EFFECT OF E-GOVERNMENT ON HEALTH SERVICE DELIVERY IN MALAWI

MASTER OF PUBLIC ADMINISTRATION AND MANAGEMENT THESIS

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BY

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DECLARATION

I the undersigned hereby declare that this thesis is my own original work which has not been submitted to any other institution for similar purposes. Where other people's work has been used acknowledgements have been made.

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Full Legal Name

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Signature

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Date

CERTIFICATE OF APPROVAL

The undersigned certify that this thesis represents the student's own work and effort and has been submitted with our approval.

Signature _____ Date _____

MUSTAFA K. HUSSEIN, PhD (Associate Professor) Main Supervisor

Signature _____ Date _____

DAN BANIK, PhD, (Professor, University of Oslo, Norway) Second Supervisor

DEDICATION

I dedicate this work to my wife Thandie, my three children: Ellen, Nathan, and Christopher. I also dedicate this work to my parents. Thank you all for your tireless support during my studies

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ABSTRACT

This thesis aimed at assessing the effects of e-government on public service delivery. The thesis dwelt on effects of e-government on health service delivery in line with cost and quality of the public service. It adopted qualitative research design in collecting and analysing data. In-depth interviews (IDIs) and Focus Group Discussions (FGDs) were used to collect data where the interview guide was used to ask questions from the purposively selected participants. The study focused on analysing effects of drivers of e-government, e-government mechanisms in health service delivery, benefits of e-government initiatives in delivery of public service and the challenges encountered in application of e-government mechanisms in health service delivery. Two theories were used: Unified Theory of Acceptance and Use of Technology (UTAUT) model and Actor Network Theory (ANT). Findings established that application of e-government in health service delivery contributes to reduced operation costs of providing public services, quick service provision, reduced work overload, Covid 19 prevention, promotion of privacy and confidentiality. However, the study established that e-government in health service delivery has reduced the benefits some officers were enjoying before e-government. The study therefore concluded that e-government to be effective there is need for joint effort at local councils and implementers of e-government initiatives at the health sector.

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ACRONYMS AND ABBREVIATIONS

ADUS	Anglican Diocese of Upper Shire
ANC	Antenatal Clinic
ART	Anti-Retroviral Therapy
DC	District Commissioner
DODMA	Department of Disaster Management Affairs
EBRS	Electronic Birth Registration System
EDRS	Electronic Death Registration System
EGDI	E-Government Development Index
EMC	Electronic Master Card
ER	Electronic Register
ESCOM	Electricity Supply Co-operation of Malawi
FGD	Focus Group Discussion
FP	Family Planning
GoM	Government of Malawi
HMIS	Health Management Information Systems,
HPI	Health Partners International
HRM	Human Resource Manager
HRMIS	Human Resource Management Information System
ICTs	Information and Communication Technologies
IDI	In-depth Interviews

IFMIS	Integrated Financial Management Information Systems
LGPI	The Local Governance Performance Index
M/W	Male Ward
MISO	Management Information Systems Officer
MoH	Ministry of Health
NLGFC	National Local Government Finance Committee
NPM	New Public Management
NSO	National Statistical Office
OPD	Out Patient Department
UFC	Under Five Clinic

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This thesis examines the effect of e-government on public service delivery in particular health services as one of the initiatives in public service reforms in the paradigm of new public management (NPM). E-government involves the application and utilization of technologies such as the internet to improve the processes of governance, functions and the basic public service delivery (Sodhi, 2016). Conversely, Malawi health service delivery systems is categorised into three levels mainly Primary, secondary and tertiary. The primary level deals mostly with preventive services where these services are carried out at health centres and health posts. Secondary level provides curative services and these are provided within the district hospitals. Lastly at tertiary level there is provision of specialised health services. These services are provided at central hospitals. Although, e-government was adopted to promote public service delivery, there are significant challenges that public service delivery is manifesting such as poor Information and Communication Technology (ICT) infrastructure, long queues to receive a public service, lack of financial resources, weak and inconsistences in legal and administrative frameworks (Malanga, 2016, p.333). The challenges lead to relatively low quality service delivery to the public.

The Local Governance Performance Index (LGPI) (2016, p.3) also indicated that 23 percent of the population find a health care provider when they visit a health facility for medical attention, 22 percent rarely find a health care provider when they visit health facilities for health service delivery, 15 percent of Malawians are unable to attend to their medical-health needs due to financial constraints and long distance to seek health services (LGPI, 2016). It is in view of this discrepancy of ideas that the study seeks to examine the effect of e-government in delivery of health service in Malawi. Specifically, the study examines the effect of e-government on the costs and quality of public services. Furthermore, seeks to examine the conduct and practices of public service providers in managing public resources meant to benefit the majority in the realm of e-government as a one of the paradigms applied in delivery of public services in New Public Management (NPM). Hussein (2005 p.95) argues that where there is lack of automation in administration and delivery of public services, there is promotion of corruption. In some instances, public officials develop rules and norms different from those that are expected by the public and intentionally slow down the process so that potential clients offer speed-up money. Busy clients readily offer bribes to public officials to speed up the process and the movement of files and communication (Hussein, 2005 p.95). The chapter introduces the study and it covers background and history of the study, problem statement and study objectives.

1.2 Back ground and history

Malawi is implementing public-sector reform programmes, geared towards improving the responsiveness of governments to public concerns, increasing the efficiency of public service delivery and promoting accountability (Chiweza, 2009). E-government initiative is one of the public service reforms devolved to local councils where the

District Commissioner (DC) is the controller of local government and public service delivery (Kanyongolo et al., 2014). Upon adopting the multiparty democracy in 1994, the Malawi Government implemented several public sector reform initiatives. The aim of the reforms was to create a viable and vibrant civil service that would be used to deal with the challenges to achieve democratic and good governance policy outcomes (Tambulasi, 2005). Malawi government, through the Ministry of Local Government and Rural Development, adopted e-government to facilitate administration and management of public services to the public in late 1990s (Malanga, 2012). The initiative is devolved to all local district councils which is the umbrella of all local government sectors including health sector. There are a number of public services which were incorporated in the e-government initiatives in the sectors at local council ranging including health, education, agriculture, finance, and human resources management among others. On the other hand, Kolsaker (2006) views e-government as more focused on modernising existing state processes to improve performance with respect to existing services and policies thereby making government sectors and administrative institutions work in an efficient manner in delivering public services to the citizens. Similarly, Holmes (2001) argues that, e-government is the application of Information and Communication Technologies (ICTs) to deliver public services. Congruently, it involves the use of ICTs to offer citizens and businesses the opportunity to interact and conduct business with government by using different electronic media such as telephone, computers, touch pad, fax, smart cards, and internet (Almarabeh & Ali, 2010). Therefore, e-government is vital as it brings public services close to people thereby cutting time factors in accessing the same services. Furthermore, e-government can be viewed as an administrative tool and a catalyst for public service delivery in government sectors which in turn will facilitate transparency and accountability, as well

as speedy, efficient, and effective process for performing government activities thereby promoting quality public service delivery to the citizens (Sodhi, 2016). In a bid to curb the deadly COVID 19 pandemic caused by the corona virus, e-government can also be the best media for providing public service because there is no physical contact (Centre for Disease Control, 2020). A qualitative study was done in three districts namely Mangochi, Ntcheu and Mwanza. Balaka district assembly was used as a pilot site for the study which also helped the researcher to test the data collection tool if it was responding to the study objectives.

National Statistical Office (NSO) (2019) indicates that in 2018 Malawi had an estimated population of 17.6 million people with an average annual growth rate of 2.7%, giving an estimated population of 20.4 million people by 2022. Furthermore, an estimated 84% of the population live in the rural areas as compared to the 16% that live in urban centres. Malawi is predicted to experience an average annual urban population growth rate of 4.2% from 2013 to 2030 which will result in an increase in urbanisation (NSO, 2019). Additionally, Malawi has a young population with 64% of the total population under the age of 15, 18% under the age of 5 and only 3% above 65 years.

Therefore, statistics entail that the government, including local councils, has a huge role to play in administering and managing public services to the growing population. Among other public services, local government is mandated to facilitate delivery of health services. However, delivery of health services is meeting some challenges including long distances to access health services, front-line health services operating with extremely limited numbers of staff, equipment, drugs and other supplies (Mangham, 2007).

In today's technology-driven and globalised world, e-government is the next wave of public delivery and management reforms (Mannan et al., 2014). Thus e-government

can play an important role and change the whole service delivery system as well as the relationship between governments and their citizens. As such, the study critically explored effects of e-government as a tool in public service delivery in the paradigm of good governance and public service management in line with health service delivery to meet public service needs of the growing population and the future generation.

1.3 Problem statement

The New Public Management (NPM) – through its principle aspects of public service reforms, performance management, debureaucratisation, decentralisation, market orientation of public service, contracting out and privatisation was meant to improve public service efficiency, effectiveness and quality (Kalimullah et al., 2012, p.10). However, studies show that the idea of NPM has not been universally achieved to address challenges of the traditional public administration in facilitating public service delivery and management. Furthermore, despite Molmes and Shand (1995) indicated that "NPM improves public service quality, it has been argued that even though it offers greater transparency so that unethical or corrupt behaviour can be detected more easily, greater stress is on measurability of quality performance (Hughes, 2003). There are a number of public service reforms including e-government which primarily is there to curb corrupt malpractices in public service delivery, promote provision of quality public services as well as promoting transparency and accountability. The study seeks to find out as to whether e-government as a NPM related reform can be found to fighting corruption and promoting quality services to the public. At international level, Malawi is currently ranked at 166 out of 190 countries on e-government use (E-Government Development Index, 2014). Several empirical problems with e-government mechanisms have also been reported. The Barker Tilly report of 2014 audit where

infamous cash gate scandal was made over Integrated Financial Management Information System (IFMIS) an e-government mechanism in local councils in Malawi's public service delivery and management where misappropriation of public resources signifies some serious challenges in public service delivery as far as e-government is concerned (GoM, 2018). Furthermore, citizens are required to travel long distances, high travelling costs, long waiting times, queuing in overcrowded offices, too many forms and documents, and the need for informal payments to get services (World Bank, 2016). As such, these challenges retrogress quality of public service delivery in many sectors at local council level including the health sector. Mangham (2007) agrees that, inadequate health care providers in Malawi puts considerable pressure on health workers hence compromising quality care of which if e-government initiatives are effectively implemented these challenges can be reduced. Malawi health service provision to the public is limited by inadequate numbers of staff, equipment, drugs and other supplies (MOH, 2004). Despite these limitations, e-government in public service delivery help to achieving greater efficiency in government performance, timely service delivery, eliminates inefficient processes, reduces bottlenecks, corruption and red tape in the service delivery process as much as possible (Mutual, 2008).

Therefore, this study draws its inspiration from these deficits to assess the effect of e-government on delivery of public services in terms of public service quality and cost effectiveness to both public service providers and the recipients. Furthermore, the study seeks to contribute to the empirical assessments of e-government in provision of health services in Malawi as spearheaded by local councils under the control of the District Commissioners.

1.4 Objectives of the study

The following are the main and specific objectives

1.4.1 Main objective.

To analyse the effects of e-government on public service delivery in the health sector.

1.4.2 Specific objectives.

1. To analyse the drivers of e-government in Malawi.
2. To analyse e-government mechanisms in delivery of health service.
3. To analyse benefits of e-government on health service delivery.
4. To explore challenges encountered in implementation of e-government on health service delivery.

1.4.3 Research questions

The study answers the following specific research questions:

1. How have the drivers of e-government facilitated delivery of public service?
2. Have the mechanisms used in e-government facilitated delivery of health service in Malawi?
3. How has e-government benefited delivery of health service as a public service in Malawi?
4. How have the challenges of e-government affected health service delivery in Malawi?

1.5 Significance of the study

This study is important because it seeks to generate knowledge and managerial skills useful to policy makers and other relevant stakeholders when making e-government decisions in application to public service delivery. In the context of health service delivery as a public service, the study will help the Malawi government to effectively utilise e-government initiatives in delivery of public services. Mtingwi (2012) observes that e-government is fundamental in delivery of public service because it reduces waiting time to receive a public service. It also reduces corruption in public institutions since most of the services are done online and direct to the recipient hence promoting quality health service delivery. Similarly, Peters (2010) resonates that if effectively adopted and implemented e-government implementation can reduce costs for government operations because no physical movements which would cost transport to process government activities is required. As regards to the contemporary issue of COVID 19, movements will be reduced as one way of preventing the deadly disease. Furthermore, there will be increased effectiveness with minimal errors since the systems are programmed.

1.6 Outline of chapters

This thesis has five chapters. Chapter one introduces the study. It has the following subsections: Background to the study; problem statement; general and specific objectives of the study; research questions; and justification of the study. Chapter two presents literature review. It has three parts. The first part establishes why e-government is significant in public service, particularly health service. The second part reviews literature in line with specific objectives. Two theories are used in line with the

reviewed literature and specific objectives. These two theories are: Unified Theory of Acceptance and Use of Technology (UTAUT) and Actor Network Theory (ANT). These theories are used because in their conceptual models. They have e-government aspects which are relevant to the study topic to explain the reviewed literature. Chapter Three explains the methodology used. It contains the research method and research design used to operationalise the study. Chapter Four consists of findings and discussions of the study. It presents the findings in line with the specific objectives for the study at hand and discusses them utilising the theoretical frameworks. Finally, Chapter Five presents the summary, conclusions and recommendations of the study.

1.7 Conclusion

This chapter has introduced as well as set the context of the study. It has also provided background to the study and highlighted the research problem. Furthermore, the chapter has provided the general and specific objectives of the study and justified the need to conduct this study. Finally, the study's limitations and organisation have also been highlighted in the chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction.

