Chapter 11
Open Access and the Future of Scholarly Communication in Sub-Saharan Africa

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ABSTRACT
The concept of open access has opened up access to scholarly communication. Academia today can publish and have access to a cocktail of information resources without restrictions and without paying anything. This chapter seeks to explain open access to scholarly communication and its future in Sub-Saharan Africa. The chapter begins by explaining the concept of open access, various forms of open access publishing, benefits of open access, and a brief history of open access to scholarly communication in Sub-Saharan Africa. The chapter also highlights some notable open access initiatives that have been implemented in Sub-Saharan Africa in the quest to improve access to scientific research findings in order to accelerate economic development. Furthermore, the chapter catalogues some challenges being encountered in the promotion of open access in Sub-Saharan Africa. Lastly, the chapter predicts the future of open access to scholarly communication in Sub-Saharan Africa, based on the current happenings in this sector.

INTRODUCTION
The Internet and World Wide Web (WWW) are among technologies that have had a profound impact on mankind (Bwalya, 2014). The birth of Internet and W3 have ushered scholars into the much dreamed realm of freely exchange of scholarly information called open access (OA). The philosophy of OA seeks to return scholarly publishing to its original purpose of disseminating knowledge and allowing the creation of new knowledge (The Right to Research Coalition, 2019). This brings the concept of OA
in line with the concept of Open Science (OS). According to ORION (2020), OS is the movement to make scientific research, data and their dissemination available to any member of an inquiring society, from professionals to citizens. Proponents of OS argue that OA is one of the components of OS which ensures that scientific findings are published in OA avenues to ensure unlimited access to such findings. Whatever the argument, it has been observed that OA movement facilitates the realisation of OS; hence, it is practically impossible to think of OS without OA publishing. It is therefore paramount for scientific communities to fully embrace OA publishing if the much publicised concept of OS has to be fulfilled.

OA has been found to be impactful on the scholarly communication and scientific publishing. According to Piwowar (2018), at least 28% of the scholarly literature is OA and the proportion is growing, driven particularly by growth in gold and hybrid forms of OA. Further, Piwowar et al (2018) findings show that 47% of the articles viewed online were OA articles and that OA articles were found to be cited 18% more than the average. Incredibly, scholars through OA publishing have unrestricted access to scholarly articles through the Internet and W3. This has definitely liberated researchers and scholars who for many years created knowledge which ended up in the hands of commercial publishers who in turn created limited access to such knowledge by demanding payment in form of subscriptions (Bwalya, Mkulama and Mwalimu, 2019). OA publishing has ensured that researchers' work become more accessible thereby enabling them to benefit from increased visibility of their work and thus improving their universities’ international ranking. OA is also paramount to knowledge sharing and innovation. According to the European Commission (2020), OA to scientific publications and data helps to:

a) build on previous research results (improved quality of results),
b) encourage collaboration and avoid duplication of effort (greater efficiency),
c) speed up innovation (faster progress to market resulting in means faster growth), and
d) involve citizens and society (improved transparency of the scientific process).

In order to take full advantage of the philosophy of OA, universities and non-governmental organisations such as Public Library of Science (PLOS) have set up Open Access Journals (OAJs). As at 20th January, 2020, the Directory of Open Access Journals (DOAJ), a community entity that indexes OAJs, had indexed a staggering number of 14,197 OAJs. Furthermore, DOAJ had 4,569,674 articles aggregated under it and that OAJs indexed by DOAJ were drawn from 131 countries across the globe (DOAJ, 2020). It should be noted that DOAJ is not a comprehensive list of all OAJs because there are other OAJs yet to be indexed by DOAJ. Therefore, the number of OAJs around the globe is much higher than what is released by DOAJ.

**OA PUBLISHING CHARACTERISTICS AND MODELS**

The 2003 Berlin Declaration on OA to knowledge in Sciences and Humanities clearly describes two conditions to be satisfied under OA publishing. The first condition is that “the author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access and a license to, copy, use, distribute, transmit and display the work publicly, 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