

## 1.0 INTRODUCTION

The global perspective on digital revolution is one that has received a rapturous approval from information professionals, scholars and practitioners presumably because it has influenced the way information is gathered, managed, processed, stored and accessed. Accordingly, various governments are supporting the shift to digital records and preservation through a number of legislations and changes in policy (Government of Canada, 2012 & Bibliothèque nationale de France, 2014; National Information Technology of Authority, 2008). In an attempt to catch up with the development of ICT in the world, the government of Ghana in February 2004 enacted an ICT development policy with 14 priority areas (Republic of Ghana Information Communication Technology for Accelerated Development, 2003). The thrust of the policy was focused on promoting ICT physical infrastructure development, which will eventually translate into development of both public and the private sector. It envisaged a programme of infrastructure, modernization, expansion and development to bridge the digital divide and meet the Millennium Development Goals. In order to actualize these policies, Government ministries and public sector organizations were required to publish their own ICT policy statements in line with the Information Communication Technology for Accelerated Development (ICT4AD) to be implemented by the National Information Technology (National Information Technology of Authority, 2008). Under this arrangement, NITA will spearhead the automation of public institutions to create a more citizen- friendly oriented public service delivery and share data across systems with other analogous agencies and intergovernmental data collection and management (Republic of Ghana National Information Technology Agency Act 771, 2008). Such an enormous effort from Government will undoubtedly raise the issues of legislations, open data, electronic government and the information law. However, the implementation of open data and e-government cannot be complete without the ancillary process of records maintenance, as much of the information generated from government would have to be preserved for the general public. Since digital preservation is a key technology underpinning e-government (Adu, 2015), Open data and the Right To Information, the government of Ghana must take a serious look at these concepts as public officers would have to manage, protect and provide reliable information over time, more particularly when little attention has been accorded to these concepts. This paper seeks to examine the extent to which these ancillary factors have occasioned the need for digital

preservation, precisely because whereas the right to information will invoke a statutory obligation to be placed on civil servants to introduce sound records management practices that can ensure long term access to digital records, the concept of Open Data will underline free access to government data and ensure that government information is regularly published. Equally important is the e-government concept which is predicated on efficient preservation of digital records. The application of digital preservation to Open Data in this paper appears to be more relevant at a time when most governments of the world are striving to obtain data to fight poverty, achieve universal primary education, fight HIV and foster maternal health (United Nations e-government survey, 2014). Again, Ghana's participation to the Open Government Partnership initiative (OGP), a multilateral initiative that seeks to secure commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance (World Justice Project Open Government Index Report, 2015) reinforces the need for the government of Ghana to adhere to the principles of democratic traditions and values, enhance public services, increase public integrity and corporate accountability (Ghana News Agency, 2012). That notwithstanding, the Open Data phenomenon is usually discussed within the context of developed countries with little attention paid to developing countries. (Only four African countries were reported to have a dedicated open government data portal). In this paper, the government ministries and the public agencies were the focus of the study as they are the implementing agencies for the government of Ghana e-government strategy and the drivers of the ICT policies of government. Additionally, the deployment of ICT across these government agencies in the last few years has occasioned a phenomenal growth in digital records, hence the choice of these government institutions. The paper uses a mixed method approach to examine the ancillary factors for digital preservation. A theoretical framework based on the Open Archival information System was used to explain, clarify and justify how digital preservation can facilitate e-government, open data and the right to information.

## **2.0 PROBLEM STATEMENT**

As part of the strategy of implementing Ghana's vision 2020 and the ICT policy document to preserve digital data, and make information accessible to a wider community, the government of Ghana has put up a national data infrastructure to facilitate the consolidation and aggregation of

all government's information in a secured environment (National Information Technology Agency Handbook, 2008). The infrastructure consists of primary data spread over all the ten regional capitals of Ghana and supported by a Network Operating Centre (NOC), Security Operating Centre (SOC) and Storage Area Network (SAN). These significant moves were meant to cure any unanticipated growth of digital data and to ensure smooth transition to electronic government. Whilst these developments in ICT infrastructure are commendable and critical to digital data they are not enough to drive the whole gamut of government information agenda and impose a significant amount of pressure and responsibilities on public authorities to grant the public access to any information. Thus, there are legislations and policies which are very critical to access and preservation of digital data which are currently non-existing (the right to the information law). The existing factors such as the Open government data and Electronic government have not effectively been appropriated. Their absence have often left government machinery (Government Ministries, Departments and Agencies) to be deficient in prompt and effective delivery of information (Daily Graphic, January, 2012), a practice which will results not only in delays in responding to information requests, but also unreliable information will be distributed about government activities (Lemieux 2016). Government can only be seen to be transparent and accountable to its citizens if the information it churns out are authentic and can be used as evidence to prosecute corrupt public officials. This paper examines this growing phenomenon under the following research objectives:

1. To identify the driving factors for digital preservation,
2. Determine whether or not there is free access to public data
3. To establish the impact of digital preservation in the planning and delivery of e-government.

