Registry Staff' ICT Competences of Using Electronic Records Systems

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Abstract

Despite the substantial development of electronic records systems, most higher learning institutions in developing countries are not effectively deploying e-records systems. Most registry staff in developing countries have been striving to use e-records management systems. Against this, the present study examined the ICT skills and knowledge possessed by registry staff in higher learning institutions in Tanzania. To achieve its objective, the study has used a descriptive research design which integrated quantitative and qualitative approaches. A stratified random sampling technique was used to select 33 registry staff while 10 key informants were selected using purposive sampling. The quantitative data were collected using questionnaire were analysed using Statistical Product Service Solution (SPSS) version 25. On the other hand, the qualitative ones were collected using semi-structured interviews and they were analysed thematically. The findings of the study revealed that registry staff of the higher learning institutions studied had limited ICT skills. and this was attributed to limited ICT training opportunities. The study recommends that registry staff should be provided with continuing ICT training. Furthermore, it recommends the recruitment criteria for registry staff should be reviewed.

Keywords: e-records, digital records, ICT, e-records systems, registry staff, higher learning institutions, Tanzania

Introduction

The adoption of ICTs has brought a paradigm shift in the creation, receipt and use of records and archives from paper to digital (Tsvuura, 2021; Dotto & Mwantimwa, 2022; Lwoga et al., 2021; Smallwood, 2013; Mosweu, 2019). As a consequence, higher learning institutions are adopting e-records systems hence their growing dominance in most of these institutions (Tsvuura, 2022). The reasons for these systems' adoption and popularity are many. For example, the systems appear to improve performance, efficiency, productivity, accountability, responsiveness and transparency (Ambira, 2016; Kamatula, 2018; Wamukoya & Mutula, 2005; Mukred *et al*., 2021; Clemence *et al*., 2023). In addition, the systems ensure timely planning and informed decision-making, reduce operational costs, improve the quality of service delivery, preserve corporate memory, improve productivity and increase transparency (Asogwa *et al*., 2021; Mukred *et al*., 2019; Ukata & Wechie, 2019).

Noting from existing literature (e.g., Mosweu, 2019; Tsvuura, 2022), the adoption and effective usage of e-records management systems mainly depend on knowledge and skills. In contrast, in the paper-based world, experience was an important records management factor as it was easier to obtain it in records management than other professions (Pember, 2003; Evans, 2003). This is not the case in the digital records age in which constant changes in ICTs, functions and regulatory frameworks exert growing pressure on professionals in the field (Tsvuura, 2022). Such changes have seen higher learning institutions introduce various records management curricula and integrate e-records courses in Library and Information Sciences (LIS) programmes. For instance, in Tanzania, records management programmes have been introduced in such higher learning institutions as Sokoine University of Agriculture (SUA), the University of Dar es Salaam (UDSM) and the Open University of Tanzania (OUT) to support e-records systems adoption (Dotto & Mwantimwa, 2022).

However, despite the aforementioned initiatives, most higher learning institutions in developing countries are not effectively deploying e-records management systems (Major & Omenu, 2016; Phiri, 2016; Musembe, 2016; Tsvuura, 2022; Nkebukwa, 2019; Newa & Mwantimwa, 2019). Looking at such a state, the main question that arises is what factors are behind it? Considering the documented importance of the factor of ICT competences in the adoption and effective use ERMS, this study was designed to establish its role in the aforementioned state

by assessing ICT competences possessed by registry staff in Tanzania's higher learning institutions. This study was guided by the following research questions:

i. What types of e-records systems are used by Tanzania's higher learning institutions?
ii. What ICT skills and knowledge for deploying e-records management systems do registry personnel of Tanzania's higher learning institutions possess?
iii. How do records registry personnel acquire ICT skills and knowledge?

Literature Review

The literature review of this study is organised based on the earlier mentioned research questions. Before going to the themes formulated from these research questions, the literature discusses the general concepts of records and records management.

