



CONSTRAINTS FACED BY TEACHERS IN USING COMPUTERS TO MANAGE STUDENTS' ACADEMIC RECORDS IN PUBLIC SECONDARY SCHOOLS IN ROMBO DISTRICT, TANZANIA

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ABSTRACT

This study investigated constraints faced by teachers in using computers to managing students' academic records in public secondary schools in Rombo district, Tanzania. This study was guided by Venkatesh's Unified Theory of Acceptance and Use of Technology (UTAUT). Convergent parallel design under mixed research approach was adopted. Purposive and stratified simple random technique were used to obtain 122 respondents where by 108 were teachers, 10 were heads of schools and 2 district quality assurers. Instruments of data collection were questionnaires, Interview guide and observation guide. Quantitative data were analyzed descriptively using mean, standard deviation, frequency tables and percentages, while qualitative data were thematically analyzed. Research ethics were observed whereby sources of information and anonymity of respondents were strictly adhered. The study found out that teachers in public secondary schools in Rombo district are faced by number of limiting factors towards computer use for managing students' academic records. Such constraints are like teachers lack skills and knowledge on computers, resistance to change for teachers, shortage of funds for proper integration of computers in education at schools, lack of motivation for teacher to use computers, lack of interest for teachers on computer use for records management, insufficient technical support for teachers at schools, no relevant software especially in records management, unclear ICT policy in education and lack of time for teachers to use computer. The study conclude that the constraints identified in the study restrict teachers to use computer for proper usage of computers to manage students' academic records. The study recommended that, the Government should come up with practical strategies to ensure that teachers make use of computers to simplify and improve effectiveness in education especial in a crucial area of managing students' academic records.

KEYWORDS: *Computers, students' academic records management, public secondary schools.*

1. INTRODUCTION

The 21st century is often regarded as an era of technology. Computer Technology, today, plays a very important role in our life. It is seen as a basis of growth of many sectors and the economies of many countries (UNESCO, 2017). An economy which is poor in technology can never grow in today's scenario. This is because technology makes our work much easier and less time consuming (Ngeze, 2017). For example among new technology tools now days is computer. Computer is an electronic device that has the ability to manipulate data quickly and accurately as well as designed and organized to automatically receive and store input data, processes it, and produces output under the supervision of a step by step instruction program (Operating System) which is stored in the inside stored program (O'Regan, 2021).

Over the years, the official form of record keeping, storage, retrieval and utilization in schools were done manually. This manual system according to O'Regan (2021) may, however, pose some problems in schools system against school administrative flow for example in record keeping destruction of poorly kept academic records by termite, rain, flood, or storm, corruption of data by human interference, undue access to confidential information, inability or untimely supply of school information to mention but a few.

According to Henshall (2019) records management is the creation, distribution, maintains retention, preservation, retrieval and disposal of records for purpose of keeping the planners and decision-makers informatively in a business organization. Human memory is limited and cannot recapitulate the numerous activities taking place every day in education organizations. Besides documents relating to the students' academic matters must be kept for evidence to students' academic progress and discipline dealings. Every school decision is based on the basis of available data and information.

Among importance of computer technology in schools is to keep academic records. Academic records are vital documents that contain valuable information related to students' progress in schools. These records include students' admission files, electronic books, admission letters, payment records, medical records, continuous assessment records, examination results, accommodation records, end of semester academic progress report, (Shehu, 2017).



The government of Tanzania came up with a reform program so as to improve the effectiveness of records management in 1990 by laying down the appropriate procedures for carrying out such processes. The records and archive management Act No 3 of 2002 stated that all records should be kept legal for their entire life-cycle. According to this Act, the records department is supposed to ensure that all public offices represent true record keeping as well as the establishment and implementation of records keeping procedures (URT, 2017)

In recognizing the potential of computers as significant Information and communication Technology (ICT) tools for improving education system, the Government of Tanzania formulated its national ICT policy in 2003 (Swart & Wachira, 2018). Four years later, the Ministry of Education and Vocational Training (MoEVT) developed an ICT Policy for Basic Education in 2007. The Tanzania Vision 2025, the key national development strategy, also recognizes the role of computers as agent for transformation of the economy to a knowledge economy, and identifies the potential of computers to address most of the development challenges including those presented by education.

