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UNIT 2   OPEN ACCESS: HISTORY AND DEVELOPMENTS

Structure

2.0   INTRODUCTION

Emerging developments in Internet in the 1990s led to global sharing of knowledge and universal access to information resources. Scholarly communication channels got tremendous impetus, when Internet pushed further their reach, availability and readership. Adaptation of information and communication technologies (ICT) in academic research environment helped in enhancing productivity of research scholars. Borderless or cross-border nature of Internet pushed further global access to knowledge resources and academic databases round the corner in 24X7 timeframe. Many scholarly journals in print format started publishing their electronic edition, which since then are popularly known as electronic journals or e-journals. Scholarly open access (OA) journals are a kind of e-journals available in online environment through Internet, without any access barrier, such as annual subscription fee. 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. Then researchers' communities availed not only free access to scholarly contents, but also other bundle of rights need to be provided to creators and users of research literature. Freedom of sharing, archiving, reusing and remixing of scholarly contents was not available through normal copyright protection mechanisms. Copyright laws of many countries discouraged public sharing or reusing of scholarly contents. While extending freedom of sharing or reusing to user groups through the alternative to copyright protection pathways, such as Creative Commons (CC) or CopyLeft licenses, users groups happily make use of these community

resources for further production and distribution of knowledge. While protecting creators' rights, CC licenses churn out full potentials of OA research literature.

In this Unit, the genesis of OA publishing is briefly discussed. This Unit also highlights different benefits OA publishing promises, different approaches and business models of OA. Finally, this Unit gives you an overview of long-terms preservation models available for OA and other scholarly electronic contents.

2.1 LEARNING OUTCOMES

After going through this unit, you are expected to be able to:

- Define and explain OA from the perspective of its historical developments;
- Distinguish between Green and Gold OA, and also understand emerging approaches to OA;
- Explain the OA advantages, and argue for promoting OA to scientific information;
- Identify business models for promoting OA; and
- Understand long-term digital preservation models available to OA knowledge resources.

2.2 OPEN ACCESS – DEFINITIONS

Open access to knowledge is a generic term used for knowledge resources made available in the public domain for public access or public consumption at large scale, without any hindrance of subscription fee or access charges. 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. User interfaces and languages of scholarly communications are to be suitable for global users for achieving fruits of OA.

Peter Suber (2012) defines OA "Open Access literature is digital, online, free of charge, and free of most copyright and licensing restrictions". He further elaborates terminologies used in popular OA movement, as shown in Figure 2.1.

The OA movement uses the term *Gold OA* for OA delivered by journals, regardless of the journal's business model, and *Green OA* for OA delivered by repositories. *Self-archiving* is the practice of depositing one's own work in an OA repository. All three of these terms were coined by Stevan Harnad.

Work that is not open access, or that is available only for a price, is called *Toll Access* (TA). … While every kind of OA removes price barriers, there are many different permission barriers we could remove if we wanted to. If we remove price barriers alone, we provide *Gratis OA*, and if we remove at least some permission barriers as well, we provide *Libre OA*.
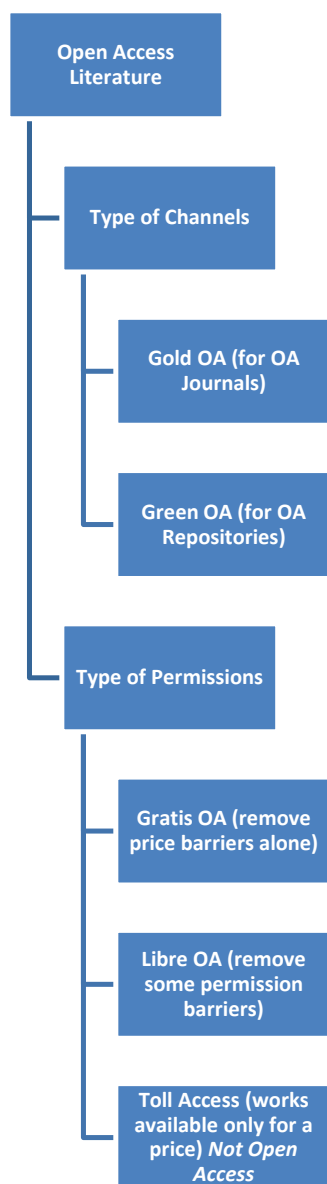
Figure 2.1: Popular OA Terms

2.3   OPEN ACCESS – PHILOSOPHY

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.

The Budapest Open Access Initiative (2002) recorded the philosophical understandings of its signatories:

An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the

willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide 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. 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.