Concept of records management

The International Standard Organisation (ISO, 2016) describes records as "an information created, received and maintained as evidence and information by organization or person, in pursuance of legal obligations or in the transaction of business". ISO (2016) defines records management as the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records. Records can be physical or electronic entities. In physical form, records are tangible due to their media as they use such things like pieces of paper. In contrast, when in electronic format, records are intangible. According to Smallwood (2013), electronic records are those created with the support of computer technology.

Types of e-records management systems

There are various types of systems used to manage e-records in higher learning institutions. For example, studies (e.g., Ambira, 2016; McLeod & Hare, 2008; Smallwood, 2013) specify that word-software used to create and keep word-processed documents, spreadsheets, multimedia presentations, emails, websites and online transactions are examples of electronic records management systems. In addition, Idris (2017) explains that audio and video files, programme data and calendar entries, business information systems, shared folders and hard drives are commonly used to manage e- records. Besides, such desktop applications as financial systems, human resource systems and corporate databases are deployed to facilitate records management. A study conducted at Moi University by

Musembe (2016) revealed that most records were largely managed manually while the few kept in electronic format were managed mostly in emails. The author further reveals that the university website was the main electronic records management system mostly used to display university programmes.

ICT skills and knowledge

Skills and knowledge of how to transmit, use, maintain, store and dispose records are important for fostering the usage of e-records management systems (Adu & Ngulube, 2017; McLeod & Hare, 2008; Shepherd, & Yeo, 2003; Smallwood, 2013). Other ICT skills and knowledge deemed important to effective use of e-records management systems include those to do with database management, e-mail management, digital literacy, usage of processing systems and file tracking. These are some of the competencies that have to be possessed by records professionals (Johare, 2006; Katuu, 2015). Similarly, Mosweu (2019) listed different types of skills and knowledge required by records practitioners. These included collaboration skills because the author argues that ICT personnel and records practitioners should work together to enhance the latter's use of ICT infrastructure to manage content (records). The author further argues that the collaboration between ICT personnel and records management professionals enables institutions to have reliable and trustworthy records. Apart from that, Mosweu (2019) recommends that records management professionals should leave their preference of paper and adopt such electronic approaches to records management as cloud computing, social media, machine learning, artificial intelligence and block chain technology. Similarly, Tsvuura and Ngulube (2020) insist that records and archives professionals must possess a high level of digital literacy. According to Mosweu (2019, p.120) "without requisite skills, the records managers may be rendered useless."

However, the reviewed literature (e.g., Luyombya & Ndagire, 2020) informs that records professionals' training and education are not prioritised hence creating skill gaps. A study conducted by Asogwa *et al.* (2021) on the status of electronic records management (e-RM) in Nigerian university libraries found that librarian were not equipped with e-RM skills. Another recent study carried out by Tsvuura and Ngulube (2020) indicates that records management personnel responsible for managing digital records and archives largely lacked the requisite knowledge and skills demanded by such a responsibility. The authors insist that records

practitioners remain with some noticeable digital records and archives management knowledge and skills gaps.

Methodology

A descriptive research was employed in the present study. It was chosen to examine the ICT skills for effective electronic records management system adoption possessed by registry staff of higher learning institutions. This research design was also employed because it allows the integration of quantitative and qualitative approaches. Basically, the study intended to identify the types of electronic systems used to manage institutional records, examine e-records management systems deployment ICT skills and knowledge possessed by registry personnel and describe ways used by registry personnel to acquire the ICT skills and knowledge. To meet these research objectives, questionnaire for registry personnel and semi-structured interviews for key informants were designed. These helped the study to get comprehensive, credible and valid findings. Creswell (2012) and Mwantimwa (2012) affirm that the deployment of both quantitative and qualitative methods normally helps researchers to harmonise the approaches' strengths and weaknesses.