### **3.0 CONCEPTUAL FRAMEWORK**

The researcher considered it appropriate to use the Open Archival Information System to advance the current study, particularly because it has the capacity to reliably store data, migrate and provide access to digital data (Consultative Committee for Space Data Systems, 2012). The key actors within the functional model of the OAIS (ingest, data management, administration, access, preservation planning and archival storage) provide a wider understanding of what is

required to preserve and access information for the long term (CCSDS, 2002) which concurs with the current study. As was stated in Section 2.0, the key objective of this paper is to establish how digital preservation facilitates the deployment of Open data, electronic government and information law across government circles. These key concepts emphasized the need for real access to public sector information (United Kingdom legislation, 2012), free access to public data (Shadbolt et al, 2012) and availability of online services (United Nations E-government Survey, 2014). Their very foundation and survival hinges on the extent to which digital data is preserved.

#### **4.0 LITERATURE REVIEW**

Having established the framework upon which this study is built, it is crucial to explain in detail how the development of digital preservation can enhance the application of freedom of information, e-government and open data.

##### **4.1 The right to information**

The quest to secure the rights to access information from government started far back in the 20<sup>th</sup> century when the struggle for political and civil rights was in the ascendency. Literature suggests that citizens of the world have been able to access public information “to expose and prevent corruption, to enhance their ability to participate in public affairs, to protect other human rights, to hold governments to account, to improve service delivery, to facilitate their businesses and to further their own personal goals” (Calland and Bentley 2013). These benefits have undoubtedly kept many governments responsive to the needs of their citizens. The concept of the right to information gives individuals the legal right to access information held by public bodies (World Bank report, 2013). Yet, making the law work is far more a greater challenge as it depends on the critical element of access to information. Such access to information demands that records are created, received, maintained and preserved for a long time. Exemplars abound in many countries where the creation and preservation of digital records are backed by legislations. For instance the Public Records Act 2005 of New Zealand empowers the Archives of New Zealand to ensure long term repository of the public sector’s electronic records. The Act further prescribes the requirement for every public office to create and maintain full and accurate records of its affairs. The same can be said of the Public Records and Archival Administration Acts 1997 (Act 535) of Ghana which mandates public offices, institutions and individuals who

create and maintain public records to follow good record keeping practices and implement procedures for timely disposal of public records of no continuing value. However, creating the infrastructure for the preservation of digital records cannot be treated in isolation and exclusive to the application of the Right to the Information Law. The two concepts are intertwined and operate hand in hand. Scholarship notes that managers of records keeping in Mexico, the United Kingdom, and the United States collaborate with the Right To Information oversight bodies to harmonize record-keeping policies across public sector organisations (Alexander 2014; Mizrahi and Mendiburu 2014). Although this practice is not a common phenomenon, it gives an inkling that the very success of the Right To Information law depends on access to records. In that regard, the preservation of records provides an appropriate policy for the enactment of the law to create a technical infrastructure in order to give life to the Right To Information Law. The exercise of one's right to request for records hinges on the availability of information about records in the government ministries and public agencies (Adu, 2015). The Right To Information Law will fail if records cannot be identified, retrieved and used; if their integrity cannot be established and properly stored (International Records Management Trust, 2011). Digital preservation gives an assurance to the Right To Information Law that the government will accumulate and maintain information that is authentic, verifiable and reliable (Adu, 2015). This assertion resonates with the current paper which seeks to examine the extent to which digital preservation facilitate the Right To Information Law. This section argued that the existence of proper management of government records backed by Right To Information Law is an assurance that governance is carried out to reflect and protect the will of the public.

#### **4.2 Open Government Data (OGD)**

Having examined the Right To Information Law as one of the underpinning factor for digital preservation, this section of the paper probes further into the concept of Open Data as a driving factor for digital preservation. As a concept, Open Government Data espouses openness," "accountability," and "transparency" in public sector organisation and does appear to be on everyone's lips in today's world. OGD thrives on the supposition that the plethora amount of information gathered by governments will be made available to the public and ought to be data that can freely be used, reused and redistributed without any restriction (World Bank, 2015). In 2013, a global movement in partnership with the G8 leaders signed an Open Data Charter that promised to make public sector data openly available, without any charge and in reuseable