On the other hand, signatories of the Berlin Declaration (2003) believe that:

The Internet has fundamentally changed the practical and economic realities of distributing scientific knowledge and cultural heritage. For the first time ever, the Internet now offers the chance to constitute a global and interactive representation of human knowledge, including cultural heritage and the guarantee of worldwide access. ... We, the undersigned, feel obliged to address the challenges of the Internet as an emerging functional medium for distributing knowledge. Obviously, these developments will be able to significantly modify the nature of scientific publishing as well as the existing system of quality assurance. ... We have drafted the Berlin Declaration to promote the Internet as a functional instrument for a global scientific knowledge base and human reflection and to specify measures which research policy makers, research institutions, funding agencies, libraries, archives and museums need to consider. ... Our mission of disseminating knowledge is only half complete if the information is not made widely and readily available to society. New possibilities of knowledge dissemination not only through the classical form but also and increasingly through the open access paradigm via the Internet have to be supported. We define open access as a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community. ... In order to realize the vision of a global and accessible representation of knowledge, the future Web has to be sustainable, interactive, and transparent. Content and software tools must be openly accessible and compatible.

We see the similar sentiments and beliefs are reflected in the Bethesda Statement (2003) as well. The Statement indicates:

Scientific research is an interdependent process whereby each experiment is informed by the results of others. The scientists who perform research and the professional societies that represent them have a great interest in ensuring that research results are disseminated as immediately, broadly and effectively as possible. Electronic publication of research results offers the opportunity and

the obligation to share research results, ideas and discoveries freely with the scientific community and the public.

These three pioneering declarations got wide supports from the Noble laureates and renowned global thinkers. Similarly, other global, national, regional and institutional OA mandates, introduced after BBB declarations, have recognized and enacted upon philosophical foundations carved in these three pioneering declarations. All of them endorse the principles of the OA model for maximizing the access and benefit to scientists, scholars and the public throughout the world.

2.4　OPEN ACCESS – EVOLUTION

OA movement is a worldwide phenomenon to mitigate challenges faced by the global libraries and research institutions related to 'serials crisis' – a spiraling effect of constant increase in subscription cost of many scholarly journals and exponential hike of online access fees of e-journals in 1990s that led to cancellation or reduction of subscriptions of many over-priced serials due to budgetary limits. OA initiatives have tried to provide initially Gratis OA and later Libre OA to scholarly literature. The first ever formal OA repository launched was the arXiv.org in 1991 which helped researchers in self-archiving of their electronic preprints of scientific papers in the fields of physics, mathematics, computer science, quantitative biology, quantitative finance and statistics.

Table 2.1: Indicative Open Access Timeline[7]

1991	2000				2001	2002					2003			2006	2007	2008
arXiv.org Repository Launched	PubMed Central Repository Launched	EPrints software Released	PLOS journals Launched	BioMed Central journals Launched	OJS (Open Journal Systems) Software Released	SPARC Launched	DSpace software Released	Creative Commons Licenses Released	Budapest OA Initiative (Declaration)	OAIster Database Launched	Berlin, Bethesda Declarations	WSIS Action Lines Launched	DOAJ (Directory of Open Access Journals) Launched	OpenDOAR (Directory of Open Repositories) Launched	Celebration of Open Access Week Started	OA Scholarly Publishers Association (OASPA) Launched

As indicated in Table 2.1, there were many events in the first decade of the 21st century that marked the emergence of OA literature as a substantial mode of scholarly communications. Many stakeholders came forward in building institutions and resources for shaping up the global OA movements. Some of

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[7] http://legacy.earlham.edu/~peters/fos/timeline.htm

the institutions emerged during this decade are namely, Public Library of Science (PLOS), BioMed Central (BMC) – publishers of peer-reviewed OA journals, the Scholarly Publishing and Academic Resources Coalition (SPARC), and Open Access Scholarly Publishers Association (OASPA). Most importantly, the Budapest, Berlin and Bethesda (BBB) OA declarations or statements got signed by the scholarly communities, particularly by the funding agencies, research councils, learned societies, institutions, universities, and scientists for the OA dissemination of public funded research.