As Tanzania adopts Information and Communication Technology (ICT) in education, it faces the same challenges like most developing countries where unstable economy, poorly developed ICT infrastructure, high bandwidth costs, unreliable supply of electricity, general lack of resources etc, were found to be the central issues to meet a broad spectrum needs of the country (Henshall, 2019). Like other factors improper use of computer in records management is a very important factor to be considered in the educational context of Tanzania. Computers provides opportunities for teachers to operate, store, manipulate, and retrieve information, encourage independent and active learning, and self-responsibility for learning, motivate teachers to plan and prepare lessons, design materials and facilitate sharing of resources, expertise and advice.

According to Marikyan (2020), computer services are modern facilities devised to facilitate the reduction of record volumes and facilitate the retrieval of records for smart offices. They also have added advantage of reducing the space occupied by records kept in files and notebooks. This manual system of managing students' academic records, according to Morrow (2020) may however, pose some problems in schools system against school administrative flow for example destruction of poorly kept academic records by fire as reported by Nestory (2017) that Tanzania has been experiencing a number of fire incidents in schools that have caused losses of property and lives of students. Termite, rain, flood, or storm, corruption of data by human interference, undue access to confidential information, inability or untimely supply of school information to mention but a few. These problems end up with improper management of students' academic records in public secondary schools. In this regard there is a need to conduct a research to assess the constraints faced by teachers' in using computers to manage students' academic records in public secondary schools in Rombo district.

2. STATEMENT OF THE PROBLEM

Despite the fact that, students' records are very vital in the achievement of educational objectives, it is not well known if they are properly managed by some teachers and heads of schools in many public secondary schools in Tanzania particularly in Rombo district. The researchers (Katoba, 2017, Joy & Agala, 2019) have shown that, there have been series of complaints from parents, guardians, students even teachers and other educational stakeholders that, students' academic records management and retrieval in secondary schools are very porous, unsatisfactory, time consuming, space consuming and at times, not available. Studies done by (Adeleye, 2021, Njoka 2020, Kweka, 2018) were explaining the constraints of computer usage in teaching and learning and but constraints facing teachers in using computers to manage students' were not clearly established. Therefore the researcher thought it is necessary to assess the constraints faced by teachers in computers use to manage students' academic records in public secondary schools in Rombo district.

3. RESEARCH QUESTIONS

What constraints do teachers face in using computers for managing students' academic records in public secondary schools in Rombo District?

4. SIGNIFICANCE OF THE STUDY

The study findings provide useful information to public secondary schools, Education Officers at district level and other education stakeholders in Tanzania on Teachers' Use of computers in managing students' academic records. In relation to the education and training policy of 2014 as well as ICT policy for basic education of 2007, the study exposed how teachers in secondary schools can make use of computers to improve management of students' academic records in public secondary schools. Furthermore, the study provided new insight to researchers and academicians for further research work that involves the integration of computers for teachers and administrators in secondary schools for improving excellent record management. Finally but not least, this study intensified the researcher's knowledge and understanding on conducting research and general knowledge on use of computers in education practices.



5. THEORETICAL FRAMEWORK

This study was guided by Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al., (2003). The theoretical model of UTAUT suggests that the actual use of technology is determined by behavioral intention. The perceived likelihood of adopting the technology is dependent on the direct effect of four key constructs, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. The effect of predictors is moderated by age, gender, experience and voluntariness of use.

According to (Venkatesh et al., 2003), performance expectancy is defined as the degree to which an individual believes that using the computer system will help him or her to attain gains in job performance. Effort expectancy is defined as the degree of ease associated with the use of the system. Social Influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system. Facilitating conditions is defined as the degree to which an individual believes that an organization's and technical infrastructure exists to support the use of the system.

As a product generated from experience of previous technology adoption theories, Unified Theory of Acceptance and Use of Technology is a comparably complete model. Its explanatory power in technology using behavior is up to 70%, a much higher rate than other technology acceptance theories (Williams et al., .2019). With such accuracy and broad application in explaining technology adoption behavior, UTAUT model surpassed other theories and became a better choice for researchers in the area of technology using behavior.

