Chapter 24
Research Data Management Among Researchers in Higher Learning Institutions of Sub–Saharan Africa

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ABSTRACT

Advancement in information and communication technologies has made it easier for researchers to capture and store myriad data at a higher level of granularity. Higher education institutions (HEIs) worldwide are incorporating research data management (RDM) services to enable researchers to work with their data properly. This chapter focuses on creating awareness amongst researchers on how researchers and HEIs can form strategies, design and restrict data management plan (DMP), integrate research data life cycle, and ensure quality data sharing, as well as integrate with developed RDM policies and guidelines to curb challenges prohibiting the practice of RDM in HEIs.

BACKGROUND AND INTRODUCTION

Tanzania is among Sub-Saharan Africa (SSA) countries which are currently practicing research data management (RDM) services. However, RDM is still at the infancy stage in most of SSA. Onyancha (2016, p. 227) found that only 20 out of 50 SSA's countries had produced one or more data records in the Data Citation Index (DCI). The highest level of data-sharing in the region is done by South Africa. RDM based training programs occupy a significant part in South Africa. Matlatse, Pienaar and van Deventer (2017, p. 301) identified five data science-related degrees in South Africa, that is MPhil in digital data curation from the University of Cape Town (UCT) in Cape Town, Master's degree in Information Technology (Big Data Science) from University of Pretoria (UP) in Pretoria, BSc Honours in the field of Big Data Analytics from the University of the Witwatersrand (Wits) in Johannesburg, and Bachelor of Science Degree in Data Science from the Sol Plaatje University in the Northern Cape Province. Short courses in RDM and continuing professional development also provide the concept of RDM in SSAs. During designing institutional RDM policy in Tanzania the authors observed there were more than 10 RDM centres which were established to manage research data based on health, geospatial, and environment and migration data.

In addition, government bodies in Tanzania which were practicing RDM included the National Bureau of Statistics (NBS), National Identification Authority (NIDA), the Immigration Services Department, the Tanzania Airports Authority (TAA), Ministry of Home Affairs, Tanzania Revenue Authority (TRA), Tanzania Investment Centre(TIC), Tourism, Labour and Public Services, Tanzania Open Data Lab (DLab) and the International Organization for Migration (IOM), other organizations such as Tanzania Employment Services Agency (TAESA), the Export Processing Zones Authority (EPZA), and Tanzania Trade (TANTRADE) also store digital and hence, they are kept as MS Word or Excel files instead. In HEIs in Tanzania, only the University of Dar-Es-Salaam (UDSM) has established a data-sharing service, known as Tanzania Open Data Lab (DLab), under its College of Information and Communication Technologies (CoICT). UDSM also developed a system called the Research Information System (RIS), which is used to store information concerning research data and outputs.

This chapter explores why RDM is essential in HEIs and its implications for researchers. Traditionally, researchers experience challenges in managing data, such as data loss, poor storage due to limited awareness on (RDM). The advancement in information and communication technologies integrating RDM services has made it easier for researchers to capture and store a myriad of data for re-use and sharing. RDM has proven to provide a flexible working environment for researchers integrating types of data and data format to incorporate both research paradigm such as positivism (quantitative), and interpretivism (qualitative).

Nevertheless, there is a lack of linkage and networking through the use of ICT for data sharing which creates challenges and hinders the accuracy and quality of data usage. Institutions in developing countries still use alone technologies such as MS Word, Excel and accessing data becomes limited. Hence, considering structured designed of data creation, processing and dissemination strategies will increase the quality of data hub and assist accurate decision making for researchers examining RDM.

Therefore, the chapter explains the essence of RDM, data management plan (DMP), research data life cycle (RDLC), and RDM policy for researchers.

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