2.5 APPROACHES TO OPEN ACCESS

OA publications are predominantly available through gold and green OA channels, as indicated in earlier sections. Another few models have been introduced very recently by the commercial publishers for featuring some parts of their scholarly contents in OA domain. Those are mainly selective open contents with or without appropriate OA permissions or licenses. Some of the popular OA models as practiced by the e-journal publishers are: (i) Hybrid OA, (ii) Delayed OA, (iii) Short-term OA, (iv) Selected OA, and (v) Partial OA. In hybrid OA model, publishers publish OA articles in toll-access scholarly journals, after receiving certain article processing charges (APC) from the authors. In Delayed OA model, publishers offer free access after a specified period, anywhere from 6 months to 2 years. In Short-term OA model, publishers offer free access until a specified period, anywhere from 6 months to 1 year. Then after, contents are available to subscribers only. In Selected OA model, publishers selectively offer free access to selected contents only. Other contents are available to subscribers only. In Partial OA model, publishers selectively offer free access to contents of particular sections only, e.g., research papers, but not review papers. Other contents are available to subscribers only.

Usually in Gold OA and Hybrid OA models, publishers publish articles with Creative Commons (CC) licenses. These two models belong to Libre OA category. OA contents available with other four models don't explicitly carry CC or similar licenses. These four models mainly belong to Gratis OA category. Figure 2.2 gives a glimpse of different approaches of OA to scholarly literature, where a diversity of content models is recorded.
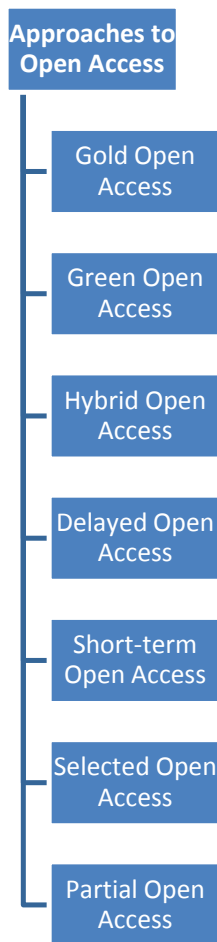
Figure 2.2: Popular OA Approaches

2.6   BENEFITS OF OPEN ACCESS

The BBB open access statements and associated literature have identified major benefits of OA scholarly publishing. Primary benefit is to provide removal of access barriers, as there is no cost associated with subscriptions or online access. There is no access restriction in OA mode, leading to bridging knowledge divides between global North and global South. Many benefits of OA publishing are related to global nature of Internet. Internet brings every piece of online content to a general or specialized audience, depending on nature of contents. These free contents are outreached globally, accessed and appreciated by global communities. So, OA publishing brings full potentials of the communicated research. To an author these include increased global visibility, increased accessibility in both developed and developing countries, increased possibilities of get cited, and increased article level metrics or altmetrics. Other researchers seeking research collaborations get engaged with the publishing authors for possible international collaborations at the institutional or individual level. The OA contents also offer a window for receiving constructive feedbacks, comments, and opinions. These critical reflections enrich the published OA contents. Both readers and authors can

then be a part in the advancement of knowledge, offered by OA scholarly literature. Figure 2.3 elaborates different benefits of OA scholarly literature, as observed or perceived by the scholarly communities.
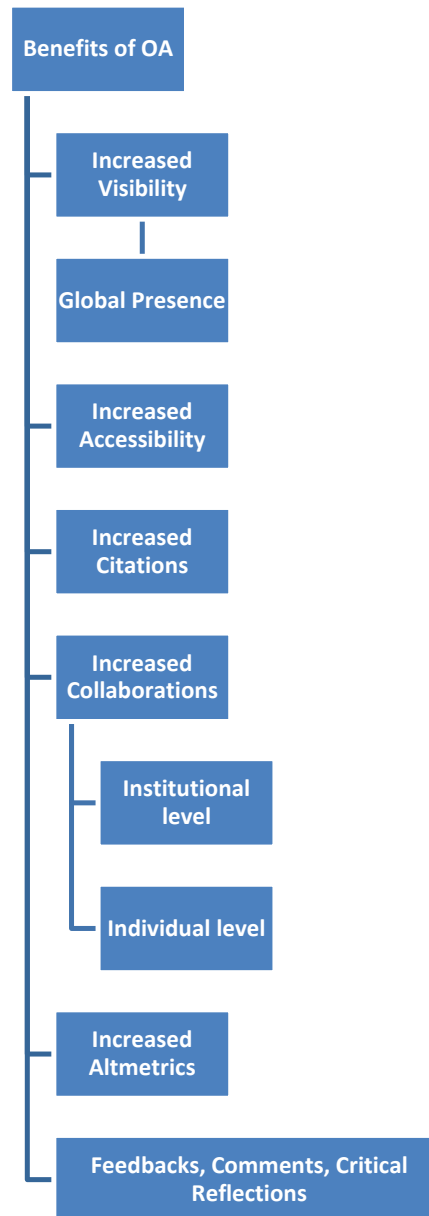
Figure 2.3: Observed Benefits of OA Scholarly Literature