This chapter presents a review of relevant literature relating to the study. Specifically, the chapter locates the study within relevant theoretical foundations and debates on the effects of e-government on public service delivery, particularly health service. The aim is to locate gaps in literature which this study seeks to fill. Friedman (2008) argues that literature review is a piece of discursive prose. It is not a list describing or summarizing one piece of literature after another; rather, it synthesizes and evaluates existing literature according to the guiding concept of thesis or research question. As such it provides the researcher with the opportunity to determine how much material is available concerning the potential study basing on the written information relevant to the topic of interest. Literature in this study was systematically guided by the flow of specific objectives. However, literature review starts with expounding the conceptual underpinnings of e-government, providing the context within which e-government is understood and implemented to facilitate quality public service delivery. Furthermore, it helps the researcher to understand findings and form conclusions about the published research and theory as well as presenting it in an organized manner.

The researcher, reviewed documents and studies done previously in Malawi and other countries on e-government as a tool for public service administration and management.

Kolsaker (2006) states that e-government is focused on modernising existing state processes to improve performance with respect to existing services and policies thereby making government sectors and administrative institutions work in an efficient manner in delivering public services to the citizens. Therefore, e-government can be viewed as an administrative tool and catalyst for public service delivery in government sectors which in turn will facilitate transparency and accountability, as well as a speedy, efficient and effective process for performing government activities hence promoting quality public service delivery to the citizens (Sodhi, 2016).

2.2 E-government drivers

Political support is one of the e-government drivers applied in public service administration and management (Malanga, 2018). The study unveiled that support can be in the form of technological infrastructure, provision of good internet connection, coordination among government departments, and good information systems coupled with data security and privacy laws. The support will not only stimulate growth of e-government in administration of public services, but also enhance citizen's trust (Azab et al., 2009). In the context of health service delivery, supporting e-government implementers with internet connection will facilitate continued service provision as most of the systems requires sustainable internet. In the same vein, health services are provided 24 hours per day as such, there has to be continued support to officers to ensure that there is no discontinuity of services.

A study done by Archmann and Iglesias (2010) established that implementation of e-government in public service delivery also depends on external drivers such as digital inclusion, infrastructure that enables access and digital literacy among service providers and citizens. Conversely, it was unveiled that drivers of e-government were set back by

location of public service recipients especially in remote areas where there is no Internet access. Similarly, it might be the same case with Malawi health service delivery taking into consideration that some health facilities are in remote areas where internet access is a challenge.

Similarly, human and Information and Communication Technology (ICT) infrastructure availability plays a significant role as a driving force in application of e-government in administration and management of public services (Al-Mashari, 2007). In the context of health service delivery, there are systems and gadgets which require human resource to operate them in the course of providing services to patients and clients. On the contrary, if there is no human resource to operate then, it will be difficult to provide public services since the systems and gadgets require to be operated.

Apart from provision of human resource to operate the systems, Al-Mashari (2007) argues that technological support, social and cultural awareness are some of the drivers which could sustain applicability of e-government initiatives in public service delivery. If the public is not aware of the e-government initiatives available in the health facilities it is difficult to ensure full utilisation of such initiatives by the public, hence there will be little or no improvement in terms of health service delivery and management.

Leadership, personnel support and financial resources are some of the drivers to e-government in public service delivery (Tang et al., 2019, p.5). Leadership support ensures continuity of public services since there is always a hand in times of difficulties. As such, chances of service interruption are low of which promotes quality public service delivery. Conclusively, leaders should ensure that there is departmental support to ensure that each department of a facility is functioning effectively, hence promoting quality public service delivery (Tang et al., 2019).

Among other e-government drivers, Obeidat and Abu-Shanab (2010) discovered that infrastructure development, talent/skills development, and e-government policies are some of the drivers of e-government to facilitate effective public service delivery. Obeidat and Abu-Shanab, (2010, p.206) argue that, these drivers of e-government have the potential of increasing transparency, improving responsiveness, saving time and money for both the government and citizens. Therefore, in the context of health service delivery as a public service it would promote quality provision of services because if application of e-government saves time then it is more likely that the public would be assisted in time when they are sick. Hence more lives would be saved thereby having a healthy nation.

Despite implementing e-government in Malawi, it was established that a well-managed internet connectivity can drive application of public services including health services to greater heights. As such, network connectivity especially in remote areas was one of the established drivers for e-government usage (Mitingwi & Van Belle, 2012). It is from this background that government should foster internet availability through the two reliable mobile phone network operators/providers – namely, Telecom Network Malawi (TNM) and Airtel Malawi – whose mobile network penetration of the country is over 85% to operate as a media for delivery of public services electronically in Malawi.

2.3 E-government mechanisms in delivery of public service

District Health Information System (DHIS2) was one of the e-government mechanisms used to deliver public services utilised in Iran (Dehnavieh et al., 2018, p.11). The software analyses and reports patient's data and it is Web-based. Users can access information in the system from anywhere provided there is a computer and internet

access. Therefore, in the event of Covid 19 it is one of the best ways where public services can be provided without physical contact hence preventing Covid 19 and other airborne diseases. The study concluded that DHIS2 has its own strengths in technical and functional aspects of the software, but alongside these strengths, particular challenges and concerns also need consideration and decision makers need to consider the usefulness of implementing the system in order to effectively provide health services to the citizens (Dehnavieh et al., 2018, p.13).

A study done by Hendriks (2012) indicates that Integrated Financial Management Information Systems (IFMIS) is one of the e-government mechanisms used to deliver public services. Results indicated that IFMIS forms part of the financial management reform practices of developing countries globally. It holds benefits such as effective control over public finances, contributes to the enhancement of transparency and accountability and serves as a deterrent to corruption and fraud in public service delivery.

Zambian government installed e-government mechanisms in delivery of health services as a strategic plan towards reaching out to its citizens. Through the Ministry of Health, it contracted Health Partners International (HPI) to set up modern, integrated health management information systems (IHMIS) database that would be flexible, user-friendly and able to handle all necessary data sources (Bwalya, 2009, p.7). This was done in the context of e-government – reaching out to citizens and improving the effectiveness of health care delivery system through the strengthening of HMIS. In the same vein, in major hospitals countrywide there was Hospital Information System (HIS) and Financial and Administrative Management System (FAMS). Purposively the

systems were installed in the delivery and management of health services to provide an online and active information system for the health system. In particular, HMIS was being looked at as the sole provision of better service to the citizens and help the medical staff in addressing illnesses in a more convenient and appropriate manner (Bwalya, 2009, p.7). However, some citizens did not have access to this system because of lack of developed Information and Communication Technology (ICT) infrastructure particularly in rural health centres that are located in remote places of Zambia do not mostly benefit from this initiative.

Chumba (2014) studied Integrated Financial Management Information System (IFMIS) in Kenya. The study aimed at investigating the effect of IFMIS on cash management practices in the public service. It was necessitated because of the ongoing IFMIS challenges that the system was passing through ranging from security, flexibility and reliability issues that have an impact on efficient cash management in the public service. Results indicated that IFMIS had adequate management reporting system, supporting government-wide and agency policy decisions and support budget preparation thus enhancing cash management (Chumba, 2014, p.36). Firstly, the study recommended that, administration should ensure the information generated by IFMIS is consistent, timely and adequate. Secondly, the public service should tailor information concerning IFMIS in such a way that it cannot be tampered with by others. Also, there should be sufficient IFMIS controls to curb tampering. Thirdly, public service should also ensure that IFMIS easily adapts to the changes in cash management practices without complete overhaul of the system. Lastly, personnel training in IFMIS is important for quality cash management. Personnel training should not only include training in use of the IFMIS for their respective operations and functions, but also training in the new legal and

regulatory framework, the new codes and classifications, and the new business procedures put in place (Chumba, 2014, p.7).

Human Resource Management Information System (HRMIS) is one of the e-government initiatives in administration and management of public services. Shahibi (2016) evaluated HRMIS user's satisfaction in Selangor, Shah Alam, Malaysia. The study aimed evaluating previous HRMIS model in order to propose a new framework based on HRMIS. Findings indicated that as an initiative in e-government HRMIS has the potential of improving organizational performance and employee satisfaction. The study concluded that in public service and administration, HRMIS improves data quality, framework quality and administration quality (Shahibi et al., 2016, p.74). Therefore, if HRMIS is able to improve data quality, framework quality and administration quality it means that it has the capacity of improving quality public services.

Public Finance Management Reform under the public service reforms in Malawi in administration and management of public services is another initiative where IFMIS emerged. IFMIS is one of the e-government initiatives in public service reforms that has reduced workload of civil servants, makes bank reconciliation automatic, and provides for a number of ways of detecting excessive payments, fraud and theft in public service delivery (Erlandsson etal, 2005, p.27). In the context of health service delivery, it means that health services will be provided to the citizens in time since there is auto payments to staff, procurement of medication, purchase of ambulance fuels in readiness for referrals hence improving the quality of health service delivery to the public.

2.4 E-government benefits

Application of e-government in public service delivery facilitates public service productivity, quality of service delivery, reduces the overall costs of the organisation, reduces data collection process and storage, facilitates quick and prompt information sharing, speeds up the process of service delivery, speeds up decision-making, and improves good governance (Ashaye et al., 2014). Furthermore, the study established that e-government facilitates provision of public services in time, thereby reducing service operational costs. On the other hand, if public services are not provided in time especially in health service provision, it means that diseases which should have been treated would go into complications of which it will be expensive to correct complications.

E-government has indeed an impact on employee performance in such a way that it brings creativity, personal efficacy and effectiveness which leads to efficient delivery of services by the employees (Khan et al., 2015). Therefore, if employees are having positive performance due to e-government application in delivery of public services, then the initiative will facilitate effective public service delivery. Demotivated employees cannot perform to the expected standards. Therefore, managers need to consider motivating public service providers, in this case the health care workers, to ensure that the public receives the best health care from motivated workers.

Similarly, e-government study in Iran established that there is a significant relationship between e-government application in public service delivery and performance improvement of employees (Jeloudarlu et al., 2016). Therefore, if employee's performance improves due to e-government initiative, then there would be continuous

improvement in public service delivery as this study tries to assert if application of e-government in public service delivery can help to improve quality public services including health service.

In the same vein, it was also established in a study done by Kareem et al (2015) that application of e-government in public service delivery has an impact on general organisational performance in such a way that it helps to complete transactions with ease and provide better services to citizens. Therefore, if transactions are done quickly and with ease it means that effective application of e-government mechanisms in delivery of public services will help to reduce civil servants strikes due to delayed payments of salaries, allowances, and corruption. This will in the long run improve organisation performance since there will be no service delivery interruption due to the strikes which will significantly improve the quality of public service delivery. Furthermore, the study established that application of e-government in public service delivery helps to develop a relationship with citizens (Kareem et al., 2015). Therefore, if there is good relationship with service recipients then the challenges which the health care providers are facing (such as being beaten up during Covid 19 funerals for reasons only known to community members).

2.5 E-government challenges

A study done by Tambulasi (2008) established that social exclusion was one of the challenges manifested in implementation of information and Communication Technology (ICT) in public service delivery. The argument was that developing countries already experience high levels of social exclusion. As a result, ICTs deepen this exclusion (Tambulasi, 2008, p.119). Furthermore, it was indicated that women in most developing countries are less likely to be educated, more likely to live in rural

areas, and suffer from adverse poverty. It is against this background that ICT non-use among women is widespread and presents opportunities for intensifying the exclusion of women in public life based on the background of the existing gender-based exclusion. Furthermore, it was noted that social exclusion already existed in developing countries based on multidimensional factors of poverty, gender, education, rural residence, institutions and government policies and institutions. In this context, existing exclusion along the same dimensions. Therefore, government should take a leading role in clearing out the social exclusion factors by making sure that e-government equipment, orientations to ICT usage are made in order to effectively reach out to many needy public service recipients.

Similarly, a study done in four local government councils in Ghana indicated that demographic factors such as age, gender and education were found to be vital in application and use of e-government as they have effect on the process of administering and managing public services (Mensah et al., 2017). Furthermore, issues of staff trust in Local government have to do with the perceived citizens' capacity of local government authorities to provide efficient local government services through application of e-government initiatives in public services. Therefore, it can be deduced that training and orienting public service providers is of paramount importance in application of e-government in public service delivery including the health service to prevent errors in the course of providing of health services.

Congruently, application of e-government in public service delivery is complex and is facing multiple challenges (Gil-Garcia & Pardo as cited in Sodhi, 2016, p.101). Leakage of sensitive data in public service delivery, upfront costs for e-government projects including the costs of acquiring new system, designing, developing and implementing enterprise architecture, training of personnel tend to be high (Sodhi,

2016, p.102). In view of the aforementioned challenges including lack of computer and IT skills, ineffective procurement practices, the complex public sector requires holistic approach where all actors must take part to effectively achieve the fruits of e-government in public service delivery and management.

A study done in Australia by Alshehri and Drew (2010) established that ICT infrastructure, privacy and organizational barriers, and lack of top management support were some of the challenges encountered in the implementation of e-government (Alshehri & Drew 2010, p.83). Therefore, if there is lack of management support it is very difficult to have continued health service provision since at times chances of service interruptions are more likely to happen.

E-Government study on initiatives in 49 Sub-Saharan African countries for the period 2001-2012 Sub-Saharan Africa by Quinta and Islam (2013) unveiled that although the results showed that the challenges to successful implementation of e-government varied from one SSA country to another, there were some commonalities. These commonalities were due to the fact that the countries in this region share some common socio-economic and geographical similarities. The results established that implementation of e-government in these countries were affected by: Financial aspects, organizational aspects, political aspects, socio-economic aspects, human aspects and infrastructural aspects (Quinta & Islam, 2013). Therefore, management in the health sector should consider addressing these issues with kin interest to ensure provision of quality health services.

Gupta et al. (2016) studied citizen adoption of e-government in India. Findings indicated that Social influence, trust in government, trust in technology and citizen satisfaction were some of the factors which negatively affected e-government utilisation by citizens. Therefore, if there is lack of trust to both parties then it’s a

challenge in use of e-government systems and gadgets in public service because there will be lack of interest to use e-government initiatives.

Similarly, in Malawi a study was done on e-government by Malanga (2016) specifically assessing the adoption, implementation, benefits and challenges affecting implementation of e-government in delivery of public services. Findings unveiled that Poor ICT infrastructure and connectivity, inadequate power supply, digital divide, and lack of financial resources were some of the challenges encountered in the full implementation of e-government in Malawi. It is in this view that the government should find a way of financing e-government projects locally since reliance on donor aid has its own weaknesses (Malanga, 2016, p.355). Furthermore, the government has to ensure that there is continued supply of internet and power to avoid public service interruptions, thereby promoting quality public services.