This study used both probability and non-probability sampling techniques. Non-probability sampling technique (purposive sampling) was used to select five higher learning institutions. Among them, three were public institutions, namely the University of Dar es Salaam (UDSM), Sokoine University of agriculture (SUA) and Open University of Tanzania (OUT) while the remaining two were private institutions, namely University of Iringa (UoI) and Hubert Kairuki Memorial University (HKMU). These institutions were purposively selected due to the progress they have made in the adoption of ICT over the years. The same sampling technique was used to select ten key informants from the five higher learning institutions based on their positions. These were directors of human resources and management and directors of ICT. For example, directors of human resources and management are responsible for such roles as recruiting and training employees and ensuring the effectiveness of their institutions. Regarding directors of ICT, their inclusion was based on their role of ensuring that all necessary ICT infrastructures are in place and up-to-date and advising on new technological solutions to adopt. These directors were also selected because they provide technical support and in house training needed to facilitate effectively the utilisation of e-records management systems (software and hardware). Simple

random sampling was used to select a sample of 33 registry staff from the target population of 62. Among those selected, 18 were from UDSM, 7 were from SUA, 6 were from OUT, 1 was from UoI and the remaining 1 was from HKMU. Finally, lottery simple random sampling technique was used to select individuals from the five strata of higher learning institutions.

The study collected both primary and secondary data through a number of methods and instruments. Primary data were collected using questionnaire with both closed and open-ended questions and semi-structured interviews. The copies of questionnaire were administered by the researcher and research assistants to 33 registry staff. The questionnaire mainly comprised two sections of which section one covered socio-demographic characteristics of respondents and section two covered research objectives. Both nominal and ordinal (i.e. Likert) scales were used in the questionnaire. Besides, face-to-face semi-structured interviews were conducted by the researcher involving directors of ICT and directors of human resources and management. The study also gathered secondary data were collected through documentary review. Both published and unpublished sources such as books, journal articles, research reports and electronic resources were reviewed.

Data collected were processed and analysed using both qualitative and quantitative techniques. Data checks were conducted during and after fieldwork. Quantitative data obtained were coded then analysed by using a Statistical Product Service Solution (SPSS) version 25. According to the nature of the study, descriptive statistics were performed using cross tabulation and frequency distribution. Cross tabulation analysis was used to analyse the relationship between multiple variables, whereby frequencies helped the researcher to determine if observations were high or low according to the data distribution. On the other hand, qualitative data were organised into main themes and sub-themes in relation to the research objectives. The results have been presented in narration form and quotations.

Study Results and Interpretation

Socio-demographic information of the respondents

Socio-demographic information of respondents was collected to establish their backgrounds. The variables recorded were institution name, respondents' age, gender, experience and level of education as Table 1 shows.

Table 1: Socio-demographic characteristics of respondents

Variables		Frequency	Percent
Institution	UDSM	18	54.5
	SUA	7	21.2
	OUT	6	18.2
	UoI	1	3.0
	HKMU	1	3.0
Gender	female	23	69.7
	male	10	30.3
Age	<30	12	36.4
	30-39	11	33.3
	40-49	7	21.2
	50 +	3	9.1
Level of education	Certificate	2	6.1
	Diploma	26	78.8
	Bachelor	3	9.1
	Masters	2	6.1
	PhD	-	-
Experience	1-3	14	42.4
	4-6	9	27.3
	7-10	3	9.1
	11 +	7	21.2

Table 1 shows that many respondents were drawn from the UDSM. This can be attributed to the fact that the university has a big number of employees compared to SUA, OUT, UoI and HKMU. Regarding gender, the results indicate that majority (69.7%) of the respondents were women while less than half (30.3%) were males. This entails that there are more women working in this position in Tanzania's higher learning institutions. With reference to age, the results show that a moderate percentage (36.4%) of the respondents was below 30 years old. This was followed by respondents with 30-39 years of age who constituted 33.3 per cent. Apart from that, those in the 40-49 years age category constituted 21.2 per cent. A small percentage (9.1%) of the respondents was in the category of 50 years and above. Therefore, one third of this group of workers were young. In terms of education levels, the results indicate that majority (78.8%) of respondents had diplomas while less than 10.0 per cent had bachelor degrees, masters degrees and certificates. This implies that most registry personnel of Tanzania's higher learning institutions had diploma level of education.

