A decade bibliometric analysis of underwater sensor network research on the Internet of Underwater Things: An African perspective

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Recent advancements in cloud computing (CC) and the rapid growth of the Internet of Things (IoT) have tremendously revolutionized terrestrial wireless sensor networks (TWSN) communication. These have resultantly paved the way for the practical realization of underwater wireless sensor networks (UWSN) and the emergence of the Internet of Underwater Things (IoUT). The need for better environmental monitoring within the context of smart cities and the recent spate of global natural disasters has further aroused research interest in IoUT which has motivated a number of UWSN innovations, such as the development of tethered remotely operated underwater vehicles (ROUVs), untethered autonomous underwater vehicles (AUVs), unmanned/autonomous surface vehicles (USVs/ASVs) and other smart underwater technologies. While these inventions hold promising prospects for technologically advanced countries, the same assertion cannot be made for most African countries due to challenges inherent in research and development activities into critical IoUT/UWSN projects in the region. This chapter conducts a systematic bibliometric analysis that highlights the knowledge base for core research works in UWSN globally and within the African region. This research discovered 1025 peer-reviewed articles in 5 Scopus-indexed document sources published between 2008 and July 2019. Microsoft Excel and VOSviewer science mapping software tool was used to analyse the retrieved data from Scopus repository. The bibliometric analysis was used to evaluate specific criteria, namely, major subject area, document sources, most cited and productive authors, countries, institutions, funding institutions and most used keywords. The findings of this research indicated that UWSN/IoUT research is still in its infancy in the African region. This chapter concludes by highlighting vital missing links, essential research directions and unique technical recommendations that will be of relevance in helping the successful actualization of IoUT/UWSN research projects in Africa.