

**A FRAMEWORK FOR ADOPTION OF M&E TECHNOLOGICAL INNOVATIONS
WITHIN NON GOVERNMENTAL ORGANIZATIONS
A CASE STUDY OF PREFA UGANDA**

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
CDC	Centre for Disease Control and Prevention
CRS	Catholic Relief Services
CSOs	Civil Society Organizations
DAC	Development Assistance Committee
DOI	Diffusion of Innovation
GIS	Geographical Information System
HIV	Human Immune Virus
ICT	Information, Computing and technology
ILO	International Labour Organization
INTRAC	International NGO Training and Research Centre
IT	Information Technology
M&E	Monitoring and Evaluation
MoES	Ministry of Education and Sports
MOH	Ministry of Health
MoICT	Ministry of Information and Communication Technology
NCDC	National Curriculum Development Centre
NGO	Non Governmental Organization
OECD	Organization for Economic Cooperation and Development
OPM	Office of the Prime Minister
PREFA	Protecting Families against HIV/AIDs
TAM	Technology Acceptance Model
UNDP	United Nation's Development Programme
US/USA	United States of America

UTAMU Uganda Technology and Management University

WB World Bank

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CHAPTER ONE: INTRODUCTION

1.0 Introduction

This study seeks to ascertain the factors determining the adoption of Monitoring and Evaluation (M&E) technological innovations among locally founded Non Governmental Organizations (NGOs). The dependent variable of the study is adoption of M&E technological innovations. The independent variables are; organizational factors, existing M&E techniques in the organization, technical expertise of staff and attributes of the technology. This study will strive to show how each as well as combinations of the independent variables determine the adoption of M&E technological innovations among locally founded NGOs.

This chapter discusses in addition to the introduction, the background to the study, the statement of the problem, the objectives of the study, research questions, hypotheses, scope, significance, justification and operational definition of terms and concepts used in this study.

1.1 Background to the study

The expansion of information and communications technology (ICT) in the developing world is occurring at a very rapid pace. Governments have recognized ICT as an important tool that can be used in the fight against poverty, disease, and environmental degradation among others (NDP, 2010). The contribution of new technology to economic growth can only be realized when and if the new technology is widely adopted and used (eTransform Africa, 2012).

The Non Governmental Organizations (NGO) sector has experienced a rapid growth and increased involvement in economic development over the last decade, (Anheier and Salamon, 2006, Wallace et. al, 2007).

Not only are NGOs acting as policy lobbyists through leading campaigns on development issues - such as debt relief, universal provision of primary education and HIV/AIDS awareness among others, they have also increased their contribution to pro-poor service delivery, (Spiros et al., 2008). These activities have thus resulted into an increase in the volume of official aid flows to NGOs. According to figures from the Organization for Economic Co-operation and Development (OECD), the total net flows from Development Assistance Committee (DAC) countries through grants to NGOs was 3% in 1980, 4% in 1994-95 and 9% in 2007-08.

This growth in the volume of aid to the NGOs is partly due to the continued frustration and impatience by donors with the effectiveness of the aid caused by inefficiencies and corruption embedded within governments coupled with what is perceived as under performance of official donor programmes in reaching the poor. Donors have been keen to use both the popularity of NGOs, and their claims that they are able to reach the poor, to achieve a greater poverty focus in their own aid programmes. According to Edwards and Hulme (1996), NGOs have been characterized as the new “favoured child” of official development agencies and proclaimed as a “magic bullet” to target and fix the problems that have befallen the development process. They are seen as instrumental in changing mind-sets and attitudes (Keck and Sikkink, 1998) in addition to being more efficient providers of goods and services (Edwards and Hulme, 1996).

Monitoring and evaluation (M&E) is recognized by many development agencies as a new discipline. M&E is a process that aims at tracking and improving performance and achieving results to establish links between the past, present and future development actions (UNDP, 2009). Its goal is to improve current and future management of outputs, outcomes and impact projects, institutions and programmes set up by governments, international organizations and NGOs.

M&E is globally talked about and its critical importance widely acknowledged. It is for example accepted that M&E is essential for effective programme management, accountability, decision making, budgeting among others however, it is one of the least practiced aspects in many organizations (INTRAC 2010; Australian Institute of Criminology, 2014) and hence many organizations consider M&E to be a requirement of the funding agencies that support them and thus see it as an external necessity yet few managers consider M&E to be the strategic system for assessing the organizational capacity, judging their economic effectiveness and predicting their organization's future sustainability.

Designing and implementing an effective monitoring and evaluation (M&E) system is crucial to a program's success (WB, 2008). An M&E system is an effective way to: provide constant feedback on the extent to which the projects achieved their goals, identify potential problems at an early stage and propose possible solutions, monitor the accessibility of the project in sectors of the target population, monitor the efficiency with which the different components of an intervention are being implemented and suggest improvements, evaluate the extent to which the intervention is able to achieve its general objectives, provide guidelines for the planning of future projects (WB, 2008), influence sector assistance strategy, improve project design, incorporate views of stakeholders and

show need for mid- course corrections. If the design of such a system is done poorly, M&E is a burden to all and provides useless information (WB & IDB, 2010).

Over the past two decades, Uganda has made good progress in M&E especially in the public sector following the unstable political situation and economic mismanagement that characterized the 1970s and early mid 1980s. In 2003, the Cabinet approved a coordination framework to ensure that all government programmes are monitored and evaluated in a rational and synchronized manner. The framework outlines a system of information generation, coordination and use both vertically (district-sector-national) and horizontally (within and between districts and sectors) (OPM, 2008).

In 2009, the Baraza, one of the key community participation approaches for M&E in Uganda was introduced to improve and create open accountability and a sense of ownership of government programs by local communities. It is one of the most recent initiatives of the Government of Uganda (GoU) that was initiated by the President and launched in 2009 by the Office of the Prime Minister (OPM) (OPM, 2015). In 2011, another important step in improving the country's M&E was realized through the creation of a national M&E policy framework to guide M&E in the public sector and also build capacity for M&E in other sectors especially the NGO sector (OPM, 2011).

In order to understand the ICT take up concept, it is important to have good insight into what organizations are and how they behave. With the demand for accountability by donors and need for results, Research indicates that NGOs which in the past have been negligent about expanding ICT usage in M&E are now participating in countrywide expansion of ICT services (Ocen, 2007). Despite their interest in up taking ICT, many internal and external barriers are potentially limiting the adoption of ICTs especially in M&E including technological, organizational, physical and

socio-economical environmental factors. Specifically, factors such as: A lack of strategic understanding of ICT at senior management and trustee level, many organizations do not have ICT strategy, few sources of ICT advice and support and lack of affordable technical support (Home Office, 2003 & Mahesha, 2006). In addition, Lack of funding which is most acute in smallest organizations, lack of staff appreciation or high staff resistance and lack of internal “Change Champions”(Ocen, 2007). Therefore to an NGO, adoption of a new technology is often very costly for various reasons for instance; new machines need to be purchased and often the technology, employees need to be trained to operate the new technology; if there are network effects then complementary machines need to be updated or replaced; if operation needs to be shut down for installation there will be a cost from lost output (Hall & Khan, 2002).

Attempts to address ICT take up problem include the Uganda-based NGO Forum who are providing CSOs with computers and accessories, training, technical support and maintenance, through the Computers-for-Development Programme (MoICT, 2015). The computers will increase the use of modern ICTs and contribute to reduction of digital divide between the NGOs in Uganda and the global community. Despite such efforts, a number of NGO managers consider measuring performance as complex, time intensive and costly and thus they either ignore it or hire staff with limited skills in M&E so as to minimize operational costs (INTRAC 2010; WB, 2010). The resulting program data are often of poor quality, with missing, inaccurate, or outdated information. The distinction between observed reality and what is hoped-for is blurred and communities are sometimes not aware of what they expect these NGOs to deliver to them and the donors are not always available to monitor the performance of these NGOs, they end up implementing activities that are not connected to the ones they submitted to their donors for funding.