formats (World Wide Web Foundation 2015). Ever since this open declaration was made, OGD has gained so much currency to the extent that many developed countries have adopted Open Data policies to remain relevant in the digital environment. For instance, the United Kingdom government, in an effort to make their data public and easy to find has created a central access portal ([data.gov.uk](http://data.gov.uk)) to ensure that government departments, public-sector bodies, and local authorities are hooked onto the Open Data through the site of United Kingdom. Government. The Government of Canada in the same fashion launched an Open Data portal [data.gc.ca](http://data.gc.ca) allowing unrestricted data reuse (Government of Canada, 2011; Comprehensive Knowledge Archive Network, 2013; Government of Canada, 2013). Various cities and districts throughout Canada have launched their own Open Data websites (Government of Canada, 2014), including the City of Ottawa, which also uses the Comprehensive Knowledge Archive Network platform (City of Ottawa, 2014). Europeana, a world leader in digital opportunities is managing a repository of over 30 million cultural items from 2300 European institutions through the Open Data (Europeana, 2013). It is the considered view of the researcher that for OGD to be accessible, useable and freely given without any restriction, an enormous amount of effort must be used to generate digital records that are authentic, reliable and trustworthy. The trustworthiness of record does not happen by chance. Rather, their existence and subsequent availability depends largely on an infrastructure like digital preservation which seeks to ensure that series of managed activities are put in place to guarantee the longevity of digital records (Corrado & Moulaison, 2014). Accordingly, accurate and reliable information as evidence of government activities and programmes are factors that will drive OGD. Thus, OGD falls heavily on evidence emanating from government records. However, OGD has the potential to fail if electronic records cannot be retrieved, found and its integrity established (IRMT, 2011). In other words, Open Government Data cannot be complete without the ancillary process of records maintenance, as much of the information generated from government would have to be preserved for the general public.

#### **4.3 Electronic government**

In the case of e-government, digital preservation turns into an important challenge as the demand to access information increases (Riege & Lindsay, 2006). This is because the size, complexity of governmental structures and the phenomenal growth of data and their storage have become

problematic (Koh, Ryan, & Prybu-tok, 2005). Thus, data inconsistencies and the overwhelming growth of data can have an impact on the activities of e-government (Gil-Garcia & Martinez-Moyano, 2007). Accordingly, the delivery of government services through technology demands repositories to be created to feed government websites and to enable citizens walk through a number of public agencies to access the most current information on services, regulations, taxes and forms (Koga, 2006). Relevant, accurate and complete public records must exist if governments are to preserve the rule of law and to demonstrate fair, equal, and consistent treatment of citizens.

The International Records Management Trust (2011) assert that digital preservation programmes must be adapted to take into account the evolving nature of e-government environment. In that sense, every effort must be made to build digital preservation structures as e-government encourages data sharing between government departments, compact data and stores them in a convenient manner (Almarabeh & Abu Ali, 2010). Even though digital preservation may not have an immediate effect on the delivery of e-services; many services are bonded by processes that continue for a long time (Decman, 2010) and so e-government legislation in many countries have incorporated digital preservation components (International Council for Scientific and Technical Information, 2004). Again, Ngulube (2007), citing Lipchak and McDonald (2003:2), underscored that an e-government environment will be elusive if sub-Saharan Africa does not have the capacity to create, manage, share and use electronic information. Ngulube (2012) in another study further noted that digital repositories like the Open Archival Information System model have the potential of providing long term preservation and access to information created and captured by e-government activities. Thus the implementation of e-government will be a mirage if repositories are not created to feed government websites. The adoption of e-government has become a global trend and information technologists have no option, except to keep up with this trend to secure and facilitate access to government information.

## **5.0 RESEARCH METHODOLOGY**

Considering the objectives of the study and the representation of the quantitative data in this mixed method approach, the quantitative data (questionnaire) was accorded priority (Ivankova, Creswell & Stick, 2006). This decision was influenced by the purpose of the study to examine

the ancillary factors for digital preservation across public sector organisations in Ghana. Thus, quantitative and qualitative data were triangulated with the questionnaire preceding the interview.

### **5.1 Population**

The government ministries and the public agencies were the focus of the study because they are the implementing agencies for the government of Ghana e-government strategy and the drivers of the ICT policies of government.

### **5.2 Sampling frame**

As at the time of conducting this study, there were 24 government ministries and 132 agencies on the official website of the government of Ghana: [www.ghana.gov.gh](http://www.ghana.gov.gh). Accordingly, the study took into account, directors, records managers and heads of ICT at the government ministries and agencies in view of the following: these respondents are coordinators within the ministry and act as the chief advisors to the minister on governance issues; and heads of IT and records managers are in charge of all repositories in the ministry. In all, the study identified 27 record managers and ICT heads across the 24 ministries and additional 155 records managers and ICT heads in the public agencies.

### **5.3 Sampling procedures**

The study used multiple purposive sampling techniques in view of the different sampling strategies it serves. In applying this concept, a purposive sampling technique called the ‘‘complete collection’’ (Teddlie & Yu, 2007:93) was used for all the records managers and ICT heads in the government ministries and agencies. This strategy allowed the population of record managers and ICT heads to be studied.