2.7   ARGUMENTS AGAINST OPEN ACCESS AND RESPONSES

In the first two decades of the 21st century, we see high growth rate of the number of OA journal titles. DOAJ has recorded about 9750 scholarly OA journals, whereas OpenDOAR recorded about 2600 OA repositories available across the world as on March 2014. We also have observed that there is also entry of predatory OA journals, promising quick publishing avenue to

researchers – obviously with a price of APC paid by the prospective authors. However, there are various checks and balances to restrict operations of predatory OA journals, such as strict inclusion criteria at DOAJ and OASPA. Beall List (ScholarlyOA.com) also provides regular alerts to scholarly communities about potential, possible, or probable predatory scholarly open-access publishers. Some of them are either not accredited by DOAJ and OASPA, or excluded from these two self-regulatory bodies.

Table 2.2 provides summary of arguments against OA publishing and their suitable responses. The editorial office of a peer-reviewed OA journal should be equipped with supportive editorial advisory board that can scrutinize and peer-review the submitted manuscripts with academic rigour. Table 2.2 argues that OA and non-OA journals would have comparable publishing standards, which can drive OA journals' acceptance, recognition and reputation if they follow self-regulatory industry standards and best practices time to time.

**Table 2.2: Arguments against Open Access Publishing and
Suitable Responses**

Arguments Against Open Access	Responses
OA journals don't have exhaustive or in-depth peer reviewing process.	COPE and OASPA-accredited OA journals follow very exhaustive and in-depth peer reviewing process, comparable with traditional non-OA scholarly journals.
Peer reviewing is not satisfactory enough to validate scientific findings matching existing standards and methodologies.	Peer reviewing is highly satisfactory in many journals, particularly which are having high rate of citations or altmetrics. These journals have comparable academic rigour while accepting papers.
Academic rigour in OA journals is not proven.	Academic rigour is proven when an OA journal becomes a high ranking journal in a specialized or specific scientific discipline, or, when the journal receives high rate of citations/ altmetric score.
APC (article processing charge) is major hurdle in getting published in OA journals.	Some studies indicate that only a handful of OA journals accept APC from prospective authors. Others don't accept an APC from the authors. Many of them don't consider APC as main source of revenue. On the other hand, toll-access journals charge a print or online subscription fee – unaffordable to many institutions in the developing as well developed nations.

2.8   OPEN ACCESS BUSINESS MODELS

You have learned about different dimensions of OA journals and OA repositories. In addition to OA journals and OA repositories, other products of scholarly communications have started opening up their resources online for free and equitable access. Many of these resources are also available with CC licenses ensuring freedom of sharing, reusing, redistribution, and remixing. These have specific formats and cater to specific audiences. Some OA repositories provide access to a mixed kind of resources, whereas some gateways or portals are available for dissemination of specific kind of resources. Open Educational Resources (OER) have special role to supplement lifelong learning, continuous education, vocational education and distance learning. Massive Online Courses (MOOCs), Open Textbooks and Open Courseware are also associated with global deployment of OER. Some publishers now have been publishing OA books and OA monographs utilizing author's pay model, receiving an APC from authors for publishing such books or monographs. OA books and monographs can be searched from the Directory of Open Access Books[8] (DOAB). An open source software – the PKP Open Conference Systems[9] (OCS) is available from the Public Knowledge Project, helping organizers of scholarly conferences with a free web publishing tool. This software is widely used by the academic institutions, universities and learned societies to create a complete web presence for their conferences. Papers presented in these conferences are freely available in OA mode. Some commercial publishers are also co-publishing OA conference proceedings, in collaborations with scholarly conference organizers. The theses and dissertations are very useful form of scholarly communications, originated from the doctoral, pre-doctoral and post- doctoral research studies undertaken in universities and research institutions. There are certain format-specific OA repositories, which deal with theses and dissertations, also known as ETD (electronic theses and dissertations) repositories. An international organization - the Networked Digital Library of Theses and Dissertations (NDLTD) promotes the adoption, creation, use, dissemination and preservation of electronic theses and dissertations. Many of the ETD and OA repositories are indexed in the OAIster[10] database and are searchable from its portal. Figure 2.4 shows format specific business models in OA publishing, based on nature of contents of full-text documents getting globally disseminated to scholarly audiences.
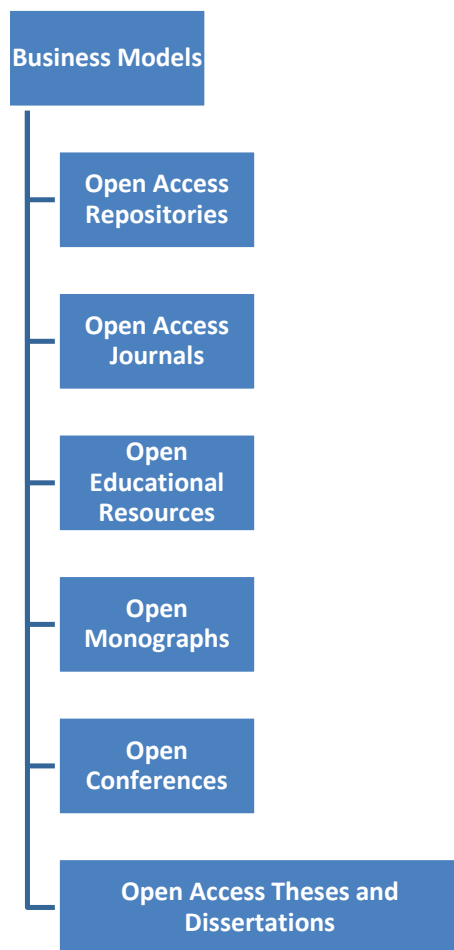
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[8] http://www.doabooks.org
[9] http://pkp.sfu.ca/ocs/
[10] http://oaister.worldcat.org