A study done in Uganda by Olok et al, (2015) on application of e-government in public service delivery was affected by inadequate access to computers, and slow internet access in the workplace. Furthermore, the level of skills on use of electronic gadgets was also another factor which affected application of e-government in public service delivery. This study aims at addressing the challenges of inadequate access to computers, slow internet access in the workplace so as to effectively analyse the effect of e-government on public service delivery. As such lack of training and orientation to e-government systems pauses a challenge to effective use of e-government mechanisms in public service. On the other hand, if officers implementing e-government services are well trained and conversant with the systems, issues of leakage of information, tampering with the systems as it was with the 2014 cash gate scandal would be history of the past.

2.6 Conceptual framework and theory

The literature reviewed in the previous section has set the scene and background for the development of the theoretical framework. The reviewed literature points to the fact that e-government is very vital when effectively applied in the administration and management of public services. The theoretical frameworks developed, shows how the researcher theorizes the relationships among the variables identified in the study and deemed to be integral to the dynamics of the situation being investigated. It is the opinion of the researcher that the developed theoretical framework will help to hypothesis appropriate propositions to test the relationship between application of e-government and quality of public service delivery in improving our understanding of the phenomenon under study. Macnee (2008) argues that a conceptual model is an underlying structure that comprises concepts and the relationships among them. Hence it provides a description of the proposed relationships among abstract components that are aspects of the research problem of interest. Usually it is based upon the researcher's explanation of how concepts are related and include the researcher's underlying assumptions. Additionally, Burns and Grove (2003) define a conceptual model as a term used to describe phenomena of interests. It serves to guide research by providing clear description of variables, suggesting ways or methods to conduct the study and guiding interpretation, evaluation and integration of study findings.

In this regard, basing on the reviewed literature, this study was informed by two theories. Firstly, Unified Theory of Acceptance and Use of Technology (UTAUT) model which examines the application of technologies in public service delivery and administration (Venkatesh et al., 2003). Secondly, the study adopted Actor Network Theory (ANT) in which Twum-Darko (2011, p.30) argues that ANT is used as a lens

to provide an understanding and interpretation of not only the process and interactions between actors in e-government, but also it provides meanings that people assign to the form of interactions between actors to align diverse interests in administration and management of public services.

2.7 Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT has three relevant dimensions. These are: performance expectancy, effort expectancy, and social influence. Performance expectancy is described as the degree to which an individual believes that application of e-government in public service delivery will result in better public service performance. Effort expectancy is referred to the degree of ease in application of e-government in public service delivery. Social influence is defined as the degree to which individuals, both service providers and public service recipients perceive the importance of application of e-government in public service delivery.

It is argued that the UTAUT model is one of the most widely used theoretical lenses for investigating the application of specific technologies in public service delivery due to its simplicity, consistency and robustness (Williams et al., 2015). It has been adopted in several e-government studies across the world. Among these, for example, Rana et al. (2017) review the indirect impact of anxiety in the adoption of e-government in India (Kurfalı et al., 2017). UTAUT model is appropriate for examining e-government application in public service delivery from different perspectives. Therefore, the study adopted the UTAUT model to assess the effect of e-government on health service delivery as a public service in Malawi through the district local councils. It is hypothesised, as illustrated in the conceptual framework that performance expectancy,

effort expectancy, and social influence are key to analysis of e-government effectiveness in administration and management of public services.

2.7.1 Performance Expectancy

Performance expectancy is the extent to which public service providers and public service recipients believe that e-government would result in better public service performance (Venkatesh et al. 2003). Performance expectancy is expected to significantly influence the intention to apply e-government in delivery of public service (Kurfalı et al. 2017). Performance Expectancy has the following aspects: Availability which is about the state of e-government being available. Indicators includes availability of which in the case of this study found availability of Integrated Financial Management Information System (IFMIS), Human Resource Information Management System (HRIMS) Electronic Birth Registration System (EBR), District Health Information Systems (DHIS2) among others. Information availability and e-government service availability are some of the factors affecting administration and management of health service delivery.

Efficiency is about the ability to accomplish a certain task through the use of e-government with a lesser expenditure of cost, time and effort (Venkatesh et al. 2003). Indicators of efficiency includes; process simplicity, process timeliness and public service process efficiency. Therefore, application of e-government in public service delivery alleviates long waiting times before an individual receives a service.

Information security is about the protection of information from unauthorized access, by ensuring that information is only accessible to the right users (AlKalbani et al., 2017). Therefore, information security grants public service recipients confidence to be utilising the services. Hence promoting effective and efficient public service delivery to the public. This is because where there is no information security public trust is lost

and the public tend to seek public services especially health services to untrained service providers in which at the end more health complications are more likely to arise hence the government is pushed to a losing side. If the government is pushed to the losing side it means that there will be unnecessary expenditures of which in the end it will financially disturb the whole government system.

Deden et al, (2017) define information quality as the value of the information provided by e-government. Indicators of information quality include: information accuracy and information promptness. Errors in health service provision as a public service are unacceptable because once life is lost, it is unreplaceable. Therefore, readiness and accuracy of information in provision of health services is of paramount importance.

Furthermore, service functionality refers to the degree of usefulness between the services provided and the services required. Indicators of service functionality includes service reliability and service usability. In the context of e-government, it is significant that there has to be no public service interruption. Therefore, e-government is such an initiative to address service interruption.

Transparency refers to the quality of being open or transparent. Indicators of transparency includes information transparency, process transparency and public participation e-government initiatives. To win public trust in public service provision, there has to be transparency. The public has to know what services are put in place to address their challenges. On the same note, the public must have a say on what kind of services public institutions are providing. In the context of health service provision, the public has to know what services they can access in hospitals which will help them to fully utilise these services.

2.7.2 Effort Expectancy

Effort expectancy refers to the degree of ease in using new technologies (Venkatesh et al., 2003). It is recognised to influence the intention to apply e-government initiatives in public service delivery (Williams et al., 2015). Effort expectancy is often measured by the degree of ease associated with learning the technology (Venkatesh et al., 2003). Malawi National ICT policy outlines the need for public service providers to be familiar with gadgets and systems responsible for administering public services. In the context of this study, effort expectancy helped the researcher to develop questions as to whether public service providers were trained to the use of systems and gadgets or not. Training helps service providers to use the systems and gadgets with easy.

On the other hand, accessibility is all about the quality and ability of being able to reach e-government services. Indicators include: access easiness, availability of ICT devices, availability of internet, availability of multiple platforms and availability of access points. Accessibility is one of the key elements in the study where public service recipients need to have timely access to public services. This is because if there is untimely reception of health, services more complication can arise to a patient due to rising prognosis of the disease.

Information and Communication Technology (ICT) Literacy is about the ability of individuals to the use of ICT devices at an adequate level to perform a certain task. ICT indicators include: ICT self-efficacy, ICT exposure, internet self-efficacy and internet exposure. ICT literacy played a significant role in the study because implementers of e-government have to be well oriented to the devices and systems. Lack of knowledge

in the use of technology can negatively affect application of e-government in health service because it involves operating computers and systems.

2.7.3 Social Influence

Social influence is the external dimension that affects an individual's decision to adopt new technologies (Venkatesh et al., 2003). Therefore, the study utilised social influence to understand people's willingness to utilise e-government initiatives in delivery of health service. This is because an institution may have e-government initiatives but if there is no willingness to utilise them then it is a waste of resources.

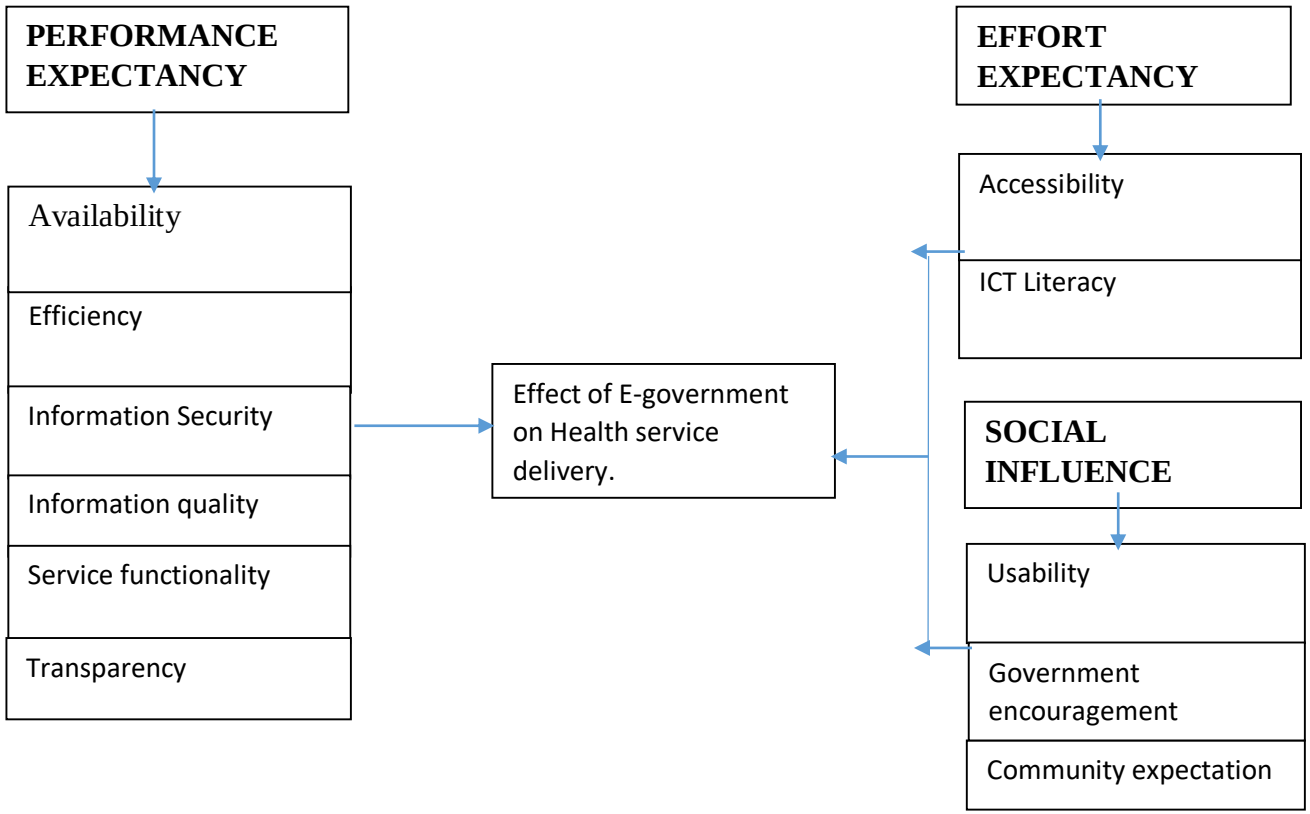
Usability is about the level of effort that citizens must make to learn and use e-government initiatives. Indicators of usability include: user friendliness, user intuitiveness, system navigation and learnability. The systems have to be user friendly if the initiatives have to be successful. As such, usability was one of the essential elements in the study from which questions were developed in the data collection tool guide.

Government encouragement refers to the ability of government to support and facilitate application of e-government by both e-government implementers and users (Furuholt &Wahid, 2008). Indicators of governance encouragement include: availability of support centres, availability of financial incentive and availability of ICT training. In the study, government encouragement helped the researcher to develop a data collection to guide as to whether e-government implementers were oriented to the use of e-government initiatives.

Community expectation is defined as the compression by a person's proximity to take certain actions or adopt certain values (Deden et al., 2017). Defining indicators include: community encouragement, community opinion and public influence. As such, the

study utilised community expectation to understand people's expectations with the use of e-government initiatives.

Unified Theory of Acceptance and Use of Technology (UTAUT)



E-government conceptual framework; Adopted from Sabani and Deng (2018).

2.8 Significance of Unified Theory of Acceptance and Use of Technology (UTAUT) in this study.

Among other theories, Unified Theory of Acceptance and Use of Technology (UTAUT), is significant in this study because of the following reasons: under performance expectancy where transparency in public service delivery is very important to be played at all cost to win public trust. Furthermore, under social influence there is government influence which plays part of political support, management support in e-government application in health service delivery. Similarly, under effort expectancy there is accessibility to e-government services by both service providers and recipient to public service. Public service may be available with facilitation by the e-government initiatives. However, if Public service are not accessible then it is of no meaning. Therefore, UTAUT theory is of significant importance in this study.

2.8.1 Actor Network Theory

Actor-Network Theory is a framework and systematic way to consider the infrastructure surrounding technological achievements (Callon, 1986). The theory assigns agency to both human and non-human actors. In the context of e-government, non-human elements are policies, technology, e-government initiatives and systems. Tatnall and Gilding (1999) assert that actors do not define themselves, but are defined by their relations to other actors in the network. Therefore, there is need for interdependence in organisations and systems to achieve the greater goal of administering and managing public services. In this regard actors initiate action or can

be acted upon to avoid public service interruption. Furthermore, ANT sees the world as a network of related elements with no social order. Such a network is formed through moments of translation. According to Callon (1986) the four moments of translation are:

Problematisation where the key actor makes himself indispensable to others by presenting the problem to them by compelling them to see things his way; Interessement which is done after successful problematisation. It involves key actor attempting to lock the others into place by intervening in interactions between other actors and defining the linkages between them. Interessment was vital in the study as it unveiled if monitoring and evaluation is done on e-government implementers. Monitoring and evaluation is significant in any organisation as it improves service provision.

Enrolment stipulates that key actors define the roles other actors need to play and the way in which they play. No man is an island and no system can work in isolation. Therefore, ANT helped the researcher to ensure that an assessment on division of labour of staff implementing e-government initiatives is put in place. This is because if roles and responsibilities are not clearly stated, there is tendency of laxity of which can derail e-government initiatives in provision of public services.