In a world where demand is uncertain, organizations or firms are likely to be unsure about whether or not they can recoup the cost of adopting the new technology, or how long it may take to recover the cost. As a result, it might not be worthwhile for them to adopt even if the technology has the potential of improving productivity or product quality. In the presence of customer commitment, however, firms can more accurately predict the demand for their product and the profit from production, and this gives them incentives to adopt a technology if it is profitable for them to do so. Consequently with the growing global movement to demonstrate accountability and tangible results, many developing countries will be expected to adopt results-based M&E systems in the future, due to the international donors focus on development impact.

To date, the extant literature has centered on the technology take up amongst businesses, larger voluntary organizations & NGOs in other disciplines than M&E. This research will therefore look at the existing M&E systems in regard to factors determining the adoption of M&E technological innovations as well as recommend on adopting such technologies for NGO projects.

1.2 Statement of the problem

Tracking of results during program implementation by NGOs is too costly and time consuming despite the existing technologies (INTRAC, 2013). There is sound evidence that the various technological innovations being developed in this 21st century lead to effectiveness and efficiency of interventions carried out by NGOs & their day to day operations (Linda & Michael, 2014). However, many NGOs have for long not embraced such technologies in their operations especially in the monitoring and evaluation function for instance most NGOs in Uganda have a challenge of tracking their results regarding implementations of programs which affects them in terms of costs

and time yet there is available technology that can do that work effectively and efficiently (INTRAC, 2013).

Monitoring and Evaluation has in the recent become a necessary requirement for every intervention (UNDP, 2009). This is evident from the many advertisements for M&E experts and request for expression of interest for M&E consultants in the local dailies. One should note that the manner in which M&E is carried out in organizations highly affects the performance of their interventions in achieving desired results and being effective. For many NGOs, the collection of meaningful data has become essential not just to achieve positive outcomes at the level of individual projects, but also to compete effectively in an increasingly crowded aid sector. Collecting meaningful and timely data is easier said than done. Historically, the collection of programmatic data has involved paper-based questionnaires and inputting data into an information management system (eTransform Africa, 2012).

More recently, various actors have been looking into incorporation of information and communication technology (ICT) to increase the efficiency, speed and accuracy of data collection, storage and analysis (WB, 2010 & eTransform Africa, 2012, MoICT, 2015). Most NGOs have failed to use such technological innovations due the fact that there are no clear guidelines and frameworks that can help NGOs in implementing such technologies and are hindered by a matter of readiness and capability to change established M&E practices which requires one to analyze and absorb the new technology (UNDP, 2013).

This research therefore will develop a framework for adoption of M&E technological innovations within Non Governmental Organizations.

1.3 General objective of the study

The purpose of the study is to develop a framework for adoption of M&E technological innovations within Non Governmental Organizations.

1.4 Specific objectives

- i. To undertake an evaluation and needs assessment for adoption of M&E Technological innovation within NGOs
- ii. To design a Framework for adoption of M&E technological innovations within NGOs
- iii. To evaluate the designed Framework for adoption of M&E technological innovations within NGOs

1.5 Research Questions

- i. What technological innovations are adopted by NGOs in their monitoring and evaluation system?
- ii. What factors lead to the adoption of M&E technological innovations among NGOs?
- iii. What process is used for adoption of M&E technological innovations within NGOs?

1.6 Hypothesis of the study

- i. There are no technological innovations adopted within the monitoring and evaluation operations of NGOs.
- ii. There are no significant factors that lead to the adoption of M&E technological innovations among NGOs.
- iii. There is no formal process used for adoption of M&E technological innovations within NGOs

1.7 Conceptual framework

This research looks at factors that determine the adoption of M&E technological innovations among locally founded NGOs. The dependent variable of the study is adoption of M&E technological innovations. The independent variables are; organizational factors, existing M&E techniques in the organization, technology attributes & staff and beneficiaries expertise.

This study will strive to show how each as well as combinations of the independent variables leads to the adoption of M&E technological innovations within NGOs.

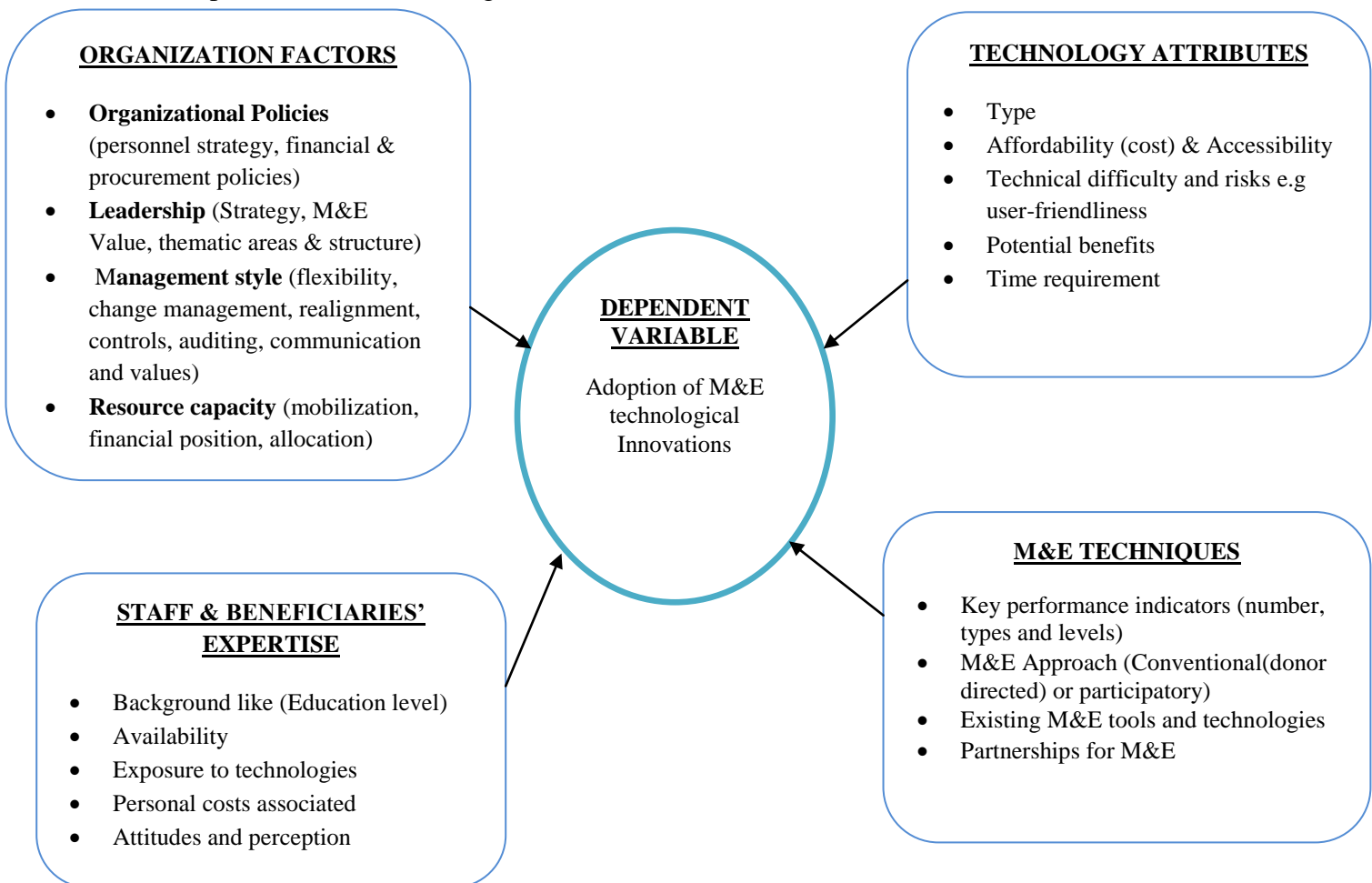


Figure 1: A conceptual framework for adoption of M&E technological innovations within NGOs

Source: Adopted from Godfrey, 2007 & modified by researcher

1.8 Significance of the study

This study is relevant for those trying to improve and enhance current M&E processes, or supporting partners to develop and implement effective M&E to improve organizational learning and accountability.