Figure 24: Business Models in Open Access Publishing

2.9   LONG-TERM PRESERVATION MODELS

OA publishing is an online activity that emphasizes on global dissemination of scholarly publications. Gold, hybrid and other kinds of OA publishing channels often create OA contents that are made available through portals of respective publishers. In an online environment, there is always an associated risk of pre-mature closure of a portal, a gateway, an OA publisher or an electronic journal. What we are seeing today in an online environment may not be available tomorrow. Many of the online portals, gateways, e-journals, online repositories or online databases will be unavailable or will be transformed into new entities in tomorrow's online environment. The internet technologies are changing at much faster pace than human civilizations. As more and more contents are created online, there is growing concern that this digital content may not always be available. We can closely observe what happened when many of the Web 1.0 services got transformed into Web 2.0 or later version. Thus, we need to have a very effective long-term preservation plan for easy retrieval of the present born digital contents by the future generations.

Presently, two major long-term preservation programmes are available to academic libraries, researcher institutions and scholarly publishers, namely LOCKSS[11] and CLOCKSS. The LOCKSS Programme, initiated in 1999 at the Stanford University Libraries, is an open-source, library-led digital preservation system built on the principle of "Lots of Copies Keep Stuff Safe". LOCKSS follows a few unique principles that are vital to successful long-term preservation. Those principles are:

- Decentralized and distributed preservation (Lots of Copies Keep Stuff Safe)

- Give libraries local custody and control of their assets

- Preserve the publisher's original authoritative version

- Perpetual access – guaranteed and seamless

- Affordable and Sustainable.

In LOCKSS Program, libraries are building and preserving collections of OA titles and subscribed e-journals and e-books, using the LOCKSS software. The collaborative collections become part of the Global LOCKSS Network. Libraries can also participate in Private LOCKSS Networks to preserve manuscripts and image collections, data sets, and government document collections.

The CLOCKSS[12] (Controlled LOCKSS) initiative, launched in 2005 as a non-profit venture, is a partnership of libraries and publishers committed to ensuring long-term access to scholarly work in digital format. It maintains the CLOCKSS Archive for long-term preservation of scholarly contents archived by its members. CLOCKSS has provision of permanent preservation of abandoned and orphaned contents with a Creative Commons license to ensure these contents remain available forever. CLOCKSS runs on LOCKSS technology. While LOCKSS is an open network, CLOCKSS is a closed system. These two systems are also experimenting with open file formats, which are device independent or software independent for future retrieval of archived contents.

Many OA publishers, e-journal publishers as well as research libraries are actively participating in both the LOCKSS and CLOCKSS programmes. However, some of the OA publishers and research libraries are left out, particularly which are operating outside the North America and Europe. We need to develop a culture of long-term preservation for making our scholarly works permanently available to the future generations, even when the publisher has ceased to exist.