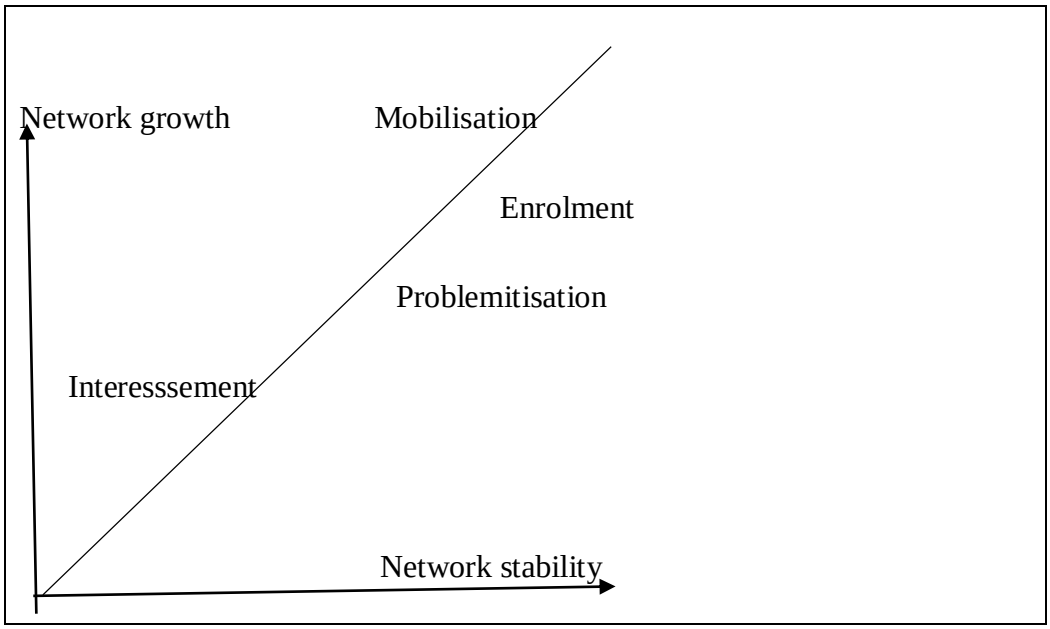
Mobilisation involves the key actor acting as a representative and spokesperson of the rest of the actors and ensuring that resources to effectively implement a project are available. In the study, mobilisation played a pivotal role because

any system and public service delivery initiative requires resources for the initiative to yield positive results.

Interessement is a process of convincing actors to accept the definition of the focal actor (Callon, 1986). In the context of e-government, gate keepers have a Vital role to play in ensuring that focal persons in application of e-government in public service particularly health service put into action the set required standards to improve public service delivery.

Basing on the concepts of Actor Network Theory it can be deduced that e-government implementation in public service delivery can derail issues to do with congestion in public service delivery points, long waiting times to receive a public service, corruption, theft hence promoting quality public services to the general public through application of e-government in public service delivery.

Actor Network Theory



Source: Twum-Darko, 2011: 196-199

2.8.2 Significance of Actor Network Theory (ANT)

Like many other theories used in public administration and management, Actor Network Theory is relevant in this study because of the following reasons: e-government implementation to facilitate public service delivery requires managers support through resource mobilisation. There are basic needs in e-government application in delivery of health services such as computers, tablet phones, trained human resource and many others. Not only that, but also, e-government cannot be successful if there is no internet availability which is growing through covering a wide area for the sole purpose of reaching out to many beneficiaries. Hence Actor Network Theory is relevant in the study because it is covering the aforementioned important aspects in implementation of e-government in public service including delivery of health services.

2.9 Conclusion

This chapter focused on literature relating to the specific objectives of the study. Two theories were used: Unified Theory of Acceptance and Use of Technology (UTAUT) and Actor Network Theory (ANT) as the main theoretical framework.

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CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents details on how the study was operationalised. It contains the research methods and designs that the study used to measure the extent to which e-government has contributed to provision of public services and the various implementation challenges of e-government. The chapter covers research design, the research methods utilised, ethical considerations guaranteed, and the limitations of the study. Furthermore, the study provides an overview and reasons of the sampled institutions.

3.2 Research design

Research design is a 'logical model that guides the investigator through the research processes (Daba, 2014). On the other hand, Green and Brown (2005, p.9) argue that a research design is a particular strategy for answering a research question. There are quantitative and qualitative designs. The choice of a design is influenced, although not dictated, by the aim of research and by what the researcher is trying to find out (Creswell, 2007). Quantitative designs are best used for questions that relate to 'quantities': they are about counting or measuring events or phenomena (such as questions that start with 'when?' 'Which?' 'How many?' or how much?').

On the other hand, qualitative methods are best used for questions that rely on the 'quality' of, or variation in experience, or the meaning of experience different people have. They start with questions starting with 'why?' or 'what?' (Green & Drowne, 2005, p.9). Basing on the specific objectives and mapping of the study, this study adopted a qualitative research approach. This is because the study objectives sought to gather empirical data on the perception of sampled public officers directly involved in application of e-government initiatives working in the district councils and hospitals.

3.3 Study Population

Study population is the entire set of cases from which a research sample is drawn (Taherdoost, 2016, p.18). Target population in the e-government study is in two folds. Firstly, district council officers in departments directly applying e-government initiatives in facilitating public service administration and management. Secondly, all officers at the hospital in departments directly applying e-government initiatives to facilitate delivery of health service as a public service. These offices and departments include: Human Resource, Accounts, Management Information Systems, Health Management Information Systems (HMIS), Anti-Retroviral Therapy (ART), Under Five Clinic, Antenatal Clinic (ANC), Maternity Ward, Out Patient Department (OPD) and Family Planning (FP).

3.4 Sampling method

Respondents to this study were sampled using non-probability sampling methods of purposive or judgemental sampling. This was done because purposive sampling is a method in which the researcher's judgement about who is the most useful and

representative respondent is used (Barbic, 2007, p.180). In the same vein, purposive sampling groups participants according to preselected criteria relevant to a particular research question (Green and Browne, 2005). According to Maxwell (1996) purposive or judgmental sampling is a strategy in which particular settings, persons or events are deliberately selected in order to provide important information that cannot be obtained from other choices. Furthermore, no coercion to participate in a study is allowed; rather, volunteers are allowed after explanation is given on the purpose of the study (Rowley, 2002).

3.5 Study sites

The study was conducted in four district councils, one of which was used for piloting. The districts were Mangochi, Ntcheu, Mwanza and Balaka. Piloting was done at Balaka district council. These four district councils and hospitals were purposively selected for various reasons. In Mangochi district council, the sum of MK60,000,000.00 (sixty million Malawi kwacha meant for public services delivery including health services got missing at the council (The world news, 2019). The scenario was confirmed by the Principal Secretary in the Ministry of Local Government and Rural Development Mr Charles Kalemba. It was discovered when the then Minister of local Government and Rural Development, Ben Phiri, and a team from the ministry visited the council. In the same vein, Mangochi district hospital Administrator was found using an ambulance to supply cabbages to the hospital for patient's consumption (The world news, 2019). The incident made the Principal Administrative Officer for Mangochi District Council Mr Dominic Mwandira to suspend the Hospital Administrator. Ambulances are used to ferry patients from one facility to the other. As such e-government would help to

combat such malpractices in delivery of public services since it promotes transparency and increases efficiency in public service delivery (Ashaye & Irani, 2014, p.13)

Similarly, in 2015 Ntcheu District Council had a debit of MK79,000.000.00 (seventy-nine million Malawi Kwacha) which according to council's financial subcommittee the debt accrued through unscrupulous transactions (The world news, 2019). It was questionable as indicated by Member of Parliament (MP) for Ntcheu Bwanje North Dr Francis Mkungula. The MP faulted the council for such a huge debt and described the development as sad and worrisome as the district was failing to develop due to economic challenges. MP for Ntcheu North, Assan Lipande said the district was lagging behind in public service delivery due to poor financial management which facilitates fraud and corrupt practices by some members of staff as evidenced by the debts. In view of the debts which unreasonably accumulated, e-government can help to improve public service delivery since it helps to improve accountability, efficiency and effectiveness of government (Sodhi, 2016, p.92)

Mwanza district council was purposively sampled because it is one of the districts councils where e-government was piloted in its initial phases. Mwanza District council as one of the initial districts to implement e-government would therefore help to identify and significant changes in delivery of health services as it was being implemented.

Both Balaka and Mangochi district hospitals were once severely burnt by fire especially in areas where patients' data was stored. Fortunate enough, the two facilities had already started utilising e-government initiatives like District Health Management Information Systems (DHMIS2) where all patients' data and other health related information is stored.

3.6 Sample size

The study covered a total of 47 purposively sampled respondents in the sampled study sites as follows:

3.6.1 Mangochi District Council

A total of 16 participants were interviewed at Mangochi district council. Out of the 16 participants, 8 were in-depth interviews (IDI) and the other 8 participated in Focused group discussion (FGD) participated at Mangochi e-government study site. The specific numbers of participants in both interviews were as follows:

Regarding the In-depth Interviews (IDI), 4 nurses from the departments of male ward, female ward and Antiretroviral Therapy (ART) were interviewed. Furthermore, 1 Human Resource Manager (HRM), 1 Director of Finance (DOF), 1 Health Management Information Systems Officer (HMISO) and 1 Management Information Systems Officer (MISO) were also interviewed in the IDI This necessitates that all the strategic departments where e-government mechanisms are used in delivery of health services were involved in the study.

Furthermore, Focused Group Discussions (FGD) were participated into by 8 participants as follows: 7 nurses from the female ward, male ward, Maternal and Child Health (MCH), Antiretroviral Therapy (ART) and 1 data clerk from Maternal and ChildMCH had majority participants because by the time of the interviews all the 3 officers had finished their work since in most cases at MCH by 2:00pm all clients are attended to by the health care providers.

3.6.2 Ntcheu District Council

A total of 15 participants were interviewed at Ntcheu district council. Out of the 15 participants, 7 were in-depth interviews and 8 participated in Focused group discussion. The specific numbers of participants in both interviews were as follows: the 7 participants in In-depth Interviews (IDIs) were; 3 Nurses from the departments of Postnatal Ward (PW), ART, and Antenatal Ward (ANW), 1 HMISO, 1 HR, 1, DOF and 1 MISO. It entails that there was equality in terms of numbers of participants from respective departments. Additionally, it also indicates that there was participation from both the DCs office and the hospital in the IDI. Focused Group Discussions were participated by 8 people as follows: 6 Nurses from the following. 1 Assistant Registration Officer for National Registration Bureau (NRB) and 1 data clerk from the Out Patient Department (OPD). It entails that officers from the District Council and the hospital were both involved in the study.

3.6.3 Mwanza District Council

A total of 16 participants were interviewed at Mwanza district council. Out of the 16 participants, 8 participated in in-depth interviews and the other 8 participated in Focused group discussion. The specific numbers of participants in both interviews were as follows; 3 Nurses from the departments of Labour Ward (LW), Family Planning (FP) and Out Patient Department (OPD). 2 Health Management Information Systems Officer (HMISO). 1 HRM, 1 Director of Finance (DOF) and 1 Management Information Systems Officer (MISO).

Focus Group Discussions was participated by 8 participants as follows; 7 Nurses from the following departments; under five, Post Natal, Family Health Unit and 1 data clerk from National Registration Burial (NRB) – Maternity ward.

Inclusion and exclusion criteria

Inclusion criteria is defined as the key features of the target population that the researcher will use to answer research question (Patino etal, 2018). The inclusion criteria were all officers in the departments of both the health sector and the district council office applying e-government initiatives in facilitating delivery and management of public services. Conversely, the exclusion criteria were all officers in the departments of both the health sector and the district council office not applying e-government initiative in facilitating delivery and management of public services. Furthermore, all officers in the selected study sites and departments who were not willing to participate in the study were excluded.

3.7 Data collection tools

3.7.1 In-Depth Interviews (IDIs)

Interviews are techniques designed to elicit a vivid view of the participant's perspective on the research topic (Mack, 2011, p.29). The study used semi structured interview guides to solicit information from sampled respondents. This is a qualitative method of inquiry that combines a pre-determined set of questions (questions that prompt discussions) with the opportunity for the interviewer to explore themes or further responses (Creswell, 2007). In the context of the e-government study, the use of this method was important because it enabled the researcher to gather information on a wide range of topics, including how the e-government initiatives are being utilised to facilitate public service delivery particularly in health service. Merriam (2001) argues that interviews aim at finding out things we cannot directly observes such as past behaviours, emotions and intentions

3.7.2 Focus group discussions

Three focused group discussions (FGDs) were conducted in all the 3 sites comprising of 7 employees from Ntcheu district council, 8 employees from Mangochi district council and 8 employees from Mangochi district council. The majority were employees from the hospitals because, for the district councils there was mostly one officer responsible for e-government initiatives. As such the researcher could not use the same officer in the FGD since they are done with a purpose (Fischer, 2006). These are particularly useful for investigating the complexity of human behaviour and motivations (Morgan & Krueger, 1993). Focus groups are typically used either at the beginning of a study to identify questions for subsequent interviews or following

interviews to explore phenomena in more depth. This study, however, used focus groups after conducting In-depth Interviews. The aim of the FGD was to verify some of the claims made by the officers who participated in the in-depth interviews. This study covered a total of 24 participants in FGD in all the 3 study sites.

3.7.3 Documentary review

This involves collecting data from secondary data sources. These are data bases that are already in existence (Barbie, 2007, p.180). It is data that has been already collected by and readily available from other sources. Furthermore, such data is cheaper and more quickly obtained than the primary data and also may be available when primary data cannot be obtained at all. Secondary data helps to make primary data collection more specific since with the help of secondary data, the researcher is able to make out what are the gaps and deficiencies and what additional information needs to be collected. Therefore, it provides a basis for comparison of the data that is collected by the researcher. E-government study utilised existing data sets to strengthen the data obtained through interviews and focus group discussions. These included: e-health policy, reports on e-government studies from national and international studies, auditor general reports on public service administration and management, council financial reports, basic public service reports and district councils' social economic profiles on public service delivery.