The limitation of Unified Theory of Acceptance and Use of Technology model is its inflexibility to adapt to different contexts. As Maity et al.(2016) reported in their research about information technology acceptance in Saudi Arabia, which is a middle-east country, cultural difference of Saudi Arabia from that of a typical western country became an obstacle for them to use UTAUT to analyze worker's adoption of computers in Saudi Arabia.

This study intended to investigate constraints faced by teachers' in using computers for managing students' academic records in public secondary schools. Venkatesh et al theory provide a better insight as to address acceptance and use of technology in education sector especially in managing students' academic records in secondary schools. In this modern era of technology teachers must be competent to accept and use modern technologies (Verhoef et al., 2021).

6. REVIEW OF EMPIRICAL STUDIES

Francom (2020) did a 3-year time-series survey study conducted in K-12 public schools in a North Midwestern US state to investigate teachers' perceptions of how barriers to technology integration change over time, and how barriers may not be the same in different settings including small and large districts. Results indicated that time was the most stable and persistent barrier to technology integration. Access to technology tools and resources increased, yet teacher beliefs, and training and technical support declined over time. Teachers from smaller districts reported higher access to technology tools and resources and higher administrative support. In terms of the environmental context of the study, there is a need to conduct a study to investigate constraints of using computers in managing students' academic records in public secondary schools in Rombo district.

Guillén (2021) conducted a non-experimental, ex post facto type of research with a study population of 81 teachers from the community of Madrid (Spain). The results have shown that there are statistically significant differences between the knowledge and use of digital tools and Moodle Modules. In addition, the results have found that the variables age and gender have an effect on the prediction of the level of pedagogical digital competence of the teaching staff, while the educational stage in which they teach has no effect. The conclusions derived from this study can help to develop educational interventions focused on improving the unfavourable digital competence of teachers. The study used only one type of sample (teachers) to collect data to justify the findings which limited generalization of the findings. Therefore the current study used the teachers, heads of schools and district quality assures to obtain a wide range of data for ease generalization of the findings.

Adeleye (2021) conducted a study to investigate the problems facing computerization of records in secondary Schools in JOS, Nigeria. The study looks into the issues that have arisen as a result of the computerization of records in selected secondary schools in Jos, as well as the vulnerability of the prevalent manual data processing to human errors. Information was gathered through observations made during physical visits to the schools' computer labs, questionnaires, and personal interviews with selected school Information and Communication Technology (ICT) employees. Administrators and information technology employees were among the people who took part in the survey. In Jos, Plateau State, Nigeria, seven private schools, one Federal Government College, one Federal Command Secondary School, one State Government owned school, and one Federal Government College were utilized. According to the findings, the most significant impediment to the computerization of academic records in the schools is a lack of funding. The study did not clearly indicate the number of teachers who were involved in the study. The current study used large



sample of teachers in order to conclude if teachers are facing other problems rather than funding problem as proposed by the reviewed study.

Njoka et al (2020) conducted a study to analyze the challenges facing integration of information communication technology (ICT) in the operations of public day and boarding secondary schools from the south rift region of Kenya. The study adopted the descriptive survey research design. The target population for the study comprised of all the 141 teachers from the public secondary schools in the south rift region of Kenya enrolled in the Strengthening of Mathematics and Science in Secondary Education (SMASSE) program. The study employed census sampling technique since the target population was small, easily accessible and manageable. Data was collected by means of a questionnaire. The study tested the hypothesis that there was no statistically significant difference in challenges facing integration of ICT in boys, girls and coeducational secondary schools from the south rift region of Kenya. To test this hypothesis the One way Analysis of Variance (ANOVA) statistics was computed which yielded p-value = .000 which was less than the alpha value $\alpha > 0.05$ indicating that the differences in challenges facing ICT integration in boys, girls and co-educational schools were statistically significant. Therefore the null hypothesis was rejected. This led to the conclusion that challenges facing ICT integration from the three categories of schools were significantly different. There is a need to adopt mixed methods approach with wide range of data collection methods which are lacking in the reviewed study to fill the gap.