Types of e-records systems used in higher learning institutions

The researcher sought to identify the types of electronic records management systems used by higher learning institutions. Under this inquiry, five common electronic records management systems were listed for respondents to pick the ones they used. Table 2 presents the results.

Table 2: Types of e-records systems used in higher learning institutions

System	UDSM		SUA		OUT		UoI		HKMU		Total	
ERMS	f	%	f	%	f	%	f	%	f	%	f	%
MS word	5	27.8	3	42.9	6	100	0	0.0	1	100	15	45.5
MS excel	5	27.8	3	42.9	6	100	0	0.0	1	100	15	45.5
E-mail	2	11.1	3	42.9	6	100	0	0.0	1	100	12	36.4
Websites	3	16.7	1	14.3	2	33.3	0	0.0	0	0.0	6	18.2
Databases	3	16.7	3	42.9	2	33.3	0	0.0	1	100	9	27.3

The results in Table 2 indicate that more than one-third of the registry personnel cited Microsoft Word, Microsoft Excel and email as the ERMS they used while less than one third cited databases and websites. These results show that MS Word, Microsoft Excel and email are moderately used while databases and websites are barely used. According to these results, the usage of electronic records among registry personnel is moderate.

Levels of ICT skills and knowledge

The respondents were asked to indicate their ICT skills and knowledge and their levels of competence. Four Likert scale (i.e., 1=incompetent, 2= barely competent, 3= moderately competent, 4= very competent) were employed for this purpose. See Table 3 for results.

Table 3: Levels of ICT skills and knowledge competences

System	UDSM		SUA		OUT		UoI		HKMU		Total	
Microsoft word	F	%	F	%	F	%	F	%	F	%	F	%
Not competent	2	11.1	0	0.0	0	0.0	0	0.0	0	0.0	2	6.1
Barely competent	2	11.1	0	0.0	0	0.0	0	0.0	0	0.0	2	6.1
Moderate competent	13	72.2	6	85.7	5	83.3	1	100	0	0.0	25	75.8
Very competent	1	5.6	1	14.3	1	16.7	0	0.0	1	100	4	12.1
Email management												
Not competent	2	11.1	1	14.3	0	0.0	0	0.0	0	0.0	3	9.1
Barely competent	11	61.1	2	28.6	0	0.0	1	100	0	0.0	14	42.4
Moderate competent	4	22.2	1	14.3	3	50	0	0.0	0	0.0	8	24.2
Very competent	1	5.6	3	42.9	3	50	0	0.0	1	100	8	24.2
Spreadsheet												
Not competent	2	11.1	1	14.2	0	0.0	0	0.0	0	0.0	3	9.1
Barely competent	6	33.3	0	0.0	0	0.0	0	0.0	0	0.0	6	18.1
Moderate competent	8	44.4	5	71.4	5	83.3	1	100	0	0.0	19	57.6
Very competent	2	11.1	1	14.2	1	16.7	0	0.0	1	100	5	15.2
Conversion and migration												
Not competent	3	16.7	2	28.6	0	0.0	0	0.0	1	100	6	18.2
Barely competent	11	61.1	3	42.9	3	50	1	100	0	0.0	18	54.5
Moderate competent	1	5.6	2	28.6	3	50	0	0.0	0	0.0	6	18.2
Very competent	3	16.7	0	0.0	0	0.0	0	0.0	0	0.0	3	9.1
Cloud storage												
Not competent	10	55.6	4	57.1	1	16.7	1	100	0	0.0	16	48.5
Barely competent	5	27.8	0	0.0	3	50	0	0.0	0	0.0	8	24.2
Moderate competent	2	11.1	0	0.0	2	33.3	0	0.0	0	0.0	4	12.1
Very competent	1	5.6	3	42.9	0	0.0	1	100	0	0.0	5	15.2

The results in Table 3 show that more than three quarter (75.8%) of registry staff were moderately competent in Microsoft Word while more than half of the registry personnel were moderately competent in spread sheets. On the other hand, the results indicate that nearly half (48.5%) of the respondents were not competent in cloud storage and protection of electronic records. The results show that majority (54.5%) of respondents were barely competent in the convention and migration of records. During one interview session, one key informant (K.1) said that:

> *Registry staffs are very competent in Microsoft Word and Excel because they normally interact with them. However, in these days I think no staff in our institution doesn't use Microsoft Word because majority of records are created with Microsoft word.*

Similarly, another key informant (K. 7) said that "registry staff are very competent in Excel because they normally create them and use them to manage incoming

and outgoing records". These narrations confirm that registry personnel acquire ICT skills and knowledge needed to use electronic records management systems through their own initiatives.