Quality control

The quality was maintained by ensuring that the developed interview guide is pretested before the actual data collection and that the interview guide is speaking to the main objective and the specific objectives. Furthermore, security keys were applied to all collected data for privacy and confidentiality.

Pretest

The topic/interview guide was pretested at Balaka district council using both the district commissioner's office and the health sector in order to test its reliability before the main study. A total of 4 employees were interviewed, one of which, was from the district council who was working as Management Information Systems Officer (MISO). The other 3 were nurses from the hospital, working in the maternity, male and surgical wards. Purposively, the interview guide was examined for clarity, ambiguity, and analysability. Appropriate adjustments were made and present the interview guide to the supervisor for guidance before the main study.

3.8 Data analysis

All the audios were stored in a computer, USB flash disk, external hard drive and backed-up on CD-RW which were password protected. Data was not shared with anyone else. Transcripts were anonymised by making sure that identification numbers are applied to avoid mentioning names for privacy and confidentiality

3.9 Data transcription and translation

Transcription is the action of providing a written account of spoken words (Lorenza, 2007). Additionally, in qualitative research, transcription is conducted of individual or group interviews and generally written verbatim (exactly word-for-word). A text-based version of all audios was created to form transcripts from which the researcher did the coding. *Express Scribe Transcription Software,* was used to process convention of audios into transcripts. Direct interpretation of one language into another was carried out as audios were transcribed. In this case words in Chichewa were directly interpreted into English in readiness for coding process.

3.10 Data coding

Coding is a process of identifying and organizing themes in qualitative data (Cope, 2016, p.281). Transcripts were randomly selected and manual coding was done. The manual coding on the six transcripts was done to ensure that the researcher comes up with a coding tree which acts as a framework on which electronic coding will be based. In the process of conducting the manual coding, major themes and sub themes were identified to formulate a frame which is speaking to the study topic and the set objectives. The coding process involved decontextualisation, recontextualisation, categorisation and compilation of themes. Furthermore, coding was based on both deductive and inductive approach with the purpose of including emerging themes that the researcher never thought about during protocol development, but emerged as vital to the study. Electronically all the remaining transcripts were imported into NVIVO version 12 plus for electronic coding. A code book was developed to guide the researcher when writing the final thesis document.

3.11 Ethical consideration

According to Brink (2007), the researcher has responsibility of considering whether the study at hand will be ethical or not. The research proposal passed through Chancellor College Political and Administrative Studies Department. Furthermore, taking into consideration that the Ministry of Health is responsible for health service administration and management, a letter requesting for ethical approval from the National Health Sciences Research Committee was sent and approval was granted. Upon approval, letters seeking permission to conduct research were written to Mwanza, Ntcheu, Mangochi and Balaka District Hospitals and Councils.

Participants were informed about the nature, purpose, benefits, intended data use, sharing, and archiving and risks of the study. They were asked to give informed consent prior to their participation. Furthermore, transcripts were anonymised in the process of transcribing the audios. Prior to answering any questions, participants had an informed consent showing that they had understood all the implications of the study and also show that they were willing to participate and withdraw at any time in the course of the study. Every participant signed a consent form to show that the participant understood the implications of the study. Furthermore, confidentiality was maintained throughout the course of data collection. In the consenting process, participants were informed that interviews will be audio-recorded in full to accurately capture the details of the responses. Those that refused to be audio recorded to be audio-recorded did not participate in the study. All participants in the FGD were asked to keep all comments made during the discussion confidential and not discuss what happened during the FGD outside of the meeting. This message was restated prior to starting the FGD. Furthermore, all participants in the FGDs were asked to wash hands, put on face mask as one way of preventing the spread of the deadly disease COVID 19 caused by corona virus.

3.12 Limitation of the study

According to Burns and Grove (2011) study limitations are restrictions that may decrease the credibility and generalizability of the findings. The researcher encountered the following limitations during the study: limited time to conduct the research study, monetary constraint to collect data in all the four study sites and long-distance travelling limitations due to Covid 19 pandemic.

In addition, due to time and financial constraints, the sample size may not be adequate. This is particularly true because, through the purposive sampling employed in the study, several other potential respondents may be identified in the course of the study through snowballing. However, with limited time and financial resources, the study was unable to reach to all potential key respondents, thereby effectively leaving out their valuable input.

3.13 Dissemination of results

Copies of the thesis were sent for examination. Approved copies were available at Chancellor College Political and Administrative Studies Department and Chancellor College Library.

3.14 Conclusion

This chapter has presented the methodology of the study. It has presented the study methods and design that the study used to measure progress on application of e-government in delivery of health service as a public service in Malawi. The study highlighted the study population and sampling frame, data collection methods and analysis.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents findings and discussion pertaining to the study. The findings were discussed in accordance to the specific objectives presented in Chapter Two. The chapter is divided into four main sections. Section one presents and discusses the drivers of e-government which facilitate delivery of public service in the health sector at local council level. Section two presents and discusses mechanisms used in e-government in delivery of health service in Malawi. Section three presents and discusses e-government benefits in delivery of health service as a public service in Malawi. Thereafter, section four discusses the challenges encountered in application of e-government in delivery of health services in Malawi.

4.2 Drivers of e-government in delivery of public service

This study established a number of drivers of e-government in provision of health service as a public service. Among others, the drivers of e-government in delivery of public service which were profoundly highlighted in delivery of health services were, management support, network connectivity, trainings, availability of equipment, maintenance and availability of ICT policies.

Availability of equipment which in other settings was referred to as availability of infrastructure was one of the drivers established. *"If e-government is to be fully devolved, we need all the infrastructure to be available at the District Commissioners' (DCs) office* (Key informant interview, 4th September 2020). A variety of equipment was seen being used by both district council officers and health care providers in strategic departments applying e-government initiatives. Equipment found included computers, phones / tablets, scanners and Television. This is in line with Unified Theory of Acceptance and Use of Technology (UTAUT), where in view of performance expectancy as a concept in application of e-government, there is availability of equipment to be used for a successful implementation of e-government initiatives in public service delivery. Availability of these electronic devices are the back bone of e-government initiatives. For instance, at the health sector there are special computers called the J2 which facilitate delivery of health service as a public service in such a way that when a client or patient seek for these public services at the hospital, these computers are used to record personal information and any other problems presented to the health care provider. This is evidenced by the statement from key informant interview (31st September, 2020) who stated that *"At their office they have computers whereby data entry is done electronically and these computers are connected to the J2s computers used at the point of care".* Therefore, e-government has simplified the health care providers' work as all the necessary information is recorded at the point of care as compared to the manual systems where a lot of paper work was used hence prolonging waiting time before a client receives medical care. It is quite important to note that these devices are connected to the local council as well as the central government through the e-government department. This means that without these gadgets, e-government can be

a failed initiative because there would be no bridge among public service controllers, providers / implementers and recipients of public services. On the same note, e-government has replaced paper work, hence cutting operational costs.

The study established that e-government requires trained human resource as one of the drivers of e-government in delivery of public services. This is because these electronic gadgets cannot be operated by themselves without being commanded by a person who has the technical knowhow. According participants in FDG said that *"I would like to add, for e-government to be successfully done, staff should be well trained on how to use the equipment"* (FGD, 10th August, 2020). Therefore, if e-government initiatives are to be effectively implemented and bring positive effect on health service delivery then training of staff should be one of the priorities because it can be difficult to use electronic gadgets which one has not been trained. *"We were trained and oriented for at least 2 days. After being trained we witnessed its reality in practice"* (Key informant interview, 4th September, 2020). Trainings are important because it can be fruitless to the application of e-government initiatives if employees are not able to use them. Furthermore, trained human resource has the potential of effectively applying e-government initiatives in delivery of public services. Conversely, untrained human resource in application of e-government initiatives are prone to errors of which can compromise quality health service delivery.

The study found that in most departments where e-government initiatives were applied, responsible personnel were trained which it is a plus to the use of e-government initiatives. This is in line with Unified Theory of Acceptance and Use of Technology (UTAUT) where the theory indicates need for ICT literacy and usability of systems and gadgets to effectively deliver public services.

Every successful programme requires guiding policies to shape its implementation and application in public service delivery. This study established that, development of relevant Policies to safeguard implementation of a project is one of the key drivers of e-government. This is in line with Krzyzewski (2016) who states that, Information Technology (IT) policies address the requirement to protect information from disclosure, unauthorised access, loss of information and corruption. Therefore, availability of a policy can play a significant role in health service delivery taking into consideration that patients have rights to privacy and confidentiality, hence e-government is relevant in improving the quality of public service delivery. Through documentary review, this study established that Malawi has an ICT policy through e-government department which guides delivery of public services. In September, 2013 the Malawi government passed the National ICT Policy (GoM, 2014, p.7). One of the priority areas of the policy was human capacity development through utilization of ICT to increase access to healthcare, education and training facilities. Through the e-government department, the policy has focus on ICT infrastructure development, ICT legal regulatory framework, promotion of access to ICT and ICT-based services.

The study also established that maintenance of equipment was one of the drivers in delivery of health service as a public service. *"These systems are electronically made and they need maintenance"* (Key informant interview, 4th September, 2020).
Every device or gadget has an expiry date and when in use there is ware and tare taking place. It is therefore important to consider sustainability of such vital appliances in delivery of public services.

> "*Maintenance is very important because if gadgets have a fault it becomes very difficult to work. We usually go back to manual and what*

> *it means is that we will do one job twice. Which means that if there can be regular maintenance such things interruptions cannot be happening* (FGD, 22 August 2020).

Therefore, if devices and systems for public service delivery are not maintained, it means that it will negatively affect health service delivery because the providers go back to manual system of which it is very slow hence compromising the quality of public service in this case health service delivery.

Among other drivers, this study established that management support is paramount in sustainability of health service delivery as a public service. The support could be finance, monthly subscription to buy internet data especially those in the health centres, supportive supervisions and others. Therefore, management support in application of e-government initiatives in the health sector has profound effect hence the need to support the e-government initiatives.

> *"You may have an electronic system but if you don't have a willing management, the usage of such a system may not be to the level where it is required. We have had situations where in a council which embraces IFMS, you find some transactions still be done outside the IFMIS system, so a willing management is also a driver for such successful implementation of the electronic system"* (Key informant interview, 4th August, 2020).

The study established that persistent lack of support leads to discontinuity of services as such it will compromise delivery of health services as a public service. Where there is continuous supportive supervision, the likelihood of service interruption is very minimal because problems affecting service interruption are dealt with instantly during the supportive supervision hence positively affecting health service delivery.

Findings also unveiled that network connectivity is one of the drivers to e-government application in health service delivery. This is in line with Actor Network (ANT) theory where it stipulates that e-government utilisation in public service delivery there is need for network stability and network growth (Tatnall & Gilding, 1999). It is emphasized that internet is vital in e-government because systems to operate, they require network. As such, it is one of the drivers to e-government application in health service delivery.

This study also established that power supply is one of the drivers strongly underscored by both district council and health sector officers. According to the IDI, *"sometimes we experience internet interruptions due to electrical power blackout of which disturbs service delivery"* (Key informant interview, 12th August 2020). Therefore, it is from this background that power supply is one of the drivers of e-government in health sector and other institutions implementing e-government initiatives. These institutions need to consider power supply as vital to successful application of e-government initiatives in health service delivery. Therefore, if there is electrical power blackout, service delivery will be compromised. As a result, it negatively affects service provision taking into consideration that service recipients will now to have wait for a long period of time to be assisted.

4.3 E-government initiatives / mechanisms in health service delivery.

This study established a number of e-government initiatives/mechanisms applied in delivery of health services. Figure (8) gives a summarised initiatives/mechanisms established in the study which are applied in delivery of health services in Malawi.

E-government mechanisms used in health service delivery	
	Description
Human Resource Management Information System (HRMIS)	Helps in management of the organisation's most valued asset which is the human resource and it is used to reduce time spent on administrative processes (Ibrahim, 2016, p.15).
Integrated Financial Management Information System (IFMIS)	IFMIS is a computer-based information system that enhances effectiveness and transparency of public financial management (Durevall, 2005, p.27). It is mechanised to provide timely and accurate financial information.
Health Management Information System (HMIS)	HMIS is a deliberate e-government system in the health sector to give complete information on preventive, promotive, curative, and rehabilitative health services in Malawi (MoH, 2015)
Electronic Birth Registration System (EBRS)	EBRS is a system mandated to register birth in Malawi with the National Registration Bureau (NRB) (MoH, 2015, p.5)
Electronic Death Registration System (EDR)	EDR is a system mandated to register any death in Malawi with the National Registration Bureau (NRB) through the District Registrar (MoH, 2015, p.5).
Electronic Register (ER) and Electronic Master Card (EMC)	ER was implemented in Malawi as a system that registers all patients as well as monitoring repeated patients (Handforth & Wilson, 2019).
Government Wide Area Network (GWAN)	GWAN was established to develop and manage Government electronic network that facilitates implementation of Government Computerised systems (Machika, 2011).

Mechanisms of e-government.

This study established that Human Resource Information Management System (HRIMS) is one of the e-government mechanisms being applied in administration and management of health services in Malawi. HRIMS is a computer-based system that is used to manage the administration of human resource processes and procedures (Karikari, 2015). This is in line with IDI 06A where it was stated that HRMIS is used for payment of salaries, allowances and other human resource processes.

> *"I may start with payment of salaries. You know most of the people that process payment of salaries, they are given the user rights to enter the system, so they are trained, may be say the initiation on the allowances, like health sector, they are given the allowances like salary top up, the risk allowances, then you go to education sector, we pay things like the rural allowances, the officers that are mandated to do that, they have user rights, they are able to enter HRIMS system and process the salaries. On the same salaries, they are other who process the vouchers, they are grained, they are given the user rights, by doing that, electronically the payment of salaries is done by the people from the district council* (Key informant interview, 4th August, 2021).

Furthermore, its purpose is to become more efficient in providing better information for decision making by offering an adequate, comprehensive and ongoing information system about the people and the job. Not only that but also, it offers data security and personal privacy and supplying up to date information at reasonable cost. The coming of decentralisation, recruitment, payroll management and other human resource functions are done at district council through the use of human resource management information system. Therefore, the devolvement of e-government to local councils in

the public service reforms acts as a basis for effective human resource management. This is because all human resource functions are automated, such that issues of corruption in recruitment, promotions are very minimal. Therefore, it brings about staff motivation if promoted in time. It also it instils hard work in workers hence promoting quality public service delivery.