This study will particularly help the NGO's staff, donor agencies and project managers by providing a better understanding of the M&E systems and how to improve them to meet the expectations of the stakeholders, as well as provide valuable information for future interventions. It will inform policies towards setting up of monitoring and evaluation systems, and show how M&E can be used as a powerful management tool to improve the way organizations and stakeholders can achieve greater accountability and transparency. The study is therefore beneficial to NGOs, donor agencies, project managers and project management who are involved in the designing and implementation of result-based and effective M&E technological systems.

An understanding of the factors affecting the adoption of M&E technological innovations among locally founded NGOs is essential both for economists studying the determinants of growth of M&E innovations and for the creators and producers of such technologies.

This study will also contribute to the body of knowledge. This is because it can be used as a reference material by researchers. The study will also identify areas related to M&E field that will require more research, hence a basis of further research.

1.9 Justification of the study

Most NGOs in Uganda have a challenge of tracking their results regarding implementations of programs which affects them in terms of costs and time yet there is technology that can do that

work effectively and efficiently. Furthermore due to the manual methods of data collection and analysis that many of these organizations use, they fail to get real time data hence crippling their decision making. This study therefore seeks to bring understanding of M&E technological innovations and develop a framework in order to eliminate most of the challenges faced by these organizations that are as a result of poor M&E technological systems.

1.10 Scope of the study

The study will focus on understanding the factors that determine the adoption of M&E technological innovations within NGOs currently or faced before adoption of the new innovation geographically; the study will focus on Uganda and will take a case study of PREFEA.

PREFEA is a National NGO that was formed in 2004, with a mission to contribute to Uganda's efforts in enhancing access to quality HIV/AIDS prevention, care, treatment and support to families with particular emphasis on Prevention of Mother-to-child Transmission (PMTCT) of HIV. In its operations, PREFEA models its support at three levels including the district (strategic management), the health facilities (both public and private) that continually interface with the clients, as well as community level implementation, with the aim of achieving its vision of "Healthy families living with hope and dignity in the era of HIV" in line with its values of pursuing excellence through creativity, team work, transparency and effective leadership.

As a dynamically growing and impact-driven organization, PREFEA is dedicated to invest in a comprehensive and impact-oriented M&E System to foster organizational learning, maintaining program quality as well as to add to the body of evidence on the impact of HIV/AIDS programming across the world.

1.11 Operational definitions

In this study, the main terms used will have the following meanings

Non Governmental Organization: It is a private voluntary association of individuals or other entities, not operated for profit or for other commercial purposes but which has organized itself for the benefit of the public at large and having as its objective the promotion of social welfare in any of, but not limited to, the areas set out in the First Schedule; includes a community based organization (David, 2009).

Monitoring and Evaluation: M&E is a process that aims at tracking and improving performance and achieving results to establish links between the past, present and future development actions (UNDP, 2009). Its goal is to improve current and future management of outputs, outcomes and impact projects, institutions and programmes set up by governments, international organizations and NGOs.

M&E System: This is a set of twelve (12) components which are related to each other within a structure and serve a common purpose of tracking the implementation and results of a project (WB, 2008),

Technological innovations: In this study, technological innovation will refer to ICT innovations that are useful to making M&E more efficient and effective. Specifically, it will focus on short messages (SMS) platforms, smart phones & tablets use, use of M&E software, use of geographical information systems (GIS), computers, internet & dashboards use.

Technology adoption: Adoption in an organizational context has traditionally referred to a level of awareness and commitment by an individual organization towards a specific technology or idea (Rogers 1995). Meanwhile diffusion is the stage in which the technology has spread through a population of, or group of, entities, be they people, groups or organizations (Rogers 1995). Technological adoption will refer to the use of technological innovations in the monitoring and evaluation process i.e the study will focus on the choice to acquire and use a new invention or innovation in M&E.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter brings forth the review of literature related to the study, how it was reviewed and the researcher's synthesis of the literature. The chapter starts with a theoretical review, a review of organizational factors, staff expertise factors and M&E technical factors that affect the adoption of M&E technological innovations within NGOs. Literature was acquired thorough internet by use of key words including M&E, innovations, technology, and technological frameworks among others

2.1 Theoretical review

Research into the organizational adoption of innovations has resulted in several theories that model organizational adoption of technologies. Most of these theories draw from innovation diffusion literature as opposed to studies examining the individual adoption of innovations. Individual technology adoption research has traditionally focused on the individual while diffusion research has centered upon groups of people. According to prior research, there are a number of theories or models of adoption of technological innovations in organizations i.e the Diffusion Innovation Theory (DOI), the Tri-Core-Model (TCM), the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology-Organization-Environmental Framework others (TOE) among (Bulent, A. O., 2002; Venkatesh et al., 2003; Sargent, K et al. 2012). Only two main theories have been discussed in detail as below.

Diffusion of Innovation Theory

Diffusion of Innovation Theory (Rogers, 1995) is a theory of communication, which has been studied extensively in the literature from various viewpoints of disciplines and with regard to different types of products, services and ideas for both organizational and individual adoption (Cheng, Kao & Lin, 2004). The Diffusion of Innovation Theory explains how new ideas spread throughout a community over time. Rogers (1995) stated that it is often very difficult to get a new idea adopted even when it has clear advantages.

Rogers and Scott (1997) state that there are certain characteristics which determine an innovation's rate of adoption. These characteristics are: (1) relative advantage (the degree to which an innovation is perceived as better than the idea it supersedes), (2) compatibility (the degree to which an innovation is perceived as being consistent with existing values, past experiences and needs of potential adopters), (3) complexity (the degree to which an innovation is perceived as difficult to understand and use) (4) trial-ability (the degree to which an innovation may be experimented with, especially on a limited basis) and (5) observability (The degree to which the results of an innovation are visible to others). Consequently, innovations which are perceived as having more relative advantage, compatibility, trialability, observability, and which are perceived as having less complexity will be adopted more rapidly than other innovations (Rogers & Scott, 1997).

Technology-Organization-Environmental (TEO) Framework

Godfrey (2007) suggested three dimensions of factors that affect innovation adoption by an organization. These are (1) characteristics of an organization, (2) characteristics of the technology and (3) characteristics of the environment. This was further grounded through various prior studies that have indicated that technological, organizational, and environmental contexts as being

important to adoption of innovations in organizations (Kimberly & Evannisko, 1981; Orlikowski, 1993).

To study adoption of general technological innovations in an organizational context, Tornatzky and Fleischer's (1990) developed the technology-organization-environment (TOE) framework, which defines a —context for changell, consisting of three elements: (1) technological context, (2) organizational context, and (3) environmental context.