Ways of acquiring ICT skills and knowledge

This study also sought to find out how registry personnel acquired ICT skills and knowledge needed to use electronic records management systems. The results obtained are presented by Table 4.

Table 4: Ways of acquiring ICT skills and knowledge

Institution	In-service training		Own initiatives		Colleague support		School learning	
	F	%	F	%	F	%	F	%
UDSM	2	11.1	17	94.4	16	88.9	14	77.7
SUA	3	42.9	6	85.7	5	71.4	2	28.6
OUT	6	100	6	100	6	100	3	50
UoI	0	0	1	100	1	100	1	100
HKMU	0	0.0	1	100	0	100	1	100
Total	11	33.3	31	93.9	28	84.8	21	63.6

The results in Table 4 show that majority (93.9% and 84.8%) of respondents said they acquired ICT skills and knowledge through their own initiatives and through collegial interactions respectively. The results also show that almost all registry staff at OUT and fewer from SUA also obtained these skills and knowledge through in-service training. On the other hand, the results show that very few UDSM registry staff acquired these competencies through in-service training. However, the results show that the situation is more severe at UoI and HKMU where no registry staff acquired ICT skills and knowledge through in-service training. These results imply that registry personnel of public higher learning institutions are more likely to acquire these skills and knowledge through in-service training than those of private higher learning institutions. During an interview session, K.3 argued that:

> *Registry staffs normally deal with paper-based records which do not need ICT training. Normally, ICT training is provided to accountants because they are the ones who deal with electronic systems. For example, they are dealing with student billings, staff transactions and they have their financial systems which support their work. So, we should provide ICT training to registry staff for what purpose?*

This quotation shows that registry staff of higher learning institutions do not receive ICT training because they still manage paper records. Apart from that, it was noted through observations that registry staffs' offices of all the five studied institutions were occupied with physical files arranged on shelves. The study has also established the extent of in-service training provided through seminars, workshops and short course training by the studied institutions. This was done by asking respondents to state how many times they attended such training through seminars, workshops and short course training since they got employed. The responses that participants were asked to choose from are never, once, two times, three times and above. The figure that follows presents the results obtained.