### **5.4 Sampling for directors**

A purposive sampling strategy was further used to select government ministries and public agencies for the interview protocol. These ministries and agencies were selected on a number of factors such as: the strategic role they play in the implementation of e-government. In all five directors were interviewed in areas such as strategic document and policies.



## **5.5 Data collection methods and processing and analysis of data**

Questionnaires and interviews were used to complement the strength and weaknesses of each method. Quantitative data (questionnaire) was analysed statistically using Statistical Package for the Social Sciences (SPSS) to measure and summarise the variables in the study. It was followed by a qualitative analysis where the broad and key themes of the data were identified, evaluated, coded, mapped and entered into one of the popular computer based analysis software for social and management researchers, Nvivo, previously known as NUD\*IST. The results of the qualitative data were used to converge, complement and support the results from the quantitative data.

## **6.0 PRESENTATION OF RESULTS**

The response rate proved to be more than satisfactory as out of the 182 questionnaires distributed across the government ministries and agencies, 120 were returned, representing 66% of the population. This could be described as fairly good, judging by the benchmarks of Lyon, Lancaster and Dowrick (2008). There were also follow-up interviews in selected ministries and agencies. The current section presents an upshot of the survey undertaken across the public agencies by providing the results of the data analysis under the following themes:

- Driving factors for digital preservation;
- Availability of data
- The impact of digital preservation in the planning and delivery of e-government.

### **6.1 Driving factors for digital preservation**

Across many public sector organisations, the emergence of digital records has prompted many policy makers to put in place laws and policies to make it mandatory and constitutional for digital records to be preserved. The study in finding out some of the factors for digital preservation listed three possible factors for respondents to choose from. Table 6-1 shows respondents unanimously opted for all the three possible factors with core business needs 31(25.8%), statutory duty to provide access to information 26(21.7%) and statutory requirements to store information 19(15.8%).

## **6.2 Contribution of laws to the growth of digital records**

Probing further, respondents noted that the current wave of the right to the information law and government legislations have contributed to the increased demand for information and the growth of digital records. A total of 79(65.8%) of respondents and 41(34.2%) of respondents underscored how these factors have contributed to the growing phenomenon of digital preservation (Table 6-2). To confirm these results, the interview protocol, sought from respondents, what the government agencies have in place to meet the anticipated demand for information when the right to information law is passed. One respondent remarked that: *‘we are very much aware of the responsibility of the ministry when the information law is passed. Whilst waiting for the passage of the law, we are creating a department to keep and organize our records system. But to a large extent the data centre being put up by National Information Technology Agency would complement some of the records gap’*. Other respondents couldn't have agreed more with the succinct views of the first respondent when they noted that the information law would require them to create and maintain records properly, *‘and that is what they will be doing’* as noted by other respondents.

## **6.3 IMPACT OF DIGITAL PRESERVATION ON THE PLANNING AND DELIVERY OF E-GOVERNMENT**

Section 4.2 of the paper noted that the concept of e-government is predicated on efficient delivery and preservation of digital records. It also underscored how the implementation and pursuit of e-government rest heavily on digital preservation, particularly because data inconsistencies and data inaccuracies have the potential to impact on the activities of e-government. Again, because e-government thrives on data sharing among government departments, it is crucial to ensure the longevity of digital records. On the back of these reasons, the paper examined the impact of digital preservation on e-government. In examining this impact, respondents were asked about their involvement in the implementation of e-government and whether the application of e-government feed into the use of digital records.

### ***6.3.1 E-government feeds into the use of digital records***

Table 6-3 shows how 72(60%) of respondents noted their involvement in the implementation of e-government and claimed that the use of e-government feed into the use of digital records. A much lower number of respondents 48(39.8%) were not sure as to whether e-government feed into the use of digital records or not. The reported results show that the delivery of government services through technology demands repositories to be created to feed government websites. In other words, whereas digital preservation or repositories feed the websites of governments, the creation and implementation of e-government in public sector organisations degenerates into another form of digital records.

### **6.3.2 Data freely available**

As a follow up to the concept of Open Data, respondents were further asked to indicate whether their website data was made available for use by the general public. Figure 6-1 shows 67(55.8%) of respondents noted that their data was freely available for use, while 30(25%) of respondents disagreed with the statement that their data is available. A small portion of respondents 23(19.2%) have no idea about whether their data is freely available to the general public or not. The results emphasized the extent to which the ministries and agencies fall heavily on digital preservation to make data available to the general public. This initiative from the ministries makes them transparent and very much open to the general public as data is shared in a form that allows use and reuse of digital records preserved.

## **7.0 DISCUSSION OF RESULTS**

The discussions of the findings have been presented according to the order or sequence of the research questions. In doing that the key variables or themes pertinent to each research question was brought to the fore and discussed.