Kweka et al (2018) studied on teachers' skills on ICT Integration in teaching and learning and constraints that hinder the adoption in Government owned secondary schools in Kateshi, Tanzania. The study employed a cross-section research design which guided the collection of both quantitative and qualitative data. Simple random sampling was employed in the selection of participants of which data were collected from 75 teachers in government secondary schools, 15 Heads of Schools, 1 DEO and 3 Quality Assurers. The findings revealed that, most of the secondary school teachers had minimal skills of integrating ICT in teaching and learning due to different challenges such as lack of ICT facilities, inadequate computer labs in schools, and inadequate pre-service and in-service teachers training. The study employed a simple random technique to obtain the sample while teacher are not homogeneous in characteristics. Thus there is a need to conduct a research to investigate the constraints of using computers in managing students' academic records in public secondary schools.

7. SUMMARY AND DEMONSTRATION OF KNOWLEDGE GAP

Most of empirical studies reviewed shows that most of the scholars explained the constraints faced by teachers in using computer for teaching and learning (Guillén (2021), Adeleye (2021), Njoka (2020), Kweka (2018)). The studies did not explain the constraints faced by teachers in using computers to manage students' academic records in secondary schools. Therefore, the study intends to investigate the constraints faced by teachers in using computers to manage students' academic records in public secondary schools in Rombo district, Tanzania by using interview, questionnaire and document analysis in data collection to get the valid information that will be useful not only in Rombo district but also to all people in a country in understanding the teacher's use of computers in managing students' academic records in public secondary schools to enhance academic performance and sustainability.

8. METHODOLOGY

The study adopted convergent design under the mixed method research approach. The mixed methods approach incorporates elements of both qualitative and quantitative approaches (Creswell & Creswell, 2018). The design guided the researcher in collecting and analyzing quantitative data from teachers through questionnaires on constraints faced them in using computers for managing students' academic records in public secondary schools. In addition, the researcher gathered qualitative data from heads of schools and district quality assurance officer using an interview guide. The study sampled 12 Heads of Schools, 102 teachers, and 1 district quality assurance officer to make a total of 122 respondents. This was equivalent to 10.8% of the 1127 targeted population. According to Mugenda & Mugenda (2012), a sample of 10–30% is considered to be representative for the social study. The acceptability and reliability of research instruments from pilot testing showed that the reliability of the questionnaire for teachers was 0.731. Hence, the obtained reliability from the instruments was acceptable as proposed by Creswell & Creswell, (2018) that reliability coefficient is considered reliable if it ranges from 0.7 – 0.9. The validity of the instruments was checked by three MWCAU experts.

9. FINDINGS AND DISCUSSION

Data on the constraints faced by teachers in using computers to manage students' academic records in public secondary schools in Rombo district, Tanzania were collected from district quality assurers, heads of schools and teachers. Teachers' filled questionnaires while heads of schools and district quality assures were interviewed through interview guide to give their comments about the constraints faced by teachers in using computers to manage students' academic records in public secondary schools. The results of the study are presented in the light of the research question as follows; the constraints faced by teachers in using computers to manage students' academic records in public secondary schools in Rombo district. The questionnaire was set to evoke participants' responses on constraints faced by teachers in using computers to manage students' academic records in public secondary schools.



The questionnaires were prepared having five point Likert scale range from Very Large Extent (=5) to Very Small Extent (=1). Mean was used to determine the average of respondents' responses. Within the five point ranges, three trisecting scores were used to make the analysis clear as suggested by Creswell & Creswell (2018); these scores were 2.49, 3.49 and 4.49. The Remark was reached upon the mean value, where by a mean value from ≤ 1.49 were to a strongly disagree, 1.5 to 2.49 were disagree, from 2.5 to 3.49 were undecided, from 3.50 to 4.49 were agree, and from 4.50 to 5.00 were strongly agree. Data collected from the respondents through questionnaire are presented in table 1.