Technological Context: It includes both internal and external technologies which are relevant to the organization. Tornatzky and Fleischer's (1990) stated that technological context includes —existing technologies inside the firm, as well as the pool of available technologies in the marketll (p.153).

Organizational Context: It includes —firm size and scope; the centralization, formalization, and complexity of its managerial structure; the quality of its human resource; and the amount of slack resources available internallyll (Tornatzky & Fleischer, 1990: 153).

Environment Context: It is —the arena in which a firm conducts its business – its industry, competitors, access to resource supplied by others, and dealings with governmentll (Tornatzky & Fleischer, 1990: 153).

This study, thus, adopts the TOE model to examine IT adoption in NGOs, similar to previous studies, but will also include one important constructs of M&E techniques which the study would like to investigate its importance to IT adoption.

2.2 Organizational factors

Research indicates that organizations are hindered in adopting technologies by impediments that result from the many barriers within the organization classified as internal barriers as well as many barriers outside the organization classified as external barriers ((Hall & Khan, 2002). Internal factors are inherent within the organization while external factors are another set of impediments that arise due to infrastructure (technological, economic), political, legal, social and cultural barriers that exist in the country (Hall & Khan, 2002). For organizations to successfully adopt the technologies these two sets of barriers need to be addressed.

The organizational factors describe the attributes or characteristics of an organization that might have a significant impact on their decision to adopt a technology in their M&E activities (Nouf et al, 2012). Yaser et. al. 2014, noted that the top management support is a huge determining factor of technological adoption. Management support refers to the perceived level of general support offered by top management in organizations. Earlier research by Igarria et al., 1997 hinted on management support aspects that can foster adoption of the technology including management being aware of the benefits that can be achieved with the use of a technology, does management supports and encourages the use of such technology for job-related work?, does management provides necessary help and resources to enable people to use it?, Is management keen to see that people are happy with using the technology?, does management provide good access to hardware and software resources when people need them? (John, 2015)

In addition, various research studies indicate that top management plays an important role and has a vital yet significant impact on the adoption rate of IT innovations at the organizational level since

top management has the ability to make the change and execute acceptance of the a technological innovation (Nouf et al, 2012), strongly, directly and positively influence perceived usefulness (Chen & Hsiao, 2012; Shih & Huang, 2009), positively affects and has a significant impact on user satisfaction (Cho, V, 2007; Urbach et al., 2011)

The organizational structure i.e the formal system of task and reporting relationships showing how workers use resources to achieve objectives is a vital factor of concern when it comes to adoption of technologies in organizations. Rye & Kimberly, 2007, found out that there is a positive association in organizations where structures present greater professionalism, internal communication and organizational age, greater specialization, complexity and size. However, a negative association was realized for organizations with greater centralization and formalization. In addition, there was a mixed association for organizations of functional differentiation. This was also supported from another study by Nouf et al, 2012 where it was confirmed that the size of the organization usually defined by the number of employees, the amount of investment involved, the target market and annual revenue is an important influential factor of technological adoption. Studies indicate that an organization that is at a larger scale is most likely to adopt some of the technologies which facilitate efficiency and effectiveness (John, 2015; Rye & Kimberly, 2007; Nouf et al, 2014).

In addition, for every technology to be used or adopted in an organization, the organization must be ready for such a move (John, 2015). The technological readiness of organizations, meaning the degree of readiness of the IT infrastructure and the human resources in terms of utilizing an IT innovation is a very vital influencing factor while adopting a technology (Nouf et al, 2012).

Resource availability for IT innovation adoption in terms of its immediate costs plus the costs of complementary hardware and software is another interesting factor. Rye & Kimberly, 2007 found out that the cost position, management of resources, resource allocation, resource mobilization strategies & slack resources has a positive association with adoption of technology. In addition, specifically in most organizations the M&E function is given less budget priority since a number of NGO managers consider measuring performance as complex, time intensive and costly yet with less result and therefore prefer investments in program implementation (eTransform Africa, 2012). This is seen in the fact that the collection of programmatic data in most NGOs has involved paper-based questionnaires and inputting data into an information management system which are believed to save costs compared to the huge technological investments required (eTransform Africa, 2012).

In NGOs, adoption of a new technology is often very costly for various reasons --- new machines need to be purchased and often the technology, employees need to be trained to operate the new technology; if there are network effects then complementary machines need to be updated or replaced; if operation needs to be shut down for installation there will be a cost from lost output. In a world where demand is uncertain, NGOs are likely to be unsure about whether or not they can recoup the cost of adopting the new technology, or how long it may take to recover the cost. As a result, it might not be worthwhile for them to adopt even if the technology has the potential of improving productivity or product quality.

Organizational culture is an influential factor for adoption of technology in an organization (Rye & Kimberly, 2007). It is usually embedded in a collective understanding, a shared and integrated set or perceptions, memories, values and attitudes that have been learned over time and which

determine the expectations of behavior that are taught to new members in their socialization into the organization (Thurp, 2009). Hall & Khan, 2002 added that in all organizations, some cultural barriers exist.

Cultural barriers in some organizations may also exist to deter the acceptance of a technological innovation due to the way of doing business. For example in some organization, the use of internet may be perceived as a wastage of resources and hence limit the potential users of certain internet based technological innovations. In addition, the lack of developed regulatory controls within an organization will inhibit the use and adoption of technologies in those organizations.

It should also be noted that compatibility which refers to the degree to which adopting an IT innovation is consistent with existing values, needs, and past experience of potential adopter (Rogers, 2003) is an influential factor for technological adoption in organizations. According to diffusion of innovation (DOI) theory, compatibility is one of the characteristics that must be present if an individual is to choose to adopt technology (Chen et al., 2009). In this context, compatibility is the alignment of an IT innovation in the work place with an individual's work style and habits (Putzer & Park, 2010, 2012). Compatibility has also been found as an important factor in nurses' and doctors' intention to utilize a smartphone (Putzer & Park, 2010, 2012). This investigation determined whether compatibility, i.e., a smartphone's being compatible with aspects of work, contributed to intention to use a smartphone by professional consultants.

There are some other factors related to the characteristics of the organization, which affect adoption of technological innovation. Several studies have found out that the current level of technology usage within the organization affects the process of adoption. For example lack of awareness; uncertainty about the benefits of IT innovation; concerns about lack of human resources and skills;

set-up costs and pricing issues; and, concerns about security as the most significant barriers to IT innovations use (Mahesha, 2006). It is also important to note that other factors such as organizational policies related to personnel strategy, financial & procurement policies influence the adoption of technologies in M&E.

2.3 Technological Attributes

Technological factor describes the essential characteristics of a specific technology and identifies the factors that affect an organization's decision to adopt this technology. Nouf et al, 2012 in their study focusing on why organizations can adopt cloud computing, they identified four major factors i.e availability, reliability, security and privacy. However, Yaser et. al. 2014, noted that there are coherently three variables that define technological dimension; system quality, information quality, and service quality

Any technological innovation needs to function properly and must be available to use whenever it is requested such that the consumers can access it anywhere and at any time. If the technology is readily available, it ensures that the potential users can access it and also if the software and hardware needed are accessible, this means that one can easily modify and work around the challenges (Nouf et al, 2012). One should note that on the other hand, research has ignored the presence of technological support from the producers of technology in determining the adoption of a technology.

In addition, in today's economy, network effects due to technology standards are very important because there is a high degree of interrelation among technologies. For example, the utility that a user gets from using electronic mail directly depends on how many other people are accessible by

electronic mail. Similarly, the benefit from having a telephone also directly depends on the number of telephone sets in the network since the benefit will increase as more people can be reached by the phone (Hall & Khan, 2002).

