement introduces the use of a license, specifies the creation of derivative works, and requires the deposit of open access works in digital repositories run by "well-established" organizations. The specification of "small numbers of printed copies" for personal use is also new.

According to Frandsen (2009) these three definitions of open access differ only slightly and because they agree in the substance they are referred to collectively as

the statement (Suber, 2008a). According to Suber (2004b) "[n]early all OA proponents agree on the BBB definition", nevertheless he acknowledges that the term is diluted and "true open access" is debatable. He argues that among other reasons for this dilution is that the definition leaves room for variation. An example of that variation is noted by Harnad (2006) Who stated that his definition is the same as that of the Budapest convention that open access gives free online full text access to peer-reviewed literature. This definition is missing two important words though, "immediate" and "permanent".

Open Access Route

OA pertains to documents made available via two main pathways the Gold route and the Green route (Harnad et al., 2008). They are the open access journal ("gold road") and open access repositories or institutional repositories ("green road"). In more specific terms, Harnard (2013) stated that there are two ways authors can provide OA:

i) By publishing in a journal that makes its articles freely accessible online (this is called OA publishing, or **("Gold OA")** or

ii) By publishing in any journal at all, and making their peer-reviewed final drafts freely accessible online by self-archiving them in an OA repository upon acceptance for publication (this is called OA self-archiving or **('"Green** OA").

OA journals follow procedure of peer-review for their contents. These journals are published to make their contents online free immediately after publication. This is also called as the "golden" road to OA. Some of the publishers such as BioMed Central and the Public Library of Science are providing OA journals. Green OA (self-arching or repositories) involves simply making research output freely available on the World Wide Web. They may belong to institutions, such as universities and laboratories or disciplines such as chemistry and biology. They do not perform peer-review. They may have preprint and post print or both. This is also known as the "green" road to OA. Preprint is pre-peer-review article submitted to a journal. Post prints are articles which are post peer-reviewed. Both pre-print and post-print in electronic format are called e-prints (Kumar & Bansal, 2008).

Propositions on Open Access, Subscription-Based Models, and Print

Within the larger context of societal advancement, there are segments of the population (for instance, medical practitioners, businesses, and scholars) that are implementing open access policies as a means of scholarly communication (Kelly, 2017). The ongoing debates surrounding Open Access to the scholarly literature are multifaceted and complicated by disparate and often polarized viewpoints from engaged stakeholders. At the current stage, Open Access has become such a global issue that it is critical for all involved in scholarly publishing, including policymakers, publishers, research funders, governments, learned societies, librarians, and academic communities, to be well-informed on the history, benefits, and pitfalls of Open Access. In spite of this, there is a general lack of consensus regarding the potential pros and cons of Open Access at multiple levels (Tennant, Waldner, Jacques, Masuzzo, Collister & Hartgerink, 2016).

It was often claim by publishers and publishers' organizations, that the proliferation of OA would set in motion changes in the publishing system which would seriously undermine the current peer review system and hence the quality of scientific publishing. According to Beall, One negative effect of OA comes from entities that attempt to profit by exploiting the pay-to-publish system used by many OA publishers. These publishers operate a sub-category of OA journals known as vanity presses, predatory publishers (Beall, 2012) or pseudo-journals (McGlynn, 2013). These journals, referred to in this work a s

'deceptive publishers', seem to be in the scholarly publishing business primarily to collect publication fees (i.e., APCs) in exchange for rapid publication without formal peer-review (Beall, 2015)

It was equally claimed that the resulting increase in posting of manuscript copies to OA repositories would lead to wide-scale cancellation of subscriptions putting traditional publishers, both commercial and society in jeopardy and in the long run result in an erosion of scientific quality control. This scenario is based on the assumption that the OA publishers would take over an increasing part of the publishing industry and would not provide the same level of rigorous peer review as traditional subscription publishers, which would result in a decline in the quality of scholarly publishing (Tennant, Waldner, Jacques, Masuzzo, Collister & Hartgerink, 2016).

However, commercial publishers have wrong misconception about OA as it is considered as "poisoned apple" that is often seen as obstacle to publishing landscape. According to Poynder (2015), one of the inconvenient truths that the open access movement prefers not to discuss is the fact that a large amount of the content in the circa 4,125 institutional repositories created by research institutions in order to provide open access to their research output is not actually freely available but on "dark deposit", or otherwise inaccessible. In other words, it is not open access. Poynder (2015), further reiterated that publishers too resisted open access; especially green OA, which they believe poses a threat to their revenues.

Proponent of Open Access argued that, Open access is good for education and good for research; by broadening the dissemination of the results of scientific inquiry and discourse, it supports the core mission of the higher education enterprise — its ongoing commitment to the advancement of knowledge. Open access incorporates local research into all interoperable network of global knowledge; increases impact of local research, providing new contacts and research partnerships for authors; removes professional isolation and strengthens economies through developing a strong and independent national science base (Antelman, 2004; Rowlands & Nicholas 2005; Giarlo, 2005, Canada, 2009; Willinsky, 2010 & Suber, 2010).

Projecting the future of Scholarly Publishing

In the recent time Internet has inspired multiple movements toward greater openness — most prominently, open access, open data, open science, and open educational resources Frank, M. (2013). The mission of disseminating knowledge is only half complete if the information is not made widely and readily available to society. As it could be seen within a relatively short period of time, the global publishing monopolists have learned to adapt their business model to OA. As noted by Carrion-Tavarez, (2022), one of the subjects that is now experiencing the fastest growth and a movement with significant transformation potential in scholarly communication is open access. Erik Engstrom, CEO of Reed Elsevier, summarised the transformation process several years ago: "In 2013-we continued to make good progress on our strategy to systematically transform our business into a professional information solutions provider that combines content and data with analytics and technology to deliver improved outcomes for customers" (Elsevier Report, 2013).