### **DRIVING FACTORS FOR DIGITAL PRESERVATION**

The literature revealed that across many public sector organisations, the emergence of digital records has prompted many policy makers to put in place laws and policies to make it mandatory for digital records to be preserved. In accordance with the findings, laws and policies were noted as factors for digital preservation as public offices, institutions and individuals who create and

maintain public records were made to follow good record keeping practices and implement procedures for the timely disposal of public records. This finding agreed with the various archival laws such as the Canada's Library and Archives Act (2004), Public Records Act of New Zealand (2005) and Public Records Archives Administration Department (PRAAD) Republic of Ghana PRAAD, 1997). Again, e-government activities were noted as contributing to the growth of digital records. As government relies on public policy files, accounting records, procurement records and personnel records to demonstrate accountability to its citizens (Piggot, 2002). On the other hand, statutory laws in many countries enjoin governments to ensure the longevity of such records for the citizenry (Republic of Ghana PRAAD Act, 535, 1997; Public Records Act of New Zealand, 2005 & Government of Canada, 2012). These statutory laws, according to the study were meant to meet the anticipated demands for information. The finding suggested that as the frontiers of government expand in terms of statutory laws, there should be appropriate strategies to absorb the proportionate growth of digital records. Accordingly, conscious effort would have to be made to preserve these digital records as the growth of digital records continues to lag behind (Gantz & Reisel, 2011). Thus, the creation of digital records across the ministries and agencies will require some level of preservation effort and attention fundamentally because digital records can be inaccessible after few years of creation and formats that are outdated might similarly not be accessible.

### **Availability of data**

One of the tools used to determine the extent to which data has been made available for use and re-use is the concept of Open Data (UN e-government, 2014). The concept underlines free access to public data and offers the citizenry the opportunity to evaluate the performance of various administrative institutions and public agencies. The underpinning consideration of this concept in this study was premised on the fact that digital preservation embraces and seeks the longevity of digital records and their accessibility for future use. Accordingly, the study sought among other factors to find out the extent to which the various ministries and agencies have made their preserved data available to the general public. In this regard, respondents in the current study were to indicate whether their website data were made available to the general public for use. As highlighted in Figure 6- 1, 67(61%) of respondents noted their data is freely available for use while 30(28%) disagreed with the statement that their data was available. A small portion of

respondents 13(11%) have no idea about whether their data was available or not. The results illustrate the role the ministries and agencies can play in the delivery of data to the public and the opportunity for citizens to assess their performance at various levels. This initiative from the ministries makes them transparent and very much open to the general public as data was shared in a form that allowed use and reuse of digital records. In spite of the opportunities offered by Open Data to the citizenry, its real impact will not be realized without a preservation strategy.

### **IMPACT OF DIGITAL PRESERVATION ON E-GOVERNMENT**

In examining the impact of digital preservation on e-government, the findings of the study revealed that e-government feed into the use of digital preservation as many of the agencies and ministries have incorporated e-government legislations into their digital preservation activities (INSTI, 2004). In other words, the capacity to create, manage, share and use electronic information depends on the mutual combination of digital preservation and e-government (Lipchak & McDonald, 2003:2 in Ngulube, 2007). These findings further agree with Decman's (2010) supposition that many services of e-government are bonded with the processes of digital preservation which continue for a long time. On the back of these findings, the study suggested that the implementation of e-government will be a mirage if repositories are not created to feed government websites.

ICT products were also observed to be useful for e-government and digital preservation, a finding Nolan (2001) and Luyombya (2010) reinforced when they remarked that the use of ICT systems was linked to the implementation of government services and knowledge sharing and that it was impossible to examine the outcome of e-governance processes without touching on digital records. Clearly, these findings illustrate that the survival of e-government is inherently rooted in reliable, authentic and trustworthy repositories. IRMT (2011) endorses the idea that digital preservation programme must take cognisance of the evolving nature of e-government environment since it encourages data sharing, cooperation between government departments, streamlines offline record keeping processes, and helps to compact data (Almarabeh & Amer, 2010).

### **8.0 CONCLUSION**

The current wave of the Right to the Information Law and government legislations have contributed to the increased demand for information and the growth of digital records. It suggested that the implementation of e-government will be a mirage if repositories are not created to feed government websites. Consequently, opening up government data can lead to more efficient use of resources and improved service delivery for citizens. The paper further underscored the synergy between digital preservation, e-government, open government and the right to information law. It emphasized that digital preservation will continue to underpin e-government now and in the foreseeable future. Such an assumption was augmented by the symbiotic nature of e-government and digital preservation, and explains why many of the ministries and agencies had incorporated e-government legislations into their digital preservation act. The paper recommends that as the frontiers of government expands, new legislation will be needed to meet the phenomenal growth of digital records. The paper argues that the real impact of e-government, the right to information and open data will not be realized without carefully planned preservation of data.