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[11] http://www.lockss.org
[12] http://www.clockss.org

2.10 LET US SUM UP

In this Unit, you have learned about different dimensions of OA publishing – particularly its genesis, community movements, benefits, approaches, business models and long-term preservation models. Different stakeholders of the knowledge societies, particularly who are involved in production of knowledge, creation, dissemination and consumption of scholarly contents, have supported global and local OA movements for making public funded research literature available through OA modes. Now we need to develop a culture of openness for long-term sustainability of community knowledge being recorded and disseminated through OA channels.

2.11 CHECK YOUR PROGRESS

a) Which is the oldest disciplinary digital repository?

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b) What is green open access?

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c) What is gold open access?

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d) Which is the online database available for identifying OA books on a particular subject?

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e) Who is the founder of LOCKSS initiative?
   i)   Yale University Libraries
   ii) Stanford University Libraries
   iii) University of Michigan Libraries.
   iv) MIT Press

f) Which is not an OA Directory?

    i)   DOAJ

    ii) OpenDOAR

    iii) DOAB

    iv) OAIster

g) Which is a metadata search service for repositories?

    i)   DOAJ

    ii) WorldCat

    iii) OAIster

    iv) DOAB

h) Who was the founder of OAIster initiative?

    i)   Yale University

    ii) University of Michigan

    iii) Stanford University

    iv) Royal Society of London

i) What is the usual delay period in Delayed OA?

    i)   About 6 months to 2 years

    ii) About 1 to 6 months

    iii) About 2 years to 3 years

    iv) None of the above.

ONLINE VIDEOS FOR SELF-LEARNING

There are a number of video tutorials available on topics discussed in this Unit. Some of the tutorials were developed by the reputed institutions, libraries and scientists. Now, you can learn more about OA models, approaches and OA movements around the world.

- *CLOCKSS and Portico: United on Preservation* **Video**[13]
- *Digital Preservation and LOCKSS* **Video**[14]
- *Evolution of Science: Open Science and the Future of Publishing* **Video**[15]
- *Open Access – Towards New Peer-Review Models* **Video**[16]
- *Open Access: Green, Gold, Gratis, Libre, North, South How To Get There* **Video**[17]
- *Promising Business Models for Open Access Monographs* **Video**[18]
- *Why Libraries Should Care About LOCKSS* **Video**[19]

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[13] http://www.youtube.com/watch?v=4PGPkL7rce4
[14] http://www.youtube.com/watch?v=TOE_Jw23cVg
[15] http://www.youtube.com/watch?v=yELZ3kbFj1w
[16] http://www.youtube.com/watch?v=RmmLqsVtgCY
[17] http://vimeo.com/42384098
[18] http://www.youtube.com/watch?v=5bz6U7r7lxw
[19] http://www.youtube.com/watch?v=POJf38RzihA

ANSWERS TO CHECK YOUR PROGRESS

Unit 2

      Q-(e) ii,

      Q-(f) iv,

      Q-(g) iii,

      Q-(h) ii,

      Q-(i) i.

Unit 3

      Q- (f) ii,

      Q- (g) iv,

      Q- (h) iii,

      Q- (i) i,

      Q- (j) iv.

Unit 4

      Q-(e) iv,

      Q-(f) ii,

      Q-(g) ii,

      Q-(h) i,

      Q-(i) ii,

      Q-(j) iv.

Unit 5

      Q-(f) i,

      Q-(g) ii,

      Q-(h) ii,

      Q-(i) iii,

      Q-(j) iv.

GLOSSARY OF TERMS

Advocacy	It is a political process by an individual or group which aims to influence public opinion, public-policy and resource allocation decisions within political, economic, and social systems and institutions. It can include many activities that a person or organization undertakes including media campaigns, public speaking, commissioning and publishing research.
Altmetrics	Altmetrics is a new metrics proposed as an alternative to the widely used journal impact factor and personal citation indices such as h-index. The term altmetrics was proposed in 2010, as a generalization of article level metrics, and has its roots in the twitter #altmetrics hashtag.
Article	The article influence determines the average influence of a