Reliability of a technological innovation expressed in its ability to fulfill its intended function in a proper manner as expected will determine the organization's decision to adopt a technology (Nouf et al, 2012). Al-Mamary et. al., 2014 adds that the quality of an innovation is a key factor affecting its acceptance and its ability to improve organizational performance. Characteristics of technological innovations for example: ease of use, flexibility, and ease of learning, as well as features of intuitiveness, sophistication, flexibility, and response times are desirable characteristics that determine its adoption (Peter et. al., 2008). In M&E, a reliable innovation would ensure a high quality of service to end users, with a high transmission rate, minimum rate of errors, and fast recovery.

Hwang, et al. 2008, argues that quality has a strong direct effect on perceived usefulness. In addition, various researches have supported that quality has a positive influence on perceived usefulness and user satisfaction of a technological system (Park, et al. 2011; Halawi, et al., 2008 ; Ainin, et al., 2012). One should also note that “If a new technology is imperfect in its early stage, then the subsequent rate of improvement is an important determinant of adoption of the technology. This results from the fact that the efficiency gain from the new technology is much larger during its enhancement stage than during the initial stage” (Hall & Khan, 2002).

The level of security procedures in place to protect information or the technological system from unauthorized access or any other security events is an important aspect that determines adoption of a technology (Nouf et al, 2012). Lack of security is one of the biggest doubts for many organizations that intend to adopt it especially in its M&E function which is responsible for numerous data and information.

Privacy standards of a technology through defined measure for confidentiality of data from users, where only authorized users can access it is another great aspect that determines its adoption. It is the main concern for organizations thinking about adoption of technology such as cloud storage like Google Drive in which an organization may fully control the information stored on cloud-based servers (Nouf et al, 2014)..

Research indicates other vital technological factors for adoption of technologies. Trust in the technology & its environment heavily depends on trusting the service it offers itself and the provider to provide a trusted level of authenticity, integrity and confidentiality in regard to the service and the stored data. In addition, the relative advantage in terms of the level of benefit to an organization if they decide to move on to a new IT innovation plays a big role in its adoption. One should also note that the ability of the existing application/innovations to be compatible with the new technological innovation is a real concern that an organization needs to consider carefully when considering use of the new technology. An organization normally considers the degree of difficulty involved in using new technology as an important element in their decision before adopting this technology (Nouf et al, 2014; Nouf et al, 2012).

2.4 Staff and beneficiaries expertise

Schiler (2003) noted that “personal characteristics such as educational level, age, gender, educational experience, experience with the computer and attitude towards computers can influence the adoption of a technology”.

Yaser et. al. 2014, noted that in people dimensions, two variables are significant when it comes to adoption of technological systems in an organization; self-efficacy, and user experience. Self-efficacy refers to an individual’s belief that he or she has the skills and abilities to accomplish a specific task successfully (Zhao, 2010) usually measured using items such as: I can understand how the technological innovation works, and I am confident that I can learn how to use it (Igarria & Livari, 1995). Research by various authors found out that self-efficacy has an effect on the perceived usefulness and user satisfaction of a technological system (Ramayah & Aafaqi, 2004 ; Lopez & Manson, 1997; Saba, 2012 ; Bin, et al., 2010).

According to Kim, 2008, individual experiences of using IT innovations have a positive effect on perceived usefulness and therefore would influence its adoption. Chuttur, 2009, notes that such experience is prior experience of an individual with a specific technology and is usually measured by using items such as: I have experience in using it, I have experience in using spreadsheet among others (Igarria & Livari, 1995). Other research studies support the view that experience will have a positive direct effect on perceived usefulness and that there is a relationship between experience and user satisfaction (Zviran et al.2008; Igarria & Livari, 1995).

Francesco & Wilbur (2001) looked at computer adoption in a large number of OECD countries during the period 1970 to 1990 found out that educational level is among the important determinants of the level of investment in computers. This is supported various research studies that support the argument high levels of education are associated with high levels of skill that influences adoption of a new technological innovation (Hall & Khan, 2002; Rosenberg, 1972). In addition, the high education level is positively associated with the ability of an individual to invest in a technology and hence get exposure and experience that later favors adoption of any new innovation.

To successfully initiate and implement a technological innovation in an organization, one needs to consider personnel beliefs & attitude towards the technology of interest. In various studies about technological use by teachers in schools, it was discovered that if teachers perceived technology programs as neither fulfilling their needs nor their students' needs, it is likely that they will not integrate the technology into their teaching and learning (Charles Buabeng-Andoh, 2012; Hew and Brush, 2007; Keengwe and Onchwari, 2008). The Technology Acceptance Model (TAM) gives much value to perceived usefulness that is the user's perception that an application system will increase job performance in determining the acceptance of technologies in an organization (Davis et al., 1989). A number of research studies that investigated whether a Smartphone's perceived usefulness contributed to intention to use by professional consultants, validated that perceived usefulness has a significant impact on the intention to use a smart phone (Cho et al., 2010; Kang et al., 2011; Sek et al., 2010). In addition, if personnel's attitudes are positive toward the use of technology then they can easily provide useful insight about the adoption and integration of ICT into day today activities in organizations (Demici, 2009).

2.5 M&E techniques

Though there is no literature about how M&E affects the adoption of technology in NGOs especially in the M&E function, there are various M&E techniques that exist in various NGOs that the researcher believes would influence the type of technology that an organization may choose to adopt depicted in the twelve components of an M&E system (WB, 2008; Linda & Michael, 2014) For example; What outcomes is the organization is geared towards?, What are the key performance indicators in terms of how many and types is the organization is collecting data about?, What type of data is the organization interested in i.e is it qualitative or quantitative or mixed?, What data collection tools are used in the M&E system?, Is there an evaluation framework?, Is M&E conventional (donor directed) or participatory? and finally what partnerships exist for M&E in terms of other partners of the organization that can support or advise M&E function in a specific NGO?

2.6 Conclusion

Literature indicates that organizations are hindered in adopting technologies by impediments that result from the many barriers within the organization classified as internal barriers a well as many barriers outside the organization classified as external barriers (Hall & Khan, 2002). Though many researchers have researched about such factors in determining the adoption of technology in organizations, no attention has been paid to studying these factors in relation to M&E and also incorporating M&E specific factors. For organizations to successfully adopt the technologies in their M&E function, these two sets of barriers need to be addressed to enable smooth adoption of technology.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter brings forth the design, methods and tools that will be used to conduct this research study. It specifies the research design; sampling procedures, research instruments and data collection, sources and analysis techniques that will be used in this study.

3.1 Research design

The study will employ an exploratory, mixed descriptive cross sectional study design. Both qualitative and quantitative study designs will help compliment the findings from each other to develop a comprehensive understanding of the determining factors for technological adoption.

3.2 Study population

The study will be conducted in Uganda specifically looking at M&E systems of organizations. The population of study includes M&E professionals, program implementation team, senior management team and a few of M&E partners for the studied organizations. These respondents will give a comprehensive view and a better representation of the study population. The researcher saw it necessary to conduct the study in organizations that have implemented technology innovations like short messages (SMS) platforms, smart phones & tablets, M&E software, geographical information systems (GIS), computers, internet & dashboards which will provide rich information to the research.

3.3 Determination of the Sample size

Due to the fact that this is an exploratory study, the researcher will survey 20 organizations. 2-3 organizational staff will be surveyed and therefore the sample size will include 40-60 individuals. Respondents will include M&E professionals, program implementation team, senior management team and a few of M&E partners for the studied organizations.