## **IMPLICATION OF RESEARCH AND PRACTICE**

With respect to policy and practice, the current paper brought to the fore the nuances right to information law, particularly in a period where the government of Ghana is brooding(limbo) over whether to pass the right to information law or not. With the Ghana's vision 2020 (a policy document of the government which espouses an ICT- driven economy by 2020 if rapid economic growth will be achieved) inching closer, (National planning development commission of Ghana, 2001), the study has contributed to the ongoing debate about the passage of the law.

## **FUTURE RESEARCH**

Future research should examine closely the implication of Open Data government within the context of digital preservation. Whilst digital preservation looks forward to the longevity of digital records and its accessibility, Open Data focuses on the utility of these records through online services, reuse and distribution for the purposes of transparency and citizens' participation.

## REFERENCES

Adu, K. 2015. Digital preservation of electronic government in Ghana. Phd thesis, University of South Africa.

Alexander, S. 2014. Implementing right to information: a case study of the United States, In *right to information: case studies on implementation*, edited by Stephanie E. Trapnell, 539–624. Right to Information Series. Washington, DC: World.  
<http://siteresources.worldbank.org/>(Accessed on 15 Sept, 2016)

Almarabeh, T & Abu Ali, A. (2010). A general framework for e-Government: definition maturity challenges, opportunities, and success. *European Journal of Scientific Research*, 39(1):29-42. <http://www.eurojournals.com/ejsr.htm>. (Accessed on 21 January, 2011).

Bibliothèque nationale de France. (2014). *Digital legal deposit: four questions about we archiving at the Bibliothèque nationale de France*.  
[http://www.bnf.fr/en/professionals/digital\\_legal\\_deposit/](http://www.bnf.fr/en/professionals/digital_legal_deposit/) (Accessed on 3 March 2015).

Calland, R & Kristina B. 2013. The Impact and Effectiveness of Transparency and Accountability Initiatives: Freedom of Information. *Development Policy Review* 31 (1): 69–87.  
Canada. 2004. *Library and Archives Act of Canada*. <http://laws.justice.gc.ca/PDF/Statute/L/L->. (Accessed on 12 January, 2016).

City of Ottawa. 2014. Open Data Ottawa. <http://ottawa.ca/en/mobile-apps-and-open-data/open-data-ottawa>. (Accessed on 8 February, 2016).

Comprehensive Knowledge Archive Network (CKAN). (2013). A great year for CKAN. <http://ckan.org/2013/12/>.(Accessed on 8 February, 2015).

Decman, M. 2010. Long term preservation in e-government: a case of Slovenia. *Organizacija*, 43(2):66-74.

Europeana. 2013. Facts and figures: Content. <http://www.pro.europeana.eu/web/guest/content> (Accessed 10 February, 2016).

Gantz, JF & Reinsel, D. 2011. *Extracting value from chaos*. Framingham (MA): IDC (International Data Corporation).

Gil-Garcia, JR & Martinez-Moyano, IJ. 2007. Understanding the evolution of e-government: the influence of systems of rules on public sector dynamics. *Government Information Quarterly*, 24(2):266-299.

Ghana News Agency. 2012. *Open government partnership validation forum held in Accra*. <https://www.ghanabusinessnews.com/2012/11/12/> (Accessed on 24 February, 2016).

Government of Canada (GOC). 2012. *Library and Archives of Canada Act (S.C. 2004, c. 11)*. Ottawa (ON): Minister of Justice.

Government of Canada (GOC). 2011. Minister Day launches Open Data Portal. <http://www.tbs-sct.gc.ca/media/> (Accessed on 5 March, 2015).

Government of Canada (GOC). 2013. Minister Clement launches next generation Open Data portal.

Government of Canada (GOC). 2014. Open Data in Canada. <http://data.gc.ca/eng/maps/opendatacanada>. (Accessed on 20 April, 2015).

International Council for Scientific and Technical Information (ICSTI/CODATA/ICSU). 2002. Seminar on preserving the record of science, 14-15 February 2002, UNESCO, Paris, France.

International Records Management Trust (IRMT). 2011. *Managing records as reliable*



*evidence for e-government, ICT, freedom of information: an East African Regional Situation Analysis*.<http://irmt.org/portfolio>. (Accessed on 20 August, 2013).

Ivankova, NV., Creswell, JW & Stick SL. 2006. Using mixed-methods sequential explanatory design: from theory to practice. *Field Methods*, 18 (1): 1-18.

Koh, CE., Ryan, S & Prybutok, VR. 2005. Creating value through managing knowledge in an e-government to constituency environment. *The Journal of Computer Information Systems*,45(4): 32-42.

Koga, T. 2006. Policy issues regarding electronic government and web accessibility in Japan. World Library and Information Congress: 72nd Ifla general conference and Council, from 20-24 August 2006, Seoul, Korea.