Influence® score	journal's articles over the first five years after publication. It is calculated by dividing a journal's EFS by the number of articles in the journal, normalized as a fraction of all articles in all publications.
Arts & Humanities Citation Index	It is the third commercially available citation index, launched in 1978 by the ISI. Now it is available with the WoS/ WoK platform.
Author Addendum	A legal instrument that modifies the publisher's agreement and allows you to keep key rights to your articles.
Author Rights	A bundle of rights which are part of copyright law, such as right to share, use, reuse, modify, perform and remix.
Capacity Building	It is a conceptual approach to development that focuses on understanding the obstacles that inhibit people, governments, international organizations and non-governmental organizations from realizing their developmental goals while enhancing the abilities that will allow them to achieve measurable and sustainable results. It is also referred to as capacity development.
Citation	It is a reference to a text or part of a text identifying the document in which it may be found.
Citation analysis	It is the examination of the frequency, patterns, and graphs of citations in articles and books. It uses citations in scholarly works to establish links to other works or other researchers. It is one of the most widely used methods of bibliometrics.
Citation Index	It is a bibliographic tool in print or electronic format that lists all referenced or cited source items published in a given time span.
Cited Half-Life	It is a measurement used to estimate the impact of a journal. It is the number of years, going back from the current year, that account for 50% of the total citations received by the cited journal in the current year. ISI developed this calculation to provide an indicator as to the long-term value of source items in a single journal publication.
Citing Half-Life	The number of journal publication years, going back from the current year that account for 50% of the total citations given by the citing journal in the current year. ISI developed this calculation to provide an indicator of the subtle changes in scope of a publication over the course of time.
Coalition	It is a pact or treaty among individuals or groups, during which they cooperate in joint action, each in their own self-interest, joining forces together for a common cause. This alliance may be temporary or a matter of convenience.
Copyleft	An arrangement whereby software or artistic work may be used, modified, and distributed freely on condition that anything derived from it is bound by the same conditions.

Copyright	The exclusive and assignable legal right, given to the originator or creator or author for a fixed number of years, to print, publish, perform, film, or record literary, artistic, or musical material.
Copyright Transfer Agreement	An agreement between authors and publishers, where authors transfer some exclusive rights to publishers.
Delayed OA	It offers free access after a specified period. A journal will make its articles freely available after a period of time, anywhere from 6 months to 2 years.
Digital Preservation	In library and archival science context, it is a formal endeavour to ensure that digital information of continuing value remains accessible and usable.
Eigenfactor® score	It is based on the number of times articles from the journal published in the past five years have been cited in the JCR year, but it also considers which journals have contributed these citations so that highly cited journals will influence the network more than lesser cited journals. References from one article in a journal to another article from the same journal are removed, so that Eigenfactor Scores are not influenced by journal self-citation.
Gratis OA	It removes price barriers alone. It is free of charge, but not free of copyright, or licensing restrictions.
H-Index	It refers to Hirsch's H-Index, suggested by physicist Jorge E. Hirsch. It is the largest number h such that h publications have at least h citations.
Hybrid OA	It offers free availability of certain articles written by authors who choose to pay a publication charge or APC to make their articles OA immediately on publication, while the rest of the articles requires a subscription to access.
i10 Index	It, introduced in 2011 by Google Scholar, indicates the number of academic publications an author has written that have at least ten citations from others.
Institutional Repository	It is an online archive for collecting, preserving, and disseminating digital copies of the intellectual output of an institution, particularly a research institution. Usually it is in OA.
Journal Citation Reports	It is a tool, launched in 1975 by the ISI, for ranking academic journals analysing citations count, journal impact factor and journal immediacy index. Presently it has two annual editions for science and social sciences, based on SCI-E and SSCI.
Journal Immediacy Index	It is the average number of times that an article published in a specific year within a specific journal is cited over the course of that same year.
Journal	It is the number of current citations to articles published in a

Impact Factor	specific journal in a two year period divided by the total number of articles published in the same journal in the corresponding two year period.
Libre OA	It removes price barriers and at least some permission barriers as well. It is free of charge and expressly permits uses beyond fair use.
Licence to Publish	An exclusive right authors grant to publishers.
License	A permission or authorization that ensures licensors get the credit for their work.
Open Source Software	It is computer software with its source code made available and licensed with a license in which the copyright holder provides the rights to study change and distribute the software to anyone and for any purpose.
Partial OA	It offers free availability of the journal's primary research articles, but access to other value-added content such as editorials and review articles requires a subscription.
Scholarly Journal	It is a peer-reviewed periodical publication in which scholarship relating to a particular academic discipline is published. Academic journals serve as forums for the introduction and presentation for scrutiny of new research, and the critique of existing research.
Science Citation Index	It is the first commercially available citation index, launched in 1964 by the ISI. Now it is available with the WoS/ WoK platform.
SCImago Journal Rank	It is a prestige metric based on the idea that 'all citations are not created equal'.
Scopus	It is the world's largest abstracting and citation database of peer-reviewed literature.
Selected OA	It offers free availability of selected articles of a journal issue, while the rest of the issue requires a subscription to access.
Self-Citation	It is a reference an author provide in a document to other documents written by himself/ herself.
Serials Crisis	A common phenomenon to describe the constant increase in subscription cost increases of many scholarly journals.
Short-term OA	It provides free access to articles for a short period after publication, after which they are only available to paid subscribers.
SNIP	It measures contextual citation impact by weighting citations based on the total number of citations in a subject field.
Social Science Citation Index	It is the second commercially available citation index, launched in 1972 by the ISI. Now it is available with the WoS/ WoK platform.