Table 1. Teachers Responses on the constraints faced in using computers to manage students' academic records in public secondary schools (n=108)

Constraints faced by teacher in using computers	SA	A	U	D	SD	Mean
	f (%)	f (%)	F (%)	f (%)	f (%)	
Lack skills and knowledge on computers	27 (25)	47 (43.5)	13 (12)	9 (8.3)	12 (11.1)	3.63
Resistance to change	18 (16.7)	48 (44.4)	23 (4.3)	17 (15.7)	08 (1.9)	3.58
Shortage of funds for proper integration of computers in education at schools	47 (43.5)	31 (28.7)	13 (12)	9 (8.3)	8 (7.4)	3.92
Lack of motivation to use computes	16 (14.5)	51 (47.2)	25 (23.1)	13 (12.0)	3 (2.8)	3.59
Lack of interest on computer use for records management	27 (25.0)	42 (38.9)	25 (23.1)	11 (10.2)	3 (2.8)	3.73
Insufficient technical support at schools	34 (31.5)	44 (40.1)	20 (18.5)	6 (5.6)	3 (2.8)	3.98
No relevant software especially in records management	45 (41.7)	25 (23.1)	18 (16.7)	15 (13.9)	5 (4.6)	3.83
Unclear ICT policy in education	19 (17.6)	46 (42.6)	25 (23.1)	17 (15.7)	1 (0.9)	3.60
Lack of time to use computers	16 (14.8)	20 (18.5)	18 (16.7)	34 (31.5)	20 (18.5)	2.79
Unreliable power supply in public secondary schools	27 (25.0)	50 (46.3)	16 (14.6)	9 (8.3)	6 (5.6)	3.77
Grand Mean Score						3.64

KEY: SD = Strongly Disagree, D = Disagree, U = Undecided, A = Agree, SA = Strongly Agree, F = Frequency, %= Percentage and mean value from 1 to 1.49 were to a strongly disagree, 1.5 to 2.49 were disagree, from 2.5 to 3.49 were undecided, from 3.50 to 4.49 were agree, and from 4.50 to 5.00 were strongly agree. Source: Field Data, (2022)

The data in Table 1 reflected the constraints faced by teachers in using computers for managing students' academic records in public secondary schools. The results summarized in Table 1 show that, out of 10 statements exposed to the respondents, 9 responses fall under the "agree" category (3.50-4.49), 1 response fall under the "undecided" category (2.5-3.49). None of the responses fall under strongly agree (4.50-5.00), disagree (1.50-2.49) and "strongly disagree" (1-1.49). The findings prove that there is a persistence of many constraints faced by teachers in using computers to manage students' academic records in secondary schools by a mean of 3.64. For instance, out of 10 statements rated, the highest mean score is on "Insufficient technical support for teachers at schools" (M=3.98), followed by "Shortage of funds for proper integration of computers in education at schools" (3.92), No relevant software especially in records management (M=3.83), unreliable power supply (M=3.77), lack of interest (M=3.73), lack of skills and knowledge on computers (M=3.63), unclear ICT policy in education (M = 3.60), lack of motivation to use computers (M = 3.59), resistance to change (M =3.58), lack of time to use computers (M=2.77) respectively. It is worthy to say that Insufficient technical support for teachers at schools followed by shortage of funds for proper integration of computers in education at schools, absence of relevant software especially in records management, unreliable power supply, lack of interest, lack of skills and knowledge on computers, unclear ICT policy in education, lack of motivation to use computers, resistance to change and lack of time to use computers are the most problems that teachers face in using computers to manage students' academic records in public secondary schools. In today's world, teachers need understanding of computers knowledge so that they can cope with the new innovations in various sectors including education.



These findings are supported by Francom (2020) who found that time was the most stable and persistent barrier to technology integration. Access to technology tools and resources increased, yet teacher beliefs, and training and technical support declined over time. This means that teachers need workshops and seminars related to technology so as to strengthen their computer usage. The findings also were supported by Adeleye (2021) who found that the most significant impediment to the computerization of academic records in the schools is a lack of funding. This means that if there was shortage of funds for technological investments in public secondary schools teachers were not able to manage effectively students' academic records in public secondary schools.

The interviews with the informants, revealed that, there are Lack of interest for teachers on computer use for records management which has been also the barrier for using computers to manage students' academic records in secondary schools. Most of schools did not have enough computers which can be used to manage students' academic records in public secondary schools. For instance on of district quality assurance officer had this to say:-

Most of public secondary schools lack computers. Few of these schools, which have computers, are facing poor internet connections and unreliable power supply..." (DQAO, personal communication, August 16, 2022).