The study also established that Integrated Financial Management Information System (IFMIS) is among the e-government mechanisms being applied in health service delivery

> *"yah, ministry of health just like all other departments in the district, are part of the district council and government rolled out electronic systems among them is the integrated financial management information systems in short IFMIS"* (Key informant interview, 4th August, 2020).

The system has become a mainstream approach in improving Public Finance Management (Mbaka & Namada, 2019). Furthermore, it was developed to provide financial services in an efficient and effective manner with the view of enhancing accountability and transparency in the utilisation of public resources. Among other activities conducted at the local council through IFMIS include monitoring, coaching and mentoring local authorities on salary payment, and facilitating automation of revenue management in councils in collaboration with National Local Government Finance Committee (NLGFC). Through IFMIS, the study has established that health care workers are now paid in time since it is fast. This means that IFMIS has positively contributed to reduced strikes by health workers due to delays in making payments.

The study established that District Health Information Systems (DHIS2) is another e-

government mechanism implemented in public hospitals for public service delivery. "*We have District Health Management Information System (DHMIS) software as data base for Ministry of Health which is used to enter, store and analyse data."* (Key informant interview, 3rd August, 2020). The system has an open source and few hardware requirements, a generic tool rather than a preconfigured database application and an open metadata model with a flexible user interface that allows users to specify their content without the need for programming (Dehnavieh et al., 2018). Furthermore, the system is used for data management and analysis, mapping existing services and recording the facilities, logistics management, monitoring and evaluation of health programmes and mobile tracking of pregnant mothers in rural communities. Therefore, if there is mobile tracking of clients seeking public service, there is improvement of quality assurance of health service as a public service.

This study also established that Electronic Birth Registration System (EBRS) is another e-government mechanism which is used to facilitate delivery of health service. *"When we talk of maternity, post-natal ward, we register newly born babies using electronic birth registration system in short, we call it EBRS"* (Key informant interview10th September, 2020.) The system was developed in the health sector which is used for capturing all births taking place in health facilities under the local council administration. All the demographics captured are sent to the district registration office through the Assistant District Registrar at the District Commissioners' Office who later sends the details to the National Registration Bureau for further approvals and printing of Birth Certificates. Through the National Registration Bureau with technical support from Baobab Health Trust, the Malawi government developed a number of systems to support administration and management of public services. Findings indicates that the

health service is one of the public services which is being facilitated to provide quality health and social services which in turn have profound effect on the health wellbeing of citizens. Therefore, e-government initiatives have profound positive effect on the health of the public because the birth certificate counts the number of births in a particular period which contributes to planning purposes in terms of health service delivery and administration. According to MoH (2015) birth registration, enables the government to provide correct services and resources to be delivered to a particular population. Therefore, e-government initiatives contribute to provision of quality health services.

Electronic Death Registration System (EDRS) is also one of the systems developed in the health sector in the e-government initiatives.

> *"Here at the hospital, there is electronic death registration system which is controlled by the Nation Registration Bureau. It is used to record certified deaths including causes of deaths, location of death and other relevant demographic details and finally printing of death certificates at National Registration Bureau"* (Key informant interview, 10th September, 2020).

Certification of death has an effect on health of the remaining population. This is because if the government knows the cause of death preventive measures can be put in place to avoid similar death occurrences. This will help prevent occurrence of similar deaths which will in turn help to have a healthy population.

This study established that electronic cards were some of the e-government mechanisms set to facilitate delivery of health services in Malawi. *"We have electronic cards which*

include; e-master card, we have e-register, health passport book with bar codes" (Key informant interview, 5th August, 2020). As a development partner, Baobab Health Trust assisted the Malawi government through e-government department with a number of electronic cards which are used for various purposes within the health sector under e-government. Particularly, these electronic cards are issued with the purpose of facilitating administration and management of health services as a public service. Such cards include the health passport book with a bar code attached. Before e-government initiatives, service providers used to ask clients or patients their name, age, village, Traditional Authority T/A, location each and every time they visited the facilities. This was time consuming and it was tedious to both providers and to the service recipients. However, with the coming of e-government initiatives, the bar codes are just scanned, all the information of a particular client or patient is displayed on the computer and the patient is assisted accordingly. These bar codes on the health passport are used at the outpatient department (OPD), Antenatal Clinic (ANC), Family planning (FP), Post Natal Ward (PNW) and Under five clinic (UFC).

This study also established that electronic registers (E-Register) which are used at the Anti-Retroviral Therapy (ART) clinic are some of the e-government mechanisms applied in health service delivery. The e-registers have the ability to accurately monitor health of the public nationally (DHS, 2017). These registers are used in such a way that all patients' information is recorded on one portal and only authorised health care providers with passwords have access to these portals for privacy and confidentiality. If privacy and confidentiality is observed with these e-government mechanisms, there is promotion of quality public service provision. It is also important to know that with the use of e-registers, Medical staff are able to retrieve and update patient records, and

print prescriptions to be dispensed by pharmacists. As such, district-based systems are linked via the internet to systems at regional or head office levels for decision making processes (Enterprise Surveys, 2014). In the same vein, as soon as a client receives medical care, a report is immediately generated and sent to the district councils up to the central government through the e-government department for planning and decision making purposes. Therefore, the electronic cards are facilitating delivery of quality health services since there is timely decision-making and timely point of service delivery. At the Antiretroviral Therapy (ART) department, each client is ushered a master card which he or she presents before the health care provider administers a service.

> *"The crucial part before electronic cards under e-government was tracing the defaulters. It was very difficult. However, with the coming of e-government initiatives, you just run the report, it will show you how many are the defaulters or know those who come throughout, then we start to prepare for the number of clients to be seen. Previously we were using manual, we did not know how many people to be seen next year. It has a component that shows you that this is a defaulter, this one has missed out their appointments"* (Key informant interview, 5th August, 2020).

The electronic cards contain specific health information of a client which guides the health care provider when assisting the client throughout the therapeutic relationship. Therefore, these electronic cards once installed replace paper work of which it has positively reduced operation costs of public services.

Furthermore, the study established Government Wide Area Network (GWAN) as one of the mechanisms in e-government used in delivery and management of public services.

> "*GWAN is all the way from capital hill, this one is providing the wide connection from central government coming here, it is distributed to facilities and institutions though very few offices here are connected like community, social, education, health, then administration block at DC and this IFMIS block"* (Key informant interview, 8th August, 2020).

GWAN was created in 1999 with the mandate to ensure centralized control of payroll in a decentralized payroll processing through Human Resource Management Information System (HRMIS). Furthermore, it was established to develop and manage government electronic network that facilitates implementation of government computerized systems. It is secure, reliable, multi-service and fast. Therefore, GWAN provides a better platform for public service delivery because it connects all government departments for public service delivery.

4.4 Benefits of e-government on health service delivery

The study established a number of e-government benefits in provision of health service as a public service which included Covid 19 prevention, effective information management, reduced cost of service provision, security of information quick service delivery, reduced work load and treatment compliance.

Study findings indicated that prevention of the Corona virus disease (Covid 19) and other diseases transmitted through physical contact with body fluids is one of the benefits of e-government on health service delivery.

> "*follow up is done by cell phones as compared to the past where we used to go to the community physically following up clients. Hence preventing physical contact. Lastly as number 5 said, it is fast hence it lessens congestion at the place of service delivery"* (FGD, 12th August, 2020).

Therefore, it can be asserted that application of e-government initiatives/mechanisms in health service delivery is one of the preventive measures of Covid 19 as there is maintenance of social distancing. Study findings indicated that this can be achieved since with the use of emails, zoom conferencing and Whatsapping there is no physical contact. This indicates that e-government has profound effect on Covid 19 prevention which positively affect health service delivery. "*If people have got gadgets like the phones, it means we can do conferencing on zoom hence we cannot physically meet (Key informant interview, 22nd September 2020).* Additionally, the study findings support Covid 19 prevention in that, with e-government initiatives in the health sector services are provided faster as compared to the manual service provision. Use of computers in departments within the health sector has made it possible that provision of service is faster as compared to the manual health service provision. Additionally, with the use of e-government in health service delivery the study unveiled that there is cost effectives as previously health care providers had to travel long distances just to provide some health services. This is in line with FGD-1C where it was stated that "*e-government is fast and cost effective in public service provision."* (FGD, 12th August, 2020*)*. As such, it has reduced waiting time in public offices and health facilities to receive a service

The study also established that effective information management is one of the benefits

of e-government in health service delivery taking into consideration that patients and clients have right to privacy and confidentiality. The e-government initiatives in health service delivery, patient's information is treated with privacy and confidentiality.

> "*For example, in all the departments, computers used to assist in health service delivery have passwords and only authorised health care providers are allowed to log in hence respecting patient's right to privacy and confidentiality"* (Key informant interview, 6th August, 2020).

As such, it promotes trust in public service delivery and the public increases its health seeking behaviour and other public services which in turn will help to prevent health complications because there will be timely diagnosis and management of health problems. On the other hand, if privacy and confidentiality is breached, the public tend to loose trust with public service providers. As a result, the public ends up in more health complications as compared to being attended to by qualified and professional health care providers. This has profound effect on the development of a country because more resources will be directed towards managing health complications than development.

Furthermore, this study established that application of e-government initiatives in health service delivery contributes to reduced service provision costs in such a way that there is no wear and tear of vehicles and other means of transportation to go around the health centres for service delivery except in special cases.

> "*Before e-government initiatives, we used to go around all the health centres in the district to collect data for monthly reports, but now all health facilities in the district are networked in such a way that we don't*

need to physically go every month just to collect data on health service delivery to report to the district council and the central government. The J2 computers and tablet phones in the health centres instantly generates the reports as one is providing health service to the public. These reports go straight to the necessary authorities for decision making" (Key informant Interview, 3rd August, 2020).

Furthermore, cost of service delivery has also been achieved through reduced work load to the service providers in such a way that work which should have been done by many people is done by one person with the assistance of the computer.

Furthermore, with e-government initiatives the study established that there is security of information since no physical storage is required in form of papers. This is because information is stored in the facility servers and at central government. Information is also saved in the server hence there is double back up of information. Two of the study sites namely Balaka District Hospital and Mangochi District Hospital were once affected by fire and in both cases it affected storage area. Old patient's files and other administrative and managerial files were burnt by fire. However due to effective application of e-government initiatives, all the necessary information was retrieved from the server and public service provision was not disturbed because of the missing information.

"*Mmmh as I earlier said that we use the bar codes to record information of our clients as compared to writing down. This is very safe because it is kept in the server. On paper it's easy to loose data. Balaka District Hospital, part of it was burnt by fire. If e-government was not there, it means that they should have lost all the data taking into consideration*

the stores was the stores where copies of the data is kept was burnt"

(Key informant interview 22nd August, 2020).

In this case where files were burnt by fire, continuity of service provision would have been very difficult and it would have been difficult to re-organise service provision.

Quick service delivery is one of the benefits of e-government initiatives in health service delivery uncovered in the study. Study findings indicated that the use of computers and other electronic devices has fastened delivery of public services in such a way that at the click of a button, all details of a client are known including the medication he or she is supposed to collect from the hospital especially in routine clinics. "*I think e-government is helpful because now we are able to offer the services faster. You can have 20 clients, if you use manual system, you can spend more hours than the computer system*" (Key informant interview, 4th September 2020). Furthermore, on the part of service provision there is use of IFMIS which also facilitates quick delivery of health services as a public service. This was in line with the IDI where it was indicated that

"As Mwanza District Council we are using IFMIS which is part of e-government which we use when transacting or using any payment. It has helped as so much when processing transactions. It is fast and we make payments within the shortest period of time. So we support the health sector to make transactions within the shortest period of time. Therefore, we help to improve quality of health service delivery. For example, if they want to procure fuel it is done within the shortest period of time"

(Key informant interview, 11th August, 2020).

Therefore, it can be asserted that e-government application helps to provide public services within the shortest period of time hence promoting quality public service delivery.

Congruently, treatment compliance is one of the benefits of e-government initiatives in health service delivery as a public service.

> *"The systems installed in delivery of health service have capacity of tracking treatment defaulters, calculating the correct dosages and issuing of correct medications to clients and patients. For example, here at the ART with a click of a button, treatment, dosages for a particular client are shown hence contributing to treatment compliance, quality public service delivery hence reducing complications which should have costed the government a lot of resources to correct the situation" (*Key informant interview, 6th August2020).

Therefore, application of e-government initiatives in health service delivery as a public service facilitates to treatment compliance by health service recipients

hence promoting quality service provision.

4.5 Challenges affecting application of e-government in health service delivery

Despite the numerous benefits of e-government initiatives in public service delivery particularly health service, this study established that e-government initiative is also faced with a number of challenges. These challenges range from lack of equipment, interrupted internet connectivity, lack of maintenance and lack of management support.

Inadequate materials such as computers is one of the challenges the study established.

> "*We have inadequate gadgets, so if we can have adequate devices in all the departments it could be one of the drivers. Here at the ART we only have three computers. If every nurse has a computer that will facilitate delivery of public service because when we are all around, we wait for each other to provide the service because of the limited devices. So if we are all working at the same time it means that it will help us to be as fast as possible in delivery of services to the clients"* (Key informant interview, 3rd September, 2020).

Therefore, it is of paramount importance for the local government and health facility management to ensure that health care providers in strategic departments are well equipped with working materials for smooth provision of public services.

The study also established that interrupted internet connectivity was one of the challenges faced by e-government implementation in public service delivery.

> "*Sometimes it's faulty system due to internet interruptions of which it becomes very difficult to assist them because then we have to go back to manual system. When the system is down we have to manually write in books and the transfer them to the system when it's on. Sometimes there is electric power interruption is another challenge we face. In that case as well we have to go to manual system to assist our clients"* (Key informant interview, 3rd September, 2020).