3.4 Sampling techniques and procedure

Simple random sampling will be employed in selecting respondents within the study population in this study. This sampling technique will be used to give respondents equal chances of being involved in the study and also to rule out researcher bias. Purposive sampling will also be employed in selecting key informant respondents. These sampling techniques will be used to give in depth information about the topic of study.

3.5 Data Collection Methods

The researcher will use both qualitative and quantitative methods of data collection. This will involve use of semi structured questionnaires, key informant interviews and documentary review. These methods have been selected by the researcher to enable collection of both primary data and secondary data to enrich the study. Primary data will be collected directly from respondents and in addition the researcher will also use already documented reports.

3.6 Data collection instruments

The researcher will use semi structured questionnaires and key interviews guides to obtain data from respondents. The researcher will also use an observation checklist to document some of the technological innovation that are currently being used in the selected organizations.

Category of respondents	Data collection instruments
M&E Staff	Semi structured Questionnaire Observation checklist
Program Delivery team	Semi structured Questionnaire
Senior Management Team	Interview Guide
Partners representatives	Interview Guide

3.7 Validity and reliability

To ensure validity and reliability of the instruments, the instruments will developed in consultation with existing research studies focusing on technology adoption in NGOs. The developed tools will then be pre-tested on respondents from a NGO called MCE Uganda to ensure that they are going to collect uniform data. That means the instruments will be able to produce consistent scores when the same groups of individuals are repeatedly measured under the same conditions.

3.8 Procedure of Data Collection

The entire research process will be conducted with due respect to ethical considerations under Research Department of UTAMU. The researcher will acquire an introduction letter from the University which will be presented by the researcher to the authorities and respondents in several institutions and organizations.

While conducting the survey, care will be taken to respect human dignity and secure informed consent from the respondents. Also, the information acquired will be kept confidential and used for study purposes only. Another ethical issue that will be adhered to in this study is the principle of

academic integrity which will involve acknowledgment of sources of both primary and secondary information used in the survey.

3.9 Data Analysis

The collected data will be checked for completeness and consistency. Data will then be coded, entered and analyzed using Microsoft Excel, EPI-INFO and STATA software. Data will be analyzed at two levels; univariate and bivariate analysis through generation of summary (frequency) tables and cross tabulations. In addition, the researcher will conduct thematic analysis of all qualitative data.

3.10 Measurements of variables

All variables in this study will be measured through use of logit model since that dependent variable is a binary variable. The researcher will also employ a likert scale in measurement of the variable.

3.11 Framework Design

The researcher will use the data gathered to design a framework by use of a workflow process. This has been since technology adoption in M&E is a process that should be followed.

3.12 Framework Evaluation

The designed framework will be subjected to evaluation by experts in technology adoption and experts in M&E. researcher. This evaluation process has been selected by the researcher because it will compare the already well-known state and the results from this study.

REFERENCES

AIC, 2014 Rational for monitoring and Evaluation

Ainin, S., & Bahri, S., & Ahmad, A., (2012), Evaluating portal performance: A study of the National Higher Education Fund Corporation (PTPTN) portal., *Telematics and Informatics*, vol.29, pp. 314-323.

Al-Mamary, Y.H., Shamsuddin,A., & Nor Aziati, A.H. (2014) The Relationship between System Quality, Information Quality, and Organizational Performance, *International Journal of Knowledge and Research in Management & E-Commerce*, Volume. 4, Issue 3, pp. 07-10

Al-Mamary, Y.H., Shamsuddin,A., & Nor Aziati, A.H. (2014), "Factors Affecting Successful Adoption of Management Information Systems in Organizations towards Enhancing Organizational Performance." *American Journal of Systems and Software* 2.5 (2014): 121-126.

Anheier, H. and Salamon, L.,The Non-profit Sector in Comparative Perspective. In: W. W. Powell & R. Steinberg (Eds), *The Non-profit Sector: A Research Handbook* (2nd ed., pp. 90-114). New Haven, CT: Yale University Press, 2006.

Bin, W.,& Chu-hong, Z., & Qiong-yu, H.,& Zhen-peng, L.(2010). Empirical Research on the Factor of ERP's User Customer Satisfaction Based on Triadic Reciprocal Determinism, *International Conference on Management Science & Engineering*.

Bruce M. Tharp, 2009, Defining "Culture" and "Organizational Culture": From Anthropology to the Office

Bulent, A. O., 2002, Factors Affecting Individual And Organizational Rfid Technology Adoption In The Hospitality Industry, Anadolu University

Charles B. A., 2012, Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature, Pentecost University College, Ghana: *International Journal of Education and Development using Information and Communication Technology*

Chen, R.-F., & Hsiao, J.-L. (2012). An investigation on physicians' acceptance of hospital information systems: a case study. *International journal of medical informatics*, Vol.81, No.12, pp.810-820

Cheng, J. M. S., Kao, L. L. Y., & Lin, J. Y. (2004). An investigation of the diffusion of online games in Taiwan: An application of Roger's Diffusion of Innovation Theory. *Journal of American Academy of Business*, 5(1/2), 439-445.

Cho, V. (2007). A Study of the Impact of Organizational Learning On Information System Effectiveness. *International Journal of Business and Information*, Volume 2, Number 1, pp.127–158

Cho, Y., Jeon, S., & Choi, G. (2010). A study on the acceptance factors of the smart phone. *Applied Mechanics and Materials*, 20-23, 762-767.

Chuttur M.Y. (2009). "Overview of the Technology Acceptance Model: Origins, Developments and Future Directions", Indiana University, USA. *Sprouts: Working Papers on Information Systems*, Vol.9, No.37.

David L., 2009, *Nongovernmental Organizations, Definition and History*; London School of Economics and Political Science

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003.

Demirci, A. (2009). How do Teachers Approach New Technologies: Geography Teachers' Attitudes towards Geographic Information Systems (GIS). *European Journal of Educational Studies*, vol. 1, no.1.

Edwards, M. and Hulme D., Too close for comfort? The impact of official aid on non-governmental organizations?, *World Development* 24, 961-973, 1996.

eTransform Africa, 2012, *The Transformational Use of Information and Communication Technologies in Africa*

Government of Uganda, 2010, *National Development Plan II, 2010/11 - 2014/15*

Halawi, L. A., McCarthy, R. V., & Aronson, J. E. (2008) An Empirical Investigation of Knowledge Management Systems success, *Journal of Computer Information Systems*, pp. 121-136.

Hall. B.H & Khan B., 2002, *Adoption of New Technology*, University of California at Berkeley

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: current knowledge gaps and recommendations for future research. *Educational Technology Research and Development*, vol. 55, pp. 223-253.

Home Office, Active Community Unit. (2003). *Voluntary and Community sector Infrastructure – A consultation Document*. &

Hwang, H-G, & Chang, I-C., & Chen, F-J., & Wu, S-Y. (2008). Investigation of the application of KMS for diseases classifications: A study in a Taiwanese hospital. *Expert Systems with Applications*, vol.34, 725-733.

Igbaria, M., & Iivari, J. (1995). The Effects of Self-efficacy on Computer Usage, *Omega, Int. J. Mgmt Sci.* Vol. 23, No. 6, pp. 587-605

Igbaria, M., & Zinatelli, N., & Zinatelli, P., & Cavaye, A. L.M. (1997) Personal Computing Acceptance Factors in Small Firms: A SEM, MIS Quarterly.
INTRAC 2010, Monitoring and Evaluating Capacity Building: Is it really that difficult?, Praxis Paper 23

INTRAC, 2012, Monitoring and Evaluation: New Developments and Challenges, International conference, 14 -16 June 2011, Soesterberg, Netherlands

John N. K., 2015, Technological, Organizational, and Environmental Factors Affecting the Adoption of Cloud Enterprise Resource Planning (ERP) Systems, School of Management, Nazareth College of Rochester, NY

Kang, Y. M., Cho, C., & Lee, S. (2011, June). Analysis of factors affecting the adoption of smartphones, Proceedings of the IEEE International Technology Management Conference (pp. 919-925). Washington, DC: IEEE Computer Society.