The DQAO quote above shows that there is a need for proper investment of computers, electric power and internet connectivity in order to strengthen computer usage for record management in public secondary schools. Most of the respondents were aware with the potential opportunities provided by computers in education sector but lack of effective investment in government owned secondary schools weaken their efforts to use computers in managing students' academic records. Furthermore the researcher conducted an interview from heads of schools. One head of the school said that:-

In my school, there is no any computer that can be used to manage students' academic records. I really don't have proper words to say but I appreciate the importance of computers in this era of technology but we have no means.(HoS1, Personal communication, August 18, 2022).

From the above quote from the head of school the issue of using computers to manage students records cannot be reached until computers are made available in public secondary schools. With limited computers, it is not possible for school teachers to manage properly students' academic records. It is high time now for the government and other stakeholders to think of enhancement of computers in public secondary schools in order to make sure that there is proper management of students' academic record which are very important for academic progress of students. Students' academic record reports if properly prepared and kept assist teachers and parents to make close follow-up on students' academic progress for further studies. Another Head of School added that:-

My teachers are not using computers in keeping students records, though there are few like to do so. The major problem is Lack of interest for teachers on computer use for records management and other technological activities..." (HoS3, personal communication, August 22, 2022).

HoS3 is shifting from the idea of shortage of funds for proper integration of computers in education at schools and unreliable source of power as challenges for computers use, still she mentions Lack of interest for teachers on computer use as another constraint among teachers in that school. This indicates that the school may have adequate facilities but if teachers lack interest to use them, management of students' records will be difficult.

In view of these arguments, it is obvious that the respondents faced many challenges on using computers in managing students' academic records. Yet, shortage of funds for proper integration of computers in education at schools, insufficient technical support, lack of interest for teachers and unreliable power supply were found to be the major challenges.

Teachers as the major component in students' academic records management in schools, need to have proper skills and knowledge in computers in order to easily manage students' academic records public secondary schools. The findings regarding the constraints on lack of adequate computers collaborate with the study findings by Kweka et al (2018) who found that most of the secondary schools in Tanzania experience inadequate ICT facilities including computers. Some secondary schools have computers which are not working while other schools have computers only for administrative purposes. There are also schools which do not have even a single computer for managing students' academic records. An absence of electricity in some schools is a big challenge. It is very difficult to operate computers and Internet to a school where there is no electric power. In Rombo District, out of 41 public secondary schools only 28 schools have access to National grid electrical power, 10 have access to solar power while 8 schools have no access to any source of power (URT, 2019). Based on the interview with some heads of schools, it was also revealed that even in schools with electricity, sometimes the payment of electricity bills is a problem although the government brings the capitation grants on time but not sufficient. In view of the preceding challenges, it could be logical to note that lack of interest among teachers to use computers in managing students' academic records may have been influenced with lack of reliable source of power.



In a broader sense, the findings of the current study have spotlighted the limited access of computer hardware and software, to support effective management of students' academic records in Tanzanian secondary schools. The findings also revealed that, the difficulty in using computers to manage students' academic records is due to a number of constraints such as shortage of funds for proper integration of computers in education at schools, lack of clear ICT policy on records management, poor electricity supply, lack of teachers interest, just to mention a few. If we are to build the technological society, we must employ our efforts to ensure that teachers are exposed to technological environment for them to come up with new innovations and discoveries. Computer usage in records management may be enhanced depending on the number of factors which may include availability of computers, teachers' readiness, training and supply of reliable electricity in schools. This assist teachers to use computers to manage students' academic records from the concept of their creation, maintenance and disposition.

10. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the current study, it can be concluded that teachers in public secondary schools in Rombo district are faced by number of limiting factors towards computer use for managing students' academic records. Such constraints are like lack skills and knowledge on computers, resistance to change, shortage of funds for proper integration of computers in education at schools, lack of motivation to use computers, lack of interest on computer use for records management, insufficient technical support at schools, absence of relevant software especially in records management, unclear ICT policy in education for record management and lack of time for to use computer. These constraints restricts teachers from using computers to effectively manage students' academic records which are very important and vital in academic progress.

Based on the findings and conclusion, Government should come up with practical strategies to ensure that teachers make use of computers to simplify and improve effectiveness in education especial in a crucial area of students' academic records management. The government should ensure availability of computers and adequate supportive infrastructure in secondary schools to enhance the use of computers in records management. The government also should ensure power supply to motivate teachers in using computer as a tool to improve effectiveness in records management.

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