Therefore, management and other stakeholders have to ensure that there is always availability of internet and power supply to avoid duplication of services since when the electricity is gone one has to go back to manual system which delays public service

delivery. Poor network connectivity was also evidenced by IDI 06B (6th August, 2020) where it was stated that

> *"the challenge we face is poor network connectivity. When that happens for the rest of the day, all clients on that day will be done manually. You are supposed to write in their books, in the register and when the connection is restored, you are supposed to enter the visits for the clients, which means one task you are doing it twice".*

Therefore, poor network connectivity has negative effect on health service delivery.

This study established that delays in rectifying faults was one of the challenges in delivery of health service through e-government. This comes in because there are no resident expert technicians to do the repairs.

> *"It is very important that someone be trained and be based at facility to be doing maintenance of these gadgets because whenever we have a problem it takes time to be rectified the problem because those responsible for maintenance are not facility based of which it compromises delivery of public service"* (FGD, 22nd August, 2020).

Whenever there is a fault in the systems and gadgets, service providers have to press a request for an expert technician to come and rectify the fault. The systems and devices were installed by Baobab health trust based in Lilongwe, later it was taken over by Elizabeth Glaser Paediatrics AIDS Foundation (EGPAF) and now the systems in the health sector at local level are being managed by African Medical and Research Foundation (AMREF). All these partners in e-government initiatives are based in cities. When there is a technical fault and system failure within the health sector at local district council, the technicians have to travel all the way from cities to rectify the faults,

which is time consuming and it delays public service provision. As a result, service providers are forced to go back to the manual system which compromises quality of services. Furthermore, maintenance was also found to be a big challenge as evidenced by IDI 04b where it was stated that *"good example is these computers which we have, these are from 2014 or 2013, until now, no ant-virus has been updated or see whether computers are working well or not"* (Key informant interview, 5th August, 2020). Therefore, maintenance of equipment needs to be considered as vital in e-government implementation in delivery of public services.

This study also established that there is lack of management support in terms of maintenance, trainings as alluded to by IDI 08A (4th August, 2020) where it was stated that,

> *"there is need for continuous training as I said, because we have new members of staff joining in, so those ones always need to be conversant with the systems, so that's a challenge when we have staff that does not know how to use the IFMIS".*

This means that management has to support service providers with trainings, supervision to avoid interruptions in public service provision.

Furthermore, the study established that some employee benefits such as travelling to the central government to process salaries and other administrative activities have been terminated due to the coming of e-government. This is in line with IDI 05C (12/08/2020), where it was stated that strengthening the use of e-government initiatives will minimise a lot of travelling to the central government to do some work like salary preparations of which to us as HRs it's a loss because we used to get allowances.

4.6 Conclusion

This section presented the findings of the study. It utilised Actor Network Theory (ANT) and Unified Theory of Acceptance and Use of Technology (UTAUT). The study established that application of e-government initiatives in provision of public services has led to improved quality of services through timely provision of services because it is fast, has led to reduced operational costs because no need to travel long distances to provide a service or receive a service. The study also established that e-government helps to prevent Covid 19 since there is minimal physical contact. There is timely payments of health care providers and quick service provision and it has promoted transparency and accountability because the systems are automated. However, the study also established that use of e-government initiatives in public service delivery has led to loss of jobs and some benefits since one computer is able to do a number of activities which would have been done by many people.

CHAPTER FIVE

CONCLUSION AND POLICY IMPLICATIONS

5.1 Introduction

This Chapter concludes the thesis. It summarises the objectives and findings of the study, considering the various theoretical aspects of the study. The main objective of the study was to analyse the effects of e-government on public service delivery in Malawi. Specifically, the study assessed the effects of e-government drivers which are shaping the direction in terms of application of e-government in public services; e-government mechanisms being used in delivery of health services; benefits of e-government and the challenges these initiatives are encountering in delivery of public services. The study further provided recommendations to address the observed challenges for continuity of quality public services delivery.

Summary of the study's major conclusions

The study established that application of e-government in health service as a public service has profound effect on quality and cost effectiveness of services. Findings have established that use of e-government initiatives in health service delivery can help to prevent diseases such as the Covid 19; improve quick service delivery to patients/clients and even to the public service providers; lead to reduced cost of service delivery although on initial installation of systems and gadgets is expensive,

effective management of information through privacy and confidentiality of patient's information, reduced work load for health service providers; and transparency and accountability since the systems are programmed. Despite e-government application in health service delivery, there are also challenges which the study has established. These challenges range from lack of management support in utilisation of e-government initiatives, lack of meeting training needs for new recruits to use the systems though mostly they are trained on duty, ineffective internet connectivity and in adequate materials for e-government implementation. The study has therefore suggested some measures which help reduce the persistent challenges observed, and lead to sound e-government service and public service delivery. Such measures include the need to reinforce the drivers which facilitate implementation of the set e-government mechanisms in health service delivery, need to reinforce maintenance of systems and gadgets, and the need for training of health care providers on e-government use. In terms of the effects of e-government mechanisms used in delivery of health services, the study established that there is timely decision making. As such it is cost effective for both service providers and recipients. Previously a person could seek health service in the morning hours just to get helped in the afternoon hours. However, with the implementation of e-government mechanisms in health services, the processes have been speeded up. Therefore, suggested measures may minimise or resolve the challenges observed and lead to a sound e-government initiative implementation in health service delivery. These may include the need to have management support to e-government initiatives in health service delivery. Therefore, the government should create an enabling environment for application of ICT in everyday lives of its citizens as this is the start-point of e-government. This has been emphasized in the 'government encouragement' which is part of the Unified Theory of Acceptance and Use of

Technology (UTAUT) under the social influence. This support can be through maintenance of e-government systems and gadgets.

Resource mobilisation is also another recommendation that the study has established. For instances, management has to mobilise resources such as computers, finance for monthly internet subscriptions and trainings for e-government implementers at all levels. Therefore, the government should play a leading role in developing the ICT infrastructure as this is a requirement for successful e-government implementation in health service delivery as identified in the Actor Network Theory (ANT) which stipulates that there has to be mobilisation of resources for effective utilisation of e-government mechanisms in the delivery of public services.

Policy implications

The first policy implication is the need to scale up on e-government application in all government departments to achieve universal utilisation of e-government initiatives in health service delivery. This will help to achieve continuous quality improvement in public service delivery. This can be achieved if the government takes full advantage of various initiatives taken by the international community to assist African governments in their bid towards application of e-government in public service delivery (Bwalya, 2009 p.11).

Secondly, having learnt the challenges e-government is facing in implementation of health services under local councils, there is need for government to come up with deliberate policies to ensure that there is support in strengthening the application of e-government initiatives on delivery of health services.

Areas for further studies

The findings of this study and the surveyed literature suggest that there are other areas relating to the objective of this study that require further investigation. Some of the areas may revolve around the following observation question. To what extent has e-government facilitated reduction of corruption in public service delivery? This should be researched as an extension to the literature and findings on the effect of e-government on health service delivery where billions of kwachas have been rooted in the health sector in the name of - Covid 19 prevention. This would help to inform government ways of curbing corruption in health service delivery as a public service.

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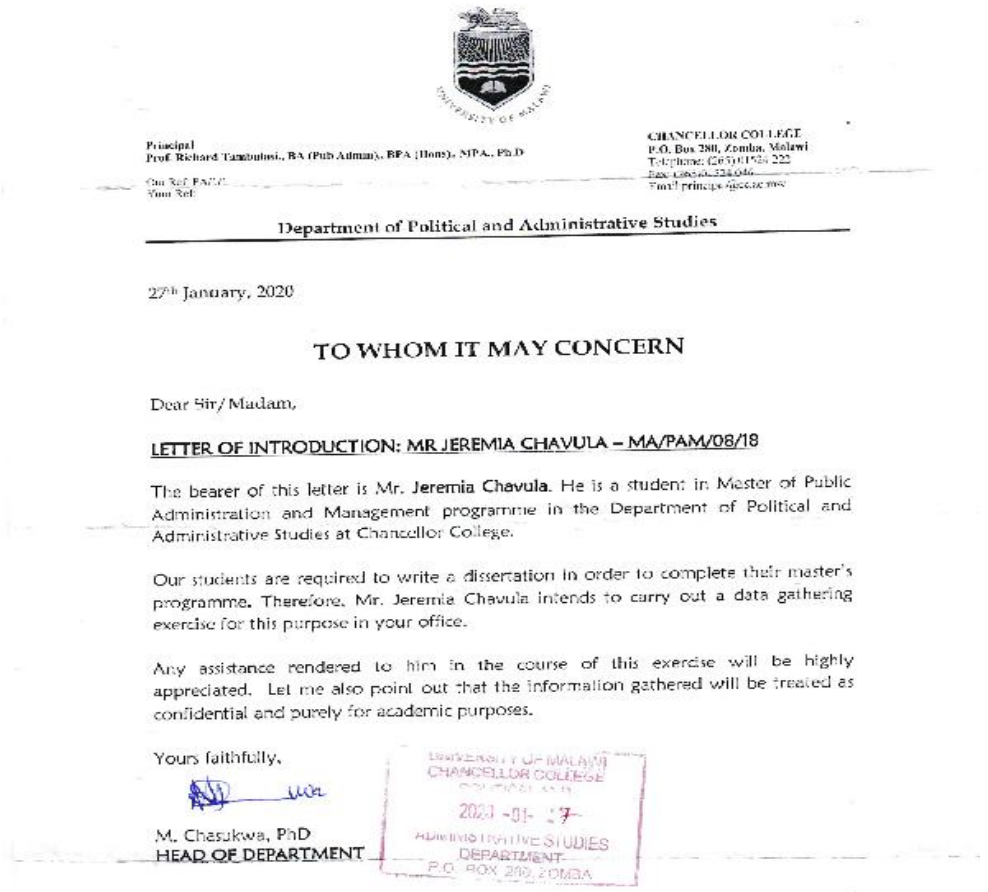
APPENDICES

Appendix 1

Letters of approval



Principal
Prof. Richard Tambulasi., BA (Pub Admin)., BPA (Hons)., MPA., PhD

CHANCELLOR COLLEGE
P.O. Box 280, Zomba, Malawi
Telephone: (265) 01 525 222
Fax: (265) 01 524 046
Email: principal@cc.ac.mw

Our Ref: PAM/
Your Ref:

Department of Political and Administrative Studies

27th January, 2020

TO WHOM IT MAY CONCERN

Dear Sir/ Madam,

LETTER OF INTRODUCTION: MR JEREMIA CHAVULA – MA/PAM/08/18

The bearer of this letter is Mr. **Jeremia Chavula**. He is a student in Master of Public Administration and Management programme in the Department of Political and Administrative Studies at Chancellor College.

Our students are required to write a dissertation in order to complete their master's programme. Therefore, Mr. Jeremia Chavula intends to carry out a data gathering exercise for this purpose in your office.

Any assistance rendered to him in the course of this exercise will be highly appreciated. Let me also point out that the information gathered will be treated as confidential and purely for academic purposes.

Yours faithfully,

M. Chasukwa, PhD
HEAD OF DEPARTMENT

UNIVERSITY OF MALAWI
CHANCELLOR COLLEGE
2020 -01- 27
ADMINISTRATIVE STUDIES
DEPARTMENT
P.O. BOX 280, ZOMBA

Appendix 2

University of Malawi

Chancellor College

Political and Administrative Studies Department

P.O Box 280, Zomba. Malawi

8TH July 2020

The District Health Officer,

Balaka District Health Office

Attention: The District Nursing Officer

Dear Sir/Madam,

REQUEST TO CONDUCT A PILOT STUDY ON THE EFFECT OF E-GOVERNMENT ON HEALTH SERVICE DELIVERY IN MALAWI.

I am a post graduate student studying with the University of Malawi's Chancellor College. In partial fulfillment of my Masters Degree in Public Administration and Management, I am required to conduct a research study. In view of this I intend to study on **The effect of e-government on health service delivery in Malawi.**

I therefore write to seek permission from your office to conduct a pilot study at Balaka District Hospital. I intend to collect data any 2 days from 11th to 17th July 2020 My study participants will be five registered Nurses. I am hopeful that the results of this study will help to form a platform for various District assemblies and health facilities to deliver most of the health services electronically especially in situations of disease outbreaks like covid 19 caused by corona virus.

Attached is a copy of introductory letter from Chancellor College, Political and Administrative Studies.

Looking forward to your favorable consideration.

Yours faithfully,

Jeremia Chavula

Principal Researcher.

jeremiachavula@yahoo.com 0999741466 / 0881113979

Appendix 3

Chancellor College

Political and Administrative Studies Department

P.O Box 280, Zomba, Malawi

8th July 2020

DISTRICT COMMISSIONER
BALAKA DISTRICT COUNCIL
PRIVATE BAG 1
BALAKA

The District Commissioner,

Balaka

Attention: The Director of Administration (DOA)

Dear Sir/Madam,

REQUEST TO CONDUCT A PILOT STUDY ON THE EFFECT OF E-GOVERNMENT ON HEALTH SERVICE DELIVERY IN MALAWI.

I am a post graduate student studying with the University of Malawi's Chancellor College. In partial fulfillment of my Masters Degree in Public Administration and Management, I am required to conduct a research study. In view of this I intend to study on **The effect of e-government on health service delivery in Malawi.**

I therefore write to seek permission from your office to conduct a pilot study at Balaka District Council. My study participants are Management Information Systems Officer (MISO), Accountant and Human Resources Manager. I intend to collect data any 2 days from 11th to 17th July 2020. I am hopeful that the results of this study will help to form a platform for various District assemblies and health facilities to deliver most of the health services electronically especially in situations of disease outbreaks like covid 19 caused by corona virus.

Attached is a copy of introductory letter from Chancellor College, Political and Administrative Studies.

Looking forward to your favorable consideration,

Yours faithfully,

Jeremia Chavula

Principal Researcher.

jeremiachavula@yahoo.com 0999741466 / 0884113979

Appendix 4

Telephone: +265992246061
No.... ... ...
Fax: 01 594 292
e-mail henrychibowajr@gmail.com

All correspondence should be addressed to

In reply please quote Ref.