Lemieux, VL. 2016. One step forward, two steps backward? does e-Government make governments in developing countries more transparent and accountable? World Development Report Background Paper, World Bank, Washington, DC. <http://pubdocs.worldbank.org/pubdo> ( Accessed September, 10, 2016).

Lipchak, A & McDonald, J. 2003. Electronic government and electronic records: e-records readiness and capacity building. An electronic Discussion, 19 Nov.-12 Dec. A discussion Paper.

Lyon, D., Lancaster, G & Dowrick, C. 2008. A case of response rate success. *Journal of Integrated Care*, 16 (2):29 – 32.

Mizrahi, Y & Marcos, M. 2014. Implementing right to information: a case study of Mexico, in *right to information: case studies on implementation*, edited by Stephanie E. Trapnell, 103–50. Right to Information Series. Washington, DC: World Bank. <http://siteresources.worldbank.org/PUBLICSECTO> (Accessed on 15 Sept, 2016)

National Information Technology Agency Act. 2008. *Act 771*. [www.nita.gov.gh](http://www.nita.gov.gh) (Accessed on 13 July, 2012).

National Information Technology Handbook. 2008. *Transforming Ghana through ICT*.

Ngulube, P. 2007. The nature and accessibility of e-government in sub-Saharan Africa. *International Review of Information Ethics*, 7(9):1-13.

Ngulube, P. 2009. *Preservation and access to public records and archives in South Africa*. Saarbrücken: Lambert Academic Publishing AG & Co. KG.

Ngulube, P. 2012. Ghost in our machines: preserving public digital information for the sustenance of electronic government in sub-Saharan Africa. *Mousaion*, 30(2):128-136.

Open Government Partnership. 2011. *Open government declaration*.

[www.opengovpartnership.org/sites/www.opengovpartnership.org](http://www.opengovpartnership.org/sites/www.opengovpartnership.org). (Accessed on 4 June, 2014).

Piggot, S. 2002. Evidence based governance in the electronic age. Paper Presented at the 32<sup>nd</sup> Annual Conference of the Association of Caribbean University Research and Institutional Libraries, Jamaica, 22 May-1 June.

Quisbert, H. 2008. On long-term digital preservation information system: a framework and characteristics for development. Department of business administration and social science of computer & systems science: Lulea University of Technology.

Republic of Ghana. 1997. *Public Records and Archives Administration Department, Act 535*.

Republic of Ghana. 2003. *The Ghana ICT for accelerated development (ICT4AD) Policy*. Accra.

Republic of Ghana. *The Daily Guide*, Tuesday, October 2011.

Riege, A & Lindsay, N. 2006. Knowledge management in the public sector: stakeholder partnerships in the public policy development. *Journal of Knowledge Management*, 10(3):24-39.

Shadbolt, N., O'Hara, K., Berners-Lee, T., Gibbins, N., Glaser, H., & Hall, W. 2012. Linked open government data: Lessons from data. gov. uk. *IEEE Intelligent Systems*, 27(3):16-24.

Teddlie, C & Tashakkori, A. 2003. Major issues and controversies in the use of mixed methods in social and behavioral sciences, in *Handbook of mixed methods in social and behavioral research*, edited by A Tashakkori & C Teddlie. Thousand Oaks, CA: Sage: 3-50.

The International Council for Scientific and Technical Information. 2004. *Digital preservation and permanent access to scientific information: the state of the practice*. The International Council for Scientific and Technical Information.

United Nations e-government survey. 2014. The future we want. <http://www.un.org/desa> (Accessed on 7 February, 2015).

World Bank. 2015. "Open Data Essentials." <http://opendatatoolkit.worldbank.org/en/essentials.html>. (Accessed on 10 Sept, 2016)

World Justice Project Open Government Index 2015 Report. 2015.  
<http://worldjusticeproject.org/sites/default/> (Accessed on 26 February, 2016)

World Bank Report. 2006. *Equity and development*. <http://www-wds.worldbank.org/serve> (Accessed on 10 May, 2013).

World Justice Project Open Government Index Report, 2015).