Many stakeholders are working to support open access to scholarly communication. Guedon, Kramer, Laakso, Schmidt, Simukovic, Hansen & Patterson (2019) argue that researchers and their needs must be prioritized in future scholarly communication. This scholarly communication system must support and facilitate the use of knowledge and understanding for as many participants and as many purposes as possible, including integration into new lines of investigation

and new forms of education. In the future scholarly communication system, knowledge and understanding created by researchers must be treated as public goods, available for the benefit of members of society as a whole, to improve the well-being of all.

No one can predict the future, but beginnings can result in creatures that change over time escaping the initial interests of parent. Perhaps that will happen in the best of possibilities. While charges of publication are always a consideration for researchers to get their materials in print, the history of charges has been long and varied. Open Access journals appear to have a new business model, but really it is a variation of one long in existence (Caldararo, 2013). New possibilities of knowledge dissemination not only through the classical form, but also an increasingly through the Open Access paradigm via the Internet have to be supported (Schirmbacher, 2008). Many publishers are transforming their services in line with changing scholarly publishing landscape. For instance, Elsevier digital platforms are made available and customers are offered help in uploading, searching, scanning, delivering and processing data and content. In addition, these platforms are communications networks for regulating global data flows among scientists. The RELX Group, including Elsevier with its roughly 3,500 journals and over 48,000 books, has enjoyed great success in this line of business. In 2016 RELX had a turnover of 6.89 billion British pounds, of which Elsevier contributed some 2.32 billion (Elsevier Report, 2013).

With all the issues at hand, the primary goal of scholarly publishing is (supposed to be) the advancement of science through sharing data and findings that fill gaps in knowledge, and allowing peers to evaluate these findings, reproduce them, and build upon them. However, the fundamental problem remains. In many cases, the rate of increase in cost to libraries for electronic access continues to b e greater than the increase in budgets for many libraries. Therefore, we will see the same pattern as has been observed over the past thirty years -the number of people with access will slowly decline as the price of electronic access increases and the information gap will once again widen Prosser, D. C. (2004). This is evident as access to journals back issues is made available to libraries at exorbitant prices and websites that carried out of print journals disappear overnight. While other entities like Google Scholar and Google Books offer the promise of immediate and infinite access to all kinds of publications, the longevity and cost of such venues is up in the air. As a change to the internet takes place with a speed that is related to the fashion of the time and the patience of investors publishing landscape will definitely continue to evolve overtime (Caldararo, 2013)

Experiences of recent years have shown, however, that OA is far more complex than the optimistic standard narrative would lead us to believe. The practice of OA is dominated by a number of different stakeholders with partially conflicting interests. "These include politicians, global publishing consortia, funding agencies, science managers, librarians, digital activists, the computer industry, and researchers themselves, with all these being fat from forming a homogeneous bloc, and including, in the case of medicine, patients, physicians and patient advocacy groups. From this constellation has emerged a conglomerate made up of monetary flows, moral and epistemic economies, legitimate and less legitimate interests of various stakeholders, post-Gutenbergian technophilia and New Public Management, based on which OA becomes a difficult phenomenon to grasp" (Varmus, 2001).

In light of the above, I would argue that the badly damaged system of academic publishing will not be restored to full health by OA *per se*, but at most by the sciences themselves taking greater control over their publications. Two pathways are currently

emerging for how this might be achieved, at least to some extent. One involves the previously mentioned possibility of scientists regaining partial control over the publishing industry and so providing the global concerns with noncommercial competition. The other is for national or international consortia to make contracts with the most important concerns to guarantee price stability, at least for a certain period. Both options are realistic, but each has its pitfalls (Michael, 2018).

Conclusion

In the last two decades OA has gained considerable traction in the recent time. This is evident as scholars, research funders, publishers are continuing to participate in ongoing debates on OA related issues and reconfiguration of this publishing landscape. There is no doubt that, the paradigm shift to digital publishing has brought about important changes to the scholarly communication system which is technology deriving, because OA is facilitated in an internet-based online environment. Thus, OA facilitators as well as users need to establish an online connectivity for knowledge diffusion. Internet services are designed for global as well as local users (Das, 2015). Changes in scholarly communication remain relatively limited in scope, and many opportunities for innovation are not being taken up. Active policy interventions are needed to shape the future of scholarly communication. Current levels of access in the developing world are insufficient and unstable, and OA has the potential to foster the development of stable research ecosystems. While deceptive publishing remains an ongoing issue, particularly in the developing world, increasing public engagement, development of OA policies, and discussion of sustainable and ethical publishing practices can remove this potential threat. For researchers themselves, OA can increase their audience and impact by delivering wider and easier access for readers. For publishers, promoting OA is an answer to the desires and the needs of their research communities. Furthermore, subscription based publishers have (partly) answered the call of the increasing global demand for OA, by giving their green light to author self-archiving (Harnad et al., 2008), as well as by establishing numerous 'hybrid' OA options. On the other hand, gold OA publishing is rapidly increasing its share of the overall volume of peer-reviewed journal publishing, and there is no reason for authors not to choose to publish in OA journals just because of the 'OA' label, as long as they carefully check the quality standards of the journal they consider. The world of scholarly communication stands at a crossroads. On the one hand, there is much potential and actual innovation; on the other hand, cultural, commercial, and technological barriers are limiting this potential. A policy environment that is simply permissive of innovation has been insufficient. Instead, we need a policy environment that will shape a positive future for scholarly communications and so the research system itself.

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