MANGOCHI DISTRICT COUNCIL
P.O. BOX 42
MANGOCHI.

The Director of Health and Social Services

28-07-2020

Mr Jeremiah Chavula

Dear Sir,

APPROVAL TO CONDUCT RESEARH IN MANGOCHI DISTRICT

I write to officially inform you that your protocol, "***Effects of E-Government on Health Service Delivery in Malawi***", has been approved by our Research Committee.

As such, the Directorate of Health and Social Services hereby supports your request to conduct this study in Mangochi. Please do not hesitate to contact the Committee or my office for any further assistance you may require as you implement your research.

Kindly note that the results of this study will have to be disseminated to the district after finalization.

All the best.

Sincerely,

Dr Henry S. Chibowa

THE DIRECTOR OF HEALTH AND SOCIAL SERVICES

Appendix 5

Telephone +265 789 400
Facsimile +265 789 451

All Communications should be addressed to:
The Secretary for Health and Population

In reply please quote No. .....
MINISTRY OF HEALTH AND POPULATION
P.O. BOX 30377
LILONGWE 3
MALAWI

Ref. No. Med /4/36c

20th July, 2020

Jeremia Chavula
Chancellor College

Dear Sir/ Madam,

Re: REQUEST FOR ETHICAL REVIEW WAIVER ON TO CONDUCT A STUDY ON EFFECT OF E-GOVERNMENT ON HEALTH SERVICE DELIVERY IN MALAWI

Reference is made to your letter in which you requested for ethical review waiver to conduct a study on the effect of E Government on health service delivery in Malawi.

This is to inform you that the National Health Sciences Research Committee Secretariat has reviewed and felt that it should be **exempted (waived) from scientific and ethical review.**

This letter also serves as a letter of introduction to stakeholders to accept and allow you to collect data accordingly.

Yours Sincerely,

Dr. Collins Mlambo
ACTING DIRECTOR OF RESEARCH

SECRETARY FOR HEALTH
2020 -07- 2 0
P.O. BOX 30377, CAPITAL CITY, LILONGWE 3

Appendix 6

In reply please quote: .....
Our Ref: MN/ H/
Your Ref:.....

Tel: +265-01432211/901/213
Fax: 01 432 349
Email: i.kamwaza@gmail.com

Mwanza District Council
Health Sector
Mwanza District Hospital,
PO Box 80,
Mwanza.

27th July, 2020

Communications to the:
Director of Health and Social Services

The Chairperson,
National health Sciences Research Committee,
P/Bag 8303,
Lilongwe 3,
Malawi.

Dear Sir/Madam,

SUPPORT LETTER TO CONDUCT A STUDY ON THE EFFECT OF E-GOVERNMENT ON HEALTH SERVICE DELIVERY IN MWANZA

I write in support of the application for ethical clearance of the above study by Jeremia Chavula, Post Graduate student at Chancellor College.

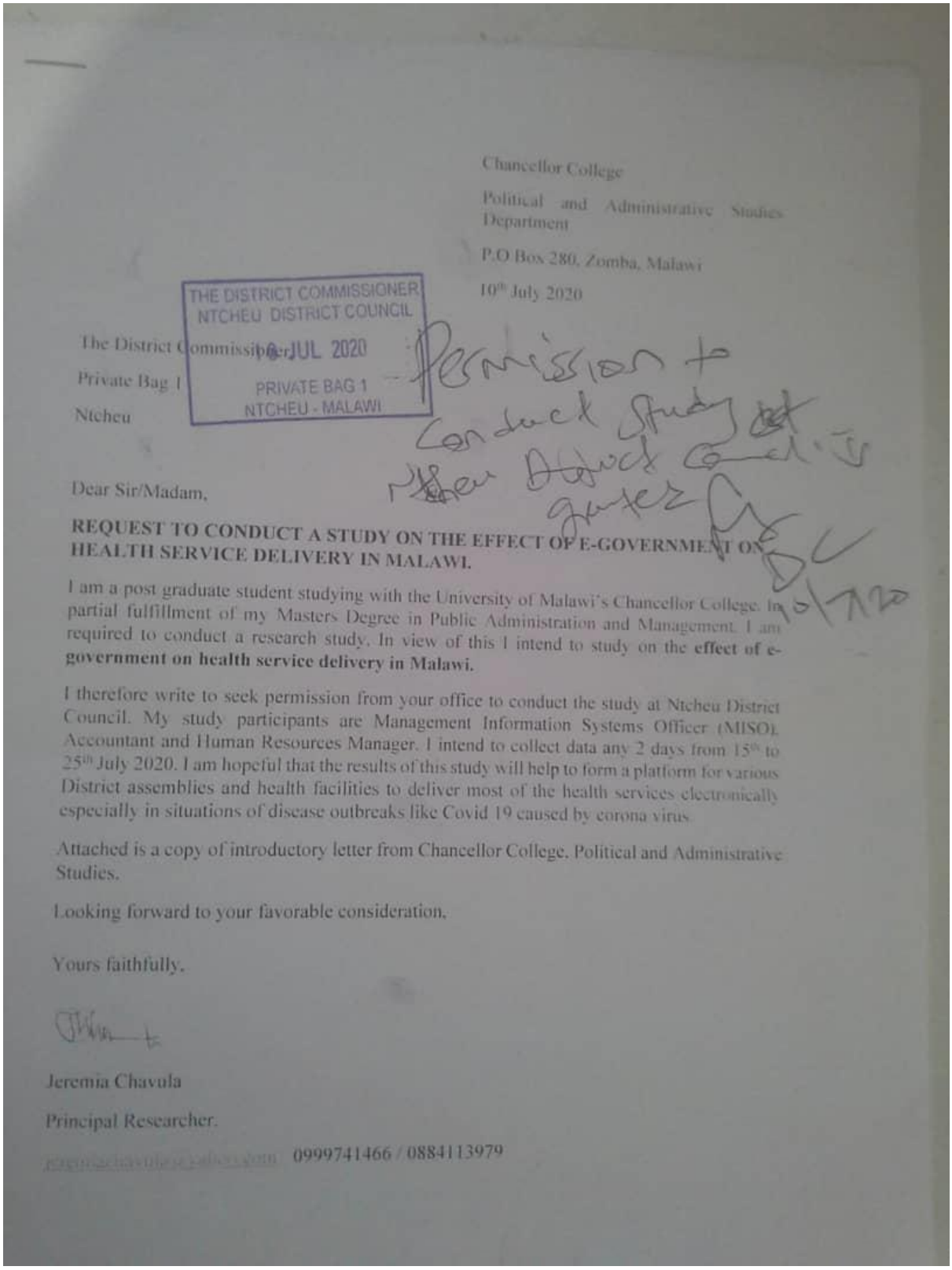
Having gone through the protocol, the above qualitative study is important as it will guide the district and Malawi as a whole on how we can strengthen e-government services. This will eventually assist in providing high-quality health services at the hospital.

I hereby give my support for the study to be conducted at Mwanza District Hospital.

Yours Sincerely,

Dr Ireen Zuze
DIRECTOR OF HEALTH AND SOCIAL SERVICES

Appendix 7



Chancellor College

Political and Administrative Studies Department

P.O Box 280, Zomba, Malawi

10th July 2020

THE DISTRICT COMMISSIONER
NTCHEU DISTRICT COUNCIL
10 JUL 2020
PRIVATE BAG 1
NTCHEU - MALAWI

The District Commissioner

Private Bag 1

Ntcheu

Permission to Conduct Study at Ntcheu District Council granted

10/7/20

Dear Sir/Madam,

REQUEST TO CONDUCT A STUDY ON THE EFFECT OF E-GOVERNMENT ON HEALTH SERVICE DELIVERY IN MALAWI.

I am a post graduate student studying with the University of Malawi's Chancellor College. In partial fulfillment of my Masters Degree in Public Administration and Management, I am required to conduct a research study. In view of this I intend to study on the **effect of e-government on health service delivery in Malawi.**

I therefore write to seek permission from your office to conduct the study at Ntcheu District Council. My study participants are Management Information Systems Officer (MISO), Accountant and Human Resources Manager. I intend to collect data any 2 days from 15th to 25th July 2020. I am hopeful that the results of this study will help to form a platform for various District assemblies and health facilities to deliver most of the health services electronically especially in situations of disease outbreaks like Covid 19 caused by corona virus.

Attached is a copy of introductory letter from Chancellor College, Political and Administrative Studies.

Looking forward to your favorable consideration.

Yours faithfully,

Jeremia Chavula

Principal Researcher.

[redacted] 0999741466 / 0884113979

Appendix 8

Interview guide for health care providers

Topic guide for e-government study

Date…….

part a: topic guide for health care providers

To assess drivers of e-government in Malawi public hospitals under local councils.

1. Explain to me about e-government?
2. What do you know about e-government in the context of health service delivery?
3. Do you know any drivers that help to enforce e-government implementation in health service delivery?

   If yes…….

   Explain to me any drivers which you know that help to enforce e-government implementation in health service delivery?

To assess e-government mechanisms put in place in delivery of health service

1. Do you know any e-government mechanisms or initiatives?

   If yes…

   Mention any e-government mechanisms / initiatives you know?
2. Explain any e-government mechanisms/initiatives which you are using at this facility for health service delivery?
3. How are the mentioned e-government mechanisms / initiatives assisting you in delivery of health service?

4. How were you prepared to the use of electronic gadgets in delivering of health services?
5. How were you oriented to the use of electronic gadgets in delivery of health services?

    If yes,

    where did the orientation take place?

    How ready were you after the orientation?

    What did you like most during the orientation?

    What did not go well during the orientation?

    Overall, what can you say about the facilitators during the orientation?

    What did you expect before the orientation?

    Was it the case at the end of the orientation?

To analyse benefits of e-government on health service delivery.

1. Have you benefited through the use of e-government initiatives in delivery of health service?

    If yes,

    Explain how you have benefited through the use of e-government initiatives in delivery of health service? If no, why not?
2. Has e-government mechanism or initiatives affected your ability to deliver health services?

    If yes,

    explain how e-government mechanisms / initiatives have affected your ability to delivery health services?

To assess challenges encountered in implementation of e-government on health service delivery

1. Do you encounter challenges in delivering health services using e-government initiatives?

   If yes,

   Explain the challenges you are encountering in delivery of health services with the use of e-government initiatives?

   If no challenges, what has been your secret for not having the challenges?

2. How do you think these challenges can be resolved? (if there are any)
3. Is e-government significant or not?

   If yes….

   Explain the significance of e-government in health service delivery?

   If NOT significant, why is the case?

Appendix 9

Interview guide for council officers

Part b: topic guide for district council workers

To assess drivers of e-government in Malawi public hospitals under local councils.

1. Explain to me about e-government?
2. As district council, explain how you are supporting health sector in facilitating delivery of health services using e-government initiative(s)?
3. Explain to me any drivers which you know that help to enforce e-government implementation.

To assess e-government mechanisms put in place at local council level.

1. Explain any e-government mechanisms/initiatives put in place at local council level?
2. Among the mentioned e-government mechanisms which one's support delivery of health service in hospitals?
3. How does each one of these mechanisms support health service delivery?
4. How were you prepared to the use of electronic gadgets in facilitating delivery of health service?

To analyse benefits of e-government on health service delivery.

1. Have you benefited through the use of e-government initiatives at local council level?

If yes,

Explain how you have benefited through the use of e-government initiatives at local council level

2. Has e-government initiative affected your ability to deliver health services?

If yes,

Explain how e-government mechanisms / initiatives have affected your ability to delivery health services?

To assess challenges encountered in implementation of e-government initiatives on health service delivery.

1. Do you face challenges in the use of e-government initiatives?

If yes,

Explain the challenges you are encountering in the use of e-government initiatives

If no,

what has been your strength for not having the challenges?

2. How do you think these challenges can be resolved?
3. Is e-government significant or not?

If yes,

Explain the significance of e-government in health service delivery?

If no,

significant, why is the case?

Appendix 10

Consent form e-government study

Study site:……

Chancellor College

Political and Administrative Studies Department

P.O Box 280, Zomba, Malawi

……/……/…..….. 2020

Dear participant,

INFORMED CONSENT TO PARTICIPATE IN THE STUDY TITLED:

EFFECT OF E-GOVERNMENT ON HEALTH SERVICE DELIVERY IN MALAWI.

I am Jeremia Chavula, a student of the University of Malawi's Chancellor College, studying for the master of Public Administration and Management. As part of the prerequisites for the Masters degree, I am doing a research study on the effect of e-government on health service delivery in Malawi. The study participants are in two folds; health care providers and district council workers mainly Management Information Systems Officers (MISO), Accountants and Human Resources Managers hence the request for your participation. The purpose of the study is to analyse the effect of e-government initiatives on health service delivery. The study has benefits at various levels including strengthening health service delivery as a public service through

accessibility, improve quality of health services as a public service. Not only that, but also it will serve in modelling health service delivery using e-government initiatives. The study has no any health risks and any information you will give will be handled with confidentiality. Furthermore, you have the right to ask any questions and withdraw any time you want to in the course of the interviews. The study is taking place in the following district councils and hospitals: Mwanza, Ntcheu and Mangochi. Data collection will be done through audio-recorded interviews which will be transcribed by the research team. Interviews conducted in the local language will be transcribed in the local language and subsequently translated and transcribed into English.

For any inquiries, do not hesitate to contact: The Principal Investigator (PI) Jeremia Chavula C/O Chancellor College, P.O Box 280, Zomba Malawi, Political and Administrative studies department Phone: +265 999741466, +265 884113979. Email: jeremiachavula@yahoo.com

Or

The Head of Department, University of Malawi's Chancellor College, Political and Administrative Studies Department, P.O Box 280, Zomba Malawi. Phone: +265 0883438456. Email: mchasukwa@cc.ac.mw or mmchasukwa@gmail.com

Or

The Chairperson, National Health Sciences Research Committee, P/B B303, Lilongwe 3 Malawi. Phone: +265 999397913 Email: cmitambo@gmail.com

Participant Name…… …….....…….……..

Participant Signature …… …….....Date.....…….……

Data collector Name……...…….

Data collector signature…….Date..…….....