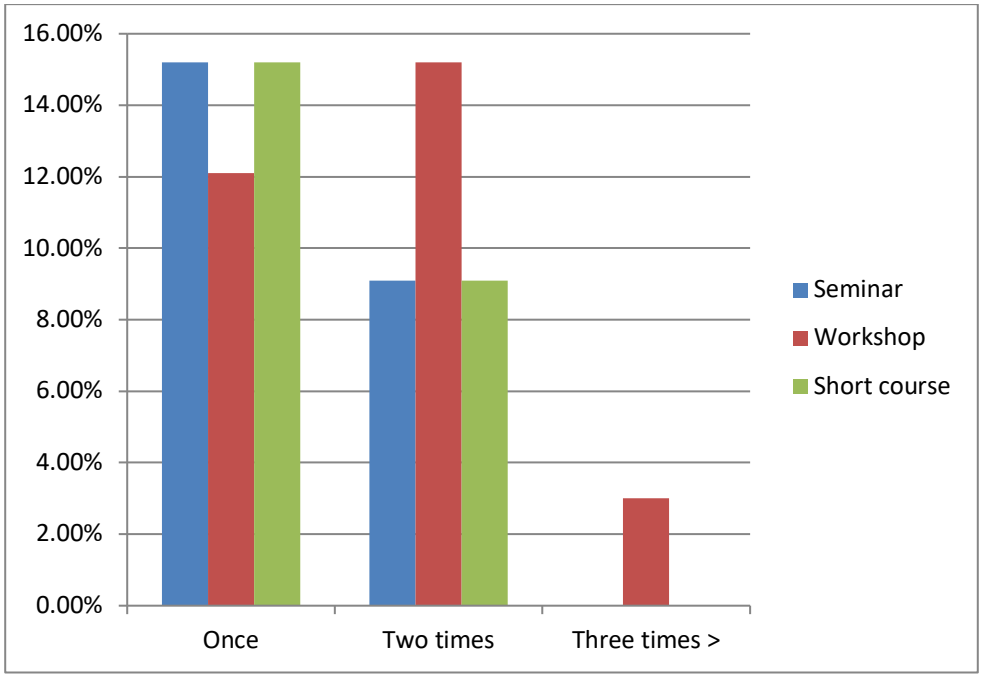

Figure 1: The extent to which in-service training is provided

The results in Figure 1 show that majority of the respondents attended seminars, workshops and short courses once since they were employed. Apart from that, the results indicate that majority of the respondents attended workshops three times since they were employed but these were very few. The results also show that there was no registry staff who attended short courses or seminars for three or and more times since they got employed.

Discussion

This study identified common types of electronic records management systems and assessed the ICT skills and knowledge that registry personnel have. Generally, the study reveals different electronic record management systems used by registry personnel which include Microsoft Word, Microsoft Excel, email, websites and databases. However, the usage of these systems has been found to be limited and this reflects the ICT skill gap among registry personnel. The underutilisation problem of e-records systems is not only the case in Tanzania but also other higher learning institutions in developing countries (e.g. Adu & Ngulube, 2017; Katuu, 2015; Asogwa *et al*., 2021).

The study also revealed limited ICT training opportunities for registry personnel. Regarding inadequacy of ICT training, the study has revealed that majority of registry personnel were not provided with ICT training opportunities related to usage of ERMS. Looking at the type of training, this study revealed that majority of registry personnel acquired ICT skills and knowledge through their own efforts and with the help of their colleagues. These are informal training programmes that cannot help registry personnel to become competent enough. The same observation was made by Maseh (2015) that records management staff made personal initiatives to acquire competencies while some went for self-sponsored training. Apart from that, the study revealed that in-service training for registry personnel, which is identified by Mosweu and Bwalya (2018) as key in closing registry personnel's skill gaps, is not provided enough. For example, the study has reported that registry personnel with 11 years of work experience attended ICT training related to the application of records management only once. This suggests that training is not prioritised. In this regard, these findings reflect those from a study conducted in Nigeria by Asogwa *et al.* (2021) who found that librarians' electronic records management skills were not enhanced because formal training was not frequently organised. Similarly, a study conducted in Ghana by Adu and Ngulube (2017) found a knowledge gap in electronic records preservation.

The findings have also shown that records management staff are not receiving enough support to attend continuing training (See also Maseh, 2016; Tsabedgze, 2011; Chinyemba & Ngulube, 2005). In support, Masesh (2015) found that an insignificant number of registry staff attended short courses once while majority were never sponsored to attend any continuing training through conferences, workshops and short courses. In contrast, a study conducted in South Africa by

Tsabedze (2019) found that records professionals who worked for South African universities received continuing training through workshops and conferences.

Study Implications, Conclusions and Recommendations

The study revealed that there is a skills and knowledge gap among registry staff of the studied universities which is caused by lack of training. Therefore, the present study may help to sensitise the managements of higher learning institutions to support registry staff by providing them with ICT training related to ERMS. Doing this will help the staff to thrive in this 21st century. In addition, supporting registry staff to attend frequent ICT training related to electronic records management may increase higher learning institutions' adoption of electronic records management systems in Tanzania. The management of records in electronic environment is very complex hence requiring records management professionals to be well equipped with necessary skills. This may facilitate institutions' movement from traditional to electronic records management systems. As such, this study recommends frequent provision of continuing ICT training through seminars, workshops, conferences and short courses. It is recommended that the recruitment criteria for registry staff should be reviewed.

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