## APPENDIX

**Table 6- 1: Driving factors for digital preservation (N=120)**

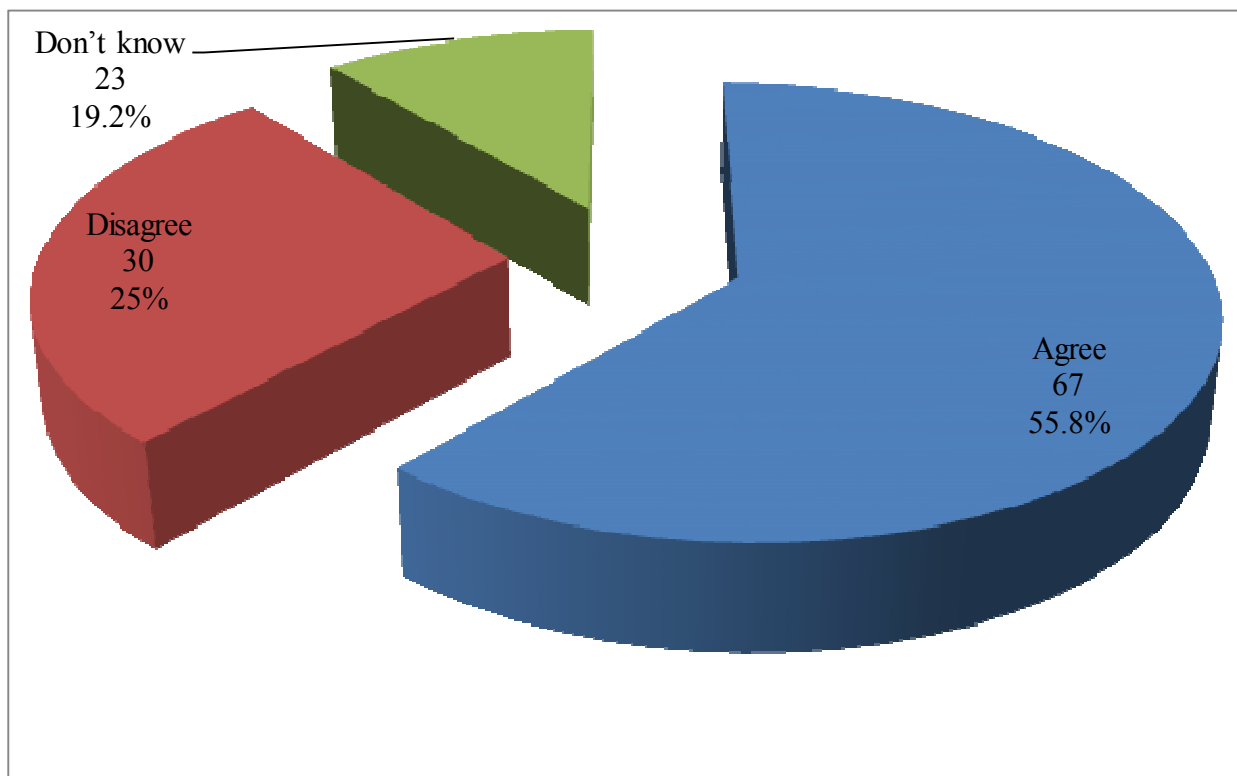
<b>Driving factors for digital preservation</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
A statutory requirement to keep/store/ preserve information	19(15.83%)	15(12.50%)	34(28.33%)
A statutory duty to provide public access to official information	26(21.67%)	15(12.50%)	41(34.17%)
Core business needs	31(25.83%)	14(11.67%)	45(37.50%)
<b>Total</b>	<b>76(63.33%)</b>	<b>44(36.67%)</b>	<b>120(100.00%)</b>

**Table 6 - 2: Contribution of laws to the growth of digital records (N=120)**

<b>Legislation contributing to the growth of digital records</b>	<b>Frequency</b>	<b>Percent</b>
Consideration of the Right to Information Law	79	65.8
Government laws have contributed to the growth of digital records	41	34.2
<b>Total</b>	<b>120</b>	<b>100</b>

**Table 6 -3: E-government feed into the use of digital records (N=120)**

<b>E-government feed into the use of digital records</b>	<b>Yes</b>	<b>No</b>	<b>Not Sure</b>	<b>Total</b>
E-government feed into the use of digital records	36(30%)	8(6.67%)	14(11.67%)	58(48.34%)
Your unit is involved in the implementation of e-government	36(30%)	26(21.66%)	-	62(51.66%)
<b>Total</b>	<b>72(60%)</b>	<b>34(28.3%)</b>	<b>14(11.67%)</b>	<b>120(100%)</b>



**Figure 6 -1:Data freely available for use (N=120)**

### **Biographical information**

Dr. Kofi Koranteng Adu works at the Department of Information Science at the University of South Africa. His research interest is centred on digital preservation, cloud computing, e-government and software engineering. UNISA, 0003, South Africa. Telephone: 0123410308. Mobile: +27767947404/+27791026977. azay723@yahoo.com

Professor L. Dube is a senior lecturer and the Chair of the department of Information science at the University of South Africa. Her research interests are Knowledge management, Information behaviour, Information use, Collection development, Records Management and Management of information enterprises. UNISA, 0003, South Africa. +27124296070 dubel@unisa.ac.za

Emmanuel Adjei is a faculty member at the Department of Information Studies, University of Ghana, Legon. He holds a Ph.D from the University of London. He is currently the Head of Department. He teaches courses in Archives Studies and Management and his research interest includes Medical Records; Health Information; and Freedom of Information.