Keck M. and Sikkink K., *Activists beyond Borders*. Ithaca: Cornell University Press, 1998.

Keengwe, J., & Onchwari, G. (2008). Computer technology integration and student learning: Barriers and promise, *Journal of Science Education and Technology*, vol. 17, pp. 560– 565.

Kim, M.-R. (2008) Factors Influencing the Acceptance of e-Learning Courses for Mainstream Faculty in Higher Institutions.

Kimberly, J. R., & Evanisko, M. J. (1981). Organizational Innovation: The influence of individual, organizational, and contextual factors on hospital adoption of technological and administrative innovations. *Academy of management Journal*, 24(4), 689-714.

Linda R & Michael B., 2014, A discussion paper on Emerging Opportunities: Monitoring and Evaluation in a Tech-Enabled World, The Rockefeller Foundation

Lopez, D. A., & Manson, D. P. (1997). A Study of Individual Computer Self-Efficacy and Perceived Usefulness of the Empowered Desktop Information System, pp. 83-92.

Mahesha, K., 2006, Barriers to Adopting ICT and e-commerce with SMEs in Developing Countries: An Exploratory study in Sri Lanka

MoICT, The National ICT Policy, available online <http://gov.ug/about-uganda/government-policies/national-ict-policy>, accessed on 15th September 2015

Noof A., Robert W., Gary W., 2012, An Investigation of Factors Influencing an Organisation's Intention to Adopt Cloud Computing, School of Electronics and Computer Science, University of Southampton, Southampton, United Kingdom

Nouf A., Robert W., Gary W., 2014, Factors Influencing an Organisation's Intention to Adopt Cloud Computing in Saudi Arabia, School of Electronics and Computer Science, University of Southampton, Southampton, United Kingdom

Ocen. G., 2007, Organizational Implementation of ICT: Findings from NGOs in the United Kingdom and Lessons for Developing Countries

OPM, 2008, The national integrated monitoring and evaluation strategy (NIMES) , FY2007-08 BI-annual implementation progress report

OPM, 2011, National policy on public sector monitoring and evaluation

OPM, 2015, Barazza Program, available online at

http://opm.go.ug/projects/Baraza_Programme.html, accessed on 15th September 2015

Orlikowski, W. (1993). CASE tools as organisational change: Investigating incremental and radical changes in systems development. *MIS Quarterly*, 17(3), 309–340.

Park, S., & Zo, H., & Ciganek, A.P., & Lim, G.G. (2011). Examining success factors in the adoption of digital object identifier systems. *Electronic Commerce Research and Applications*, vol.10, pp. 626-636.

Petter, S., & DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. *European Journal of Information Systems*, vol.17, pp. 236-263.

Ramayah, T., & Aafaqi, B. (2004) Role of Self-Efficacy in E-Library Usage Among Students of a Public University in Malaysia, *Malaysian Journal of Library & Information Science*, Vol.9, no.1, pp. 39-57.

Rogers, E. M. & Scott, K. L. (1997). The diffusion of innovations model and outreach from the national network of libraries of medicine to native American communities. (Draft paper prepared for the National Network of Libraries of Medicine, Pacific Northwest Region, Seattle.) Retrieved 15 September, 2015 from <http://nnlm.gov/archive/pnr/eval/rogers.html>

Rogers, E.M. (1995). *Diffusion of Innovations*. New York: Free Press, 1995

Rosenberg, Nathan (1972). "Factors Affecting the Diffusion of Technology." *Explorations in Economic History*, Vol. 10(1), pp. 3-33.

Rye, C.B. & Kimberly, J.R. (2007). The adoption of innovations by provider organisations in healthcare. *Medical Care Research and Review*, 64(3): 235-278

Saba, T. (2012). Implications of E-learning systems and self-efficiency on students outcomes: a model approach. *Human-centric Computing and Information Sciences*.

Sargent, K et al. (2012) 'Factors influencing the adoption of information technology in a construction business', *Australasian Journal of Construction Economics and Building*, 12 (2) 72-86

Schiler, J. (2003). Working with ICT: Perceptions of Australian principals, *Journal of Educational Administration*, vol. 41, no. 3, pp. 171-185.

Sek, Y.-W., Lau, S.-H., Teoh, K.-K., Law, C.-Y., & Parumo, S. B. (2010). Prediction of user acceptance and adoption of smart phone for learning with technology acceptance model. *Journal of Applied Sciences*, 10(20), 2395-2402.

Shih, Y.-Y., & Huang, S.-S (2009). The Actual Usage of ERP Systems: An Extended Technology Acceptance Perspective, *Journal of Research and Practice in Information Technology*, Vol. 41, No. 3, pp.263-276

Spiros Bougheas, Alessia Isopi, and Trudy Owens, 2008: How do Donors Allocate Funds to NGOs? Evidence from Uganda

Tornatzky, L. G., & Fleischer, M. (1990). *The process of technological innovation*. Lexington, MA: Lexington Books.

UNDP, 2009, *Handbook on Monitoring and Evaluating for Results*

UNDP, 2013, *A discussion paper, Innovations in Monitoring & Evaluating Results*, available online at <http://www.nec2013.org/documents/papers/Innovations-in-mande.pdf>, accessed on 15th September 2015

Urbach, N., & Smolnik, S., & Riempp, G. (2011). Determining the improvement potentials of employee portals using a performance-based analysis, *Business Process Management Journal* Vol. 17, No. 5, pp. 829-845

Venkatesh, V., Morris, M. G. and Ackerman, P. L. (2000) 'A longitudinal field investigation of gender differences in individual technology adoption decision-making processes', *Organizational Behavior and Human Decision Processes*, 83 (1), 33-60

Wallace, T., Bornstein L. and Chapman, J. *The Aid Chain: Coercion and Commitment in Development NGOs*. Warwickshire, UK: Practical Action Publishing, 2006.

WB & IDB, 2010, *Challenges in Monitoring and Evaluation: An Opportunity to Institutionalize M&E Systems*

WB, 2008, *The 12 components of a functional HIV M&E system*

Zhao, L. (2010). Study on Online Banking Adoption and Its Predictors. *Second International Conference on Multimedia and IT*, pp.155-158. (IJEDICT), 2012, Vol. 8, Issue 1, pp. 136-155

APPENDICES

Appendix 1: Questionnaire

STUDY QUESTIONNAIRE ON DESIGNING A FRAMEWORK FOR ADOPTION OF TECHNOLOGICAL INNOVATIONS IN M&E WITHIN NGOs

Dear Sir/Madam,

I am **VICTOR KIWUJJA** a Masters student at **Uganda Technology & Management University (UTAMU)** undertaking a **Masters in Monitoring & Evaluation (M&E)**. As part of the course, I am undertaking a research study on "**Designing a framework for adoption of technological Innovations in M&E within NGOs.**"

In this study, I would like to learn more about how organizations like yours have implemented technological innovations such as short messages (SMS) platforms, smart phones & tablets, M&E software, geographical information systems (GIS) & dashboards and how they manage M&E systems with these innovations in order to get insights on how other NGOs can adopt technological innovations in M&E to better their M&E process, program and systems.