LIST OF ABBREVIATIONS

ACD	IFLA Acquisition & Collection Development
A&HCI	Arts & Humanities Citation Index
AIS	Article Influence® score
ALM	Article Level Metrics
Altmetrics	Article Level Metrics
APC	Article Processing Charge
ATA	Alliance for Taxpayer Access
BBB	Budapest, Berlin and Bethesda OA declarations
BMC	BioMed Central
BOAI	Budapest Open Access Initiative
CC	Creative Commons
CC BY	Creative Commons Attribution
CC BY-NC	Creative Commons Attribution- Non-Commercial
CC BY-NC-ND	Creative Commons Attribution- Non-Commercial- No Derivatives
CC BY-NC-SA	Creative Commons Attribution- Non-Commercial- Share Alike
CC BY-ND	Creative Commons Attribution- No Derivatives
CC BY-SA	Creative Commons Attribution- Share Alike
CLOCKSS	Controlled LOCKSS
COAPI	Coalition for Open Access Policy Institutions
COPE	Committee on Publication Ethics
CTA	Copyright Transfer Agreement
DCC	Digital Curation Centre
DOAJ	Directory of Open Access Journals
DOI	Digital Object Identifier
DOI	Digital Object Identifier
DORA	San Francisco Declaration on Research Assessment
DRM	Digital Rights Management
EFS	Eigenfactor® score
EIFL	Electronic Information for Libraries
EOS	Enabling Open Scholarship
ERA	European Research Area
ETD	Electronic Theses and Dissertations
EU	European Union
FAO	Food and Agriculture Organization
FASTR	Fair Access to Science and Technology Research

FOSTER	Facilitate Open Science Training for European Research
FP7	Seventh Framework Programme for Research and Development
FSF	Free Software Foundation
GPL	GNU General Public License
GSC	Google Scholar Citations
HC-Index	Contemporary H-Index
H-Index	Hirsch Index
HTML	Hypertext Markup Language
I2S2	Infrastructure for Integration in Structural Sciences Project, U.K.
INASP	International Network for the Availability of Scientific Publications
IPR	Intellectual Property Rights
ISI	Institute for Scientific Information, USA
JCR	Journal Citation Reports
JIF	Journal Impact Factor
JII	Journal Impact Factor
JISC	Joint Information Systems Committee, United Kingdom
LIBER	Association of European Research Libraries
LOCKSS	Lots of Copies Keep Stuff Safe
LTP	Licence to Publish
MOOC	Massive Online Courses
NDLTD	Networked Digital Library of Theses and Dissertations
OA	Open Access
OAI	Open Archives Initiative
OASPA	Open Access Scholarly Publishers Association
OCC	Open Citations Corpus
OCS	Open Conference Systems
OCW	Open Courseware
ODL	Open and Distance Learning
OER	Open Educational Resources
OHS	Open Harvester Systems
OJS	Open Journal Systems
OpenDOAR	Directory of Open Repositories
OPL	Open Content License
OSS	Open Source Software
PKP	Public Knowledge Project
PLOS	Public Library of Science
PLOS ALM	PLOS Article Level Metrics.
PMC	PubMed Central

POP	Publish or Perish software
R&D	Research and Development
RLUK	Research Libraries in the UK and Ireland
ROARMAP	Registry of Open Access Repositories Mandatory Archiving Policies
RoMEO	Rights Metadata for Open Archiving
SCI-E	Science Citation Index Expanded
SciELO	Scientific Electronic Library Online
SJR	SCImago Journal Rank
SNIP	Source Normalized Impact per Paper
SPARC	Scholarly Publishing and Academic Resources Coalition
SSCI	Social Science Citation Index
SSRN	Social Science Research Network
UKOLN	United Kingdom Office for Library and Information Networking
UNESCO	United Nations Educational, Scientific and Cultural Organization
URI	Uniform Resource Identifier
WIPO	World Intellectual Property Organization
WoK	Web of Knowledge
WoS	Web of Science
WSIS	World Summit on the Information Society

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