# Chapter 7
# Open Science and Its Impact on Libraries, Publishers, and Authors

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## ABSTRACT

*The open science movement enables the accessibility and reusability of research output across the globe. Researchers and other stakeholders in the research process can now easily collaborate to add to the body of knowledge. This chapter documents how open science is impacting the role of libraries, publishers, and authors in the digital era. A structured document analysis and web analysis were done to find out how authors, publishers, and librarians are affected by open science. It was found that librarians are taking advantage of open science to provide various information sources to patrons, the publishers are now charging article processing fees to make the journal articles open access upon publishing, and authors are now able to access many information sources during the research process and enjoy greater visibility of their research output. The author recommends the adoption of open science especially in the developing countries and the enactment of policies that support open science at national, regional, and international levels.*

## INTRODUCTION

It has been noted that the open science movement have been focusing on the improvement of the traditional research cycle (David 2008). Proponents of open science (David 2008, Molly 2011) felt that research should be open from the initial stages to enable researchers to get access to all the information sources they want in various formats without any restriction. They added that the research system is largely funded by the public but governed by private interests and as a result, it has some restrictions in terms of what authors and libraries can do during the research process and with the research output. The business model is regarded as primary while research and communication is secondary. This is coupled

with other challenges in research institutions and institutions of higher learning where researchers and librarians have other responsibilities such as teaching, on top of publishing. It is against this background that a study was done to unpack how open science is impacting libraries, authors and publishers. The objective of this chapter is to define open science and look at the benefits and challenges that have been brought by open science among the authors, libraries and publishers.

## OPEN SCIENCE INITIATIVES

There are various open science initiatives that have been taking place globally (Lasthiotakis, Kretz, Sá 2015). These were driven by various open science platforms such as the African Open Science Platform (AOSP), Open Science Policy Platform by the European Commission, China Open Science among others. In Europe, the European Open Science Cloud was created to support the archiving of data in research funded by public funds using the FAIR principles (Orion open science 2019). The Panton Principles were also written to promote open science in July 2009 in Cambridge. Vollmer states that the Amsterdam call for action on open science advocates for open access of scientific publications especially those funded by public funds (Vollmer 2016). Ahinon and Havemann (2018) pointed out that in Africa, the adoption of open science has been slow in various countries especially the French-speaking Sub-Saharan African countries. The African Open Science Platform is funded by the South African Department of Science and Technology while it is managed by Academy of Science of South Africa (ASSAF) and the direction is provided by CODATA (AOSP 2019).

It has been pointed out that open science would develop if there is favourable infrastructure to acquire, curate and disseminate data and information and the availability of protocols, policies and procedures to support the research process as shown in figure 1.

The diagram shows that open science can only be achieved if it is promoted at every stage of the research process. Therefore, this calls for the development of inter-regional links, collaboration among various stakeholders, and exchange of ideas and good practices in order to achieve the objectives of open science. Most of the supporting policies are on open access and these include the AmeLICA, Coalition S, OA 2020, SciELO, Sao Paulo statement on OA 2018, Berlin declaration 2003, Bethesda statement 2003 and Budapest OA initiative 2002. Therefore, there is need to look at other facets of open science to ensure that there are enabling policies which would promote the adoption of open science in research institutions and publishers.

## METHODOLOGY

A structured document analysis and web content analysis were done to find out how authors, publishers and librarians are affected by open science. The search words that were used to look for documents were open science AND libraries, open science AND authors, and open science AND publishers. The content from the retrieved information sources was analysed using content analysis and the data was presented thematically.

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