Therefore I would like to hear from you about your organizational experiences and feedback about how the adoption of such technologies has been possible..

Please note that **ALL information you provide me with will be kept PRIVATE and CONFIDENTIAL. It will only be used for academic purposes.** Only the researcher involved in this study will have access to the information you provide me. This exercise is expected to take about **15-25 Minutes.**

Are you willing to give me feedback about these issues? No Yes

Demographic Information										
Your Name (optional):										
Your Organization:						Is it an NGO? <input type="checkbox"/> No <input type="checkbox"/> Yes				
When was your organization founded? <input type="checkbox"/> Less than 10 years <input type="checkbox"/> 10 or more years <input type="checkbox"/> I don't know										
Was your organization founded in Uganda <input type="checkbox"/> No <input type="checkbox"/> Yes										
Department <input type="checkbox"/> M&E <input type="checkbox"/> Program implementation <input type="checkbox"/> Administration & Finance <input type="checkbox"/> Others:										
Position: <input type="checkbox"/> Director <input type="checkbox"/> Manager <input type="checkbox"/> Coordinator, Officer, Assistant <input type="checkbox"/> Others:										
Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female						Age:				
Please rate how involved you are in Monitoring and Evaluation system of your organization										
Least involved 1 2 3 4 5 6 7 8 9 10 Most involved										
TECHNOLOGICAL CHARACTERISTICS										
What technologies have been adopted in the M&E system at Your organization										
<input type="checkbox"/> Smartphone/Tablets Use <input type="checkbox"/> SMS based system <input type="checkbox"/> Online M&E Surveys & Dashboards										

<input type="checkbox"/> Geographical information system (GIS, GPS) <input type="checkbox"/> Others: _____
<i>For each of the following statements, please indicate how it applies to your organization by ticking whether you agree or disagree with the statement in relation to the process you went through while adopting the above technological innovations</i>
We used this technological innovation because it was readily available . <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
Your organization used this technology because it was affordable <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
Your organization used this technology because it has less technical difficulty and risks in setting up and use <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
Because the technology has other functions than those for M&E <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
The benefits from this technology were a lot <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
Please describe any other factors related to the characteristic of the technology that enabled you to use it in M&E _____ _____
M&E CHARACTERISTICS
Our M&E system was designed by our donor and not our staff <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
The indicators that M&E tracks are very few <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
Most of our M&E indicators/data elements are quantitative <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
The technology favors the most important indicators <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
The M&E team learnt from our partner organizations that had adopted this same technology <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
Our Donor decided that we should use that technology <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
We had previously adopted another technology in M&E and therefore this was an addition <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
Please describe any other M&E factors that enabled you to use this technology in M&E _____ _____
Organizational Characteristics
Our organizational structure included a position that favored this technology e.g IT specialist <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
The leadership or directing team value M&E highly <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree
The leadership or directing team had a great interest in using this technology

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
There was a prior budget planned for using this technology in M&E				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
The organization did a good research about the benefits and limitations of this technology				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Our organization loves change and learning				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Our organization was scaling up (expanding) its program to other regions or countries				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Please describe any other organizational factors that enabled you to use this technology in M&E				

SKILLS AND EXPERIENCES

Our organization hired an expert to set up this technology				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Our partner organization supported us in setting up this technology				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Our staff and other users were specially trained and mentored in using this technology in M&E				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Some staff in the organization had used this or similar technologies before				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Our staff are used to changes				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
The M&E team supported the users of this technology frequently				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
There were additional personal benefit from using this technology that our staff enjoyed				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Our staff value M&E highly				
<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly Agree
Please describe any other personal factors that enabled you to use this technology in M&E				

STEP BY STEP PROCESS

Please describe a step by step process that your organization went through to use this technology in M&E				
1)				
2)				
3)				

4)
5)
6)

You are done with this interview, thanks for telling me about these Issues. For any inquiries, please feel free to contact me on

0773384364 or victor.kiwujja@student.utamu.ac.ug

Appendix 2: Key Informant interview

KEY INFORMANT INTERVIEW ON DESIGNING A FRAMEWORK FOR ADOPTION OF TECHNOLOGICAL INNOVATIONS IN M&E WITHIN NGOs

Dear Sir/Madam,

I am **VICTOR KIWUJJA** a Masters student at **Uganda Technology & Management University (UTAMU)** undertaking a **Masters in Monitoring & Evaluation (M&E)**. As part of the course, I am undertaking a research study on "**Designing a framework for adoption of technological Innovations in M&E within NGOs.**"

In this study, I would like to learn more about how organizations like yours have implemented technological innovations such as short messages (SMS) platforms, smart phones & tablets, M&E software, geographical information systems (GIS) & dashboards and how they manage M&E systems with these innovations in order to get insights on how other NGOs can adopt technological innovations in M&E to better their M&E process, program and systems.

Therefore I would like to hear from you about your organizational experiences and feedback about how the adoption of such technologies has been possible..

Please note that **ALL information you provide me with will be kept PRIVATE and CONFIDENTIAL. It will only be used for academic purposes.** Only the researcher involved in this study will have access to the information you provide me. This exercise is expected to take about **15-25 Minutes.**

Are you willing to give me feedback about these issues? No Yes

Demographic Information	
Your Name (optional):	
Your Organization:	Is it an NGO? <input type="checkbox"/> No <input type="checkbox"/> Yes

When was your organization founded? <input type="checkbox"/> Less than 10 years <input type="checkbox"/> 10 or more years <input type="checkbox"/> I don't know	
Was your organization founded in Uganda <input type="checkbox"/> No <input type="checkbox"/> Yes	
Department <input type="checkbox"/> M&E <input type="checkbox"/> Program implementation <input type="checkbox"/> Administration & Finance <input type="checkbox"/> Others:	
Position: <input type="checkbox"/> Director <input type="checkbox"/> Manager <input type="checkbox"/> Coordinator, Officer, Assistant <input type="checkbox"/> Others:	
Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female	Age:
Please rate how involved you are in Monitoring and Evaluation system of your organization	
Least involved 1 2 3 4 5 6 7 8 9 10 Most involved	
Why did your organization need to use technologies in M&E ?	

What technologies have been adopted in the M&E system at Your organization	
<input type="checkbox"/> Smartphone/Tablets Use <input type="checkbox"/> SMS based system <input type="checkbox"/> Online M&E Surveys & Dashboards	
<input type="checkbox"/> Geographical information system (GIS, GPS) <input type="checkbox"/> Others:_____	
Why did you choose this technology and not others?	

How was your M&E system (indicators and tools) designed to enable adoption of this technology	

How did the top management react when this idea was put forward?	

How did you get resources to adopt this technology	

Where and how did you get the skills that you needed to adopt this technology?	

Are there any organizational values that you feel favored adoption of this technology

How did the final users of this technology find it?

How did you manage to ensure that final users were able to use this technology

Lastly, Please describe a step by step process that your organization went through to use this technology in M&E

7)

8)

9)

10)

11)

12)

You are done with this interview, thanks for telling me about these Issues. For any inquiries, please feel free to contact me on

0773384364 or victor.kiwujja@student.utamu.ac.ug

Appendix 3: Proposed work plan & Budget

Activity	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Budget
Proposal development												100,000

Data Collection tools development, piloting & printing												384,000
Recruitment & training of data collectors												100,000
Data collection												750,000
Data Coding, Entry and cleaning												384,000
Data analysis												200,000
Report writing												300,000
Framework Evaluation												150,000
Defense of dissertation												50,000
Total												2,418,000