ADOPTION OF "BRING YOUR OWN DEVICE" AT THE WORK PLACE BY NON-GOVERNMENTAL ORGANIZATIONS IN KISUMU COUNTY, KENYA

BY

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DECLARATION

I declare that this research proposal is my original work and that it has never been presented to any other University or institution of higher learning for examination. The research proposal is an outcome of my own individual effort and where other people's ideas and work have been cited, they are acknowledged.

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This research has been submitted for examination with my approval as the University supervisor.

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Recognition to my lovely family who give me the inner push to work harder, my worthy friends who believed in my abilities and provided constant encouragement in the course of the study.

Special acknowledgement to my children who immensely encouraged and supported my educational pursuits.

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To all it's a big thank you.

DEDICATION

I dedicate this work to my lovely daughter Nicole who was eager to know what I was working on from time to time and my entire family for motivation.

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List of Abbreviations

BYOD – Bring Your Own Device

ICT – Information and Communications Technology

IT – Information Technology

NGO – Non-Governmental Organization

TAM – Technology Acceptance Model

UTAUT – Unified Theory of Acceptance and Use of Technology

IS – Information Systems

CEO – Chief Executive Officer

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ABSTRACT

In the recent past consumer technology has evolved faster than corporate technology. This has led to employees having gadgets with latest innovations and trends in the market. This trend commonly called, Consumerization of IT, has increased the urge for employees to carry their own gadgets to work for official use. This phenomenon called what is called Bring Your Own Device (BYOD).

This study sought for find how BYOD has been adopted by Non-Governmental Organizations (NGOs) in Kisumu County. Data was collected using a structured questionnaire from respondents randomly selected from employees who work with these NGOs. Data analysis was by using percentages, means, frequency. Data was represented by using charts, graphs and tables.

The results showed that employees use personal devices at work in these NGOs. Some of the NGOs have gone further to offer support for these personal devices with a few of them having a policy in place to guide its use. The main motivation for this is that employees already own suitable devices for their work.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Innovations originally meant for the consumer sector have increasingly found their way to workplace. Employees use the same devices both at home and workplace, a concept known as IT consumerization (Ingalsbe et al. 2011). As pointed out by Holtsnider and Jaffe (2012), consumerization of IT alters work procedures and IT services by having employees use one device in their daily activities both at work and home. Prior researchers have defined IT consumerization in varying ways. In study, I will rely on Niehaves et al. (2012) perspective of IT consumerization which is concerned with consumers using privately-owned devices for official work. The most common form of consumerization of IT is the use of private devices at work also known as Bring Your Own Device (BYOD) (Ingalsbe et al., 2011; Weiß et al., 2012). This discussion will primarily focus on the use of private devices at work.

This research will be guided by prior studies on adoption of technology. IS research theories premise that human beings, being rational, will consider outcomes of their actions before making a decision to act. These theories are built on a belief that a given behaviour will lead to a certain outcome. A Technology Acceptance Model (TAM) by Davis (1989), for instance, considers usefulness and usability as what will make an individual use a BYOD. The Unified Theory of Acceptance and Use of Technology by Venkatesh et al., (2003) similarly sees benefits and enabling conditions as reasons for one to choose BYOD.

Prior researchers have shown that personal devices and software are used for official work in organizations. Some organizations have embraced this idea and even pay for devices that employees choose or compensate employees for using personal devices (Vogel et al., 2010). Other organization have not fully accepted this concept and hence have no contingency measures in place. This causes a challenge in IT department in terms of security, ownership and control. This implies organizations must be proactively involved in BYOD concept to manage change and expectations (Weiß & Leimeister, 2012).

1.1.1 Bring Your Own Device

IT consumerization involves applications, technology and devices. When the device is the main focus, the concept is known as “Bring Your Own Device” (BYOD). BOYD may be implemented differently depending on the organization. An employee may be given money to buy the device in what is called “Choose Your Own Device” or be compensated for using personal device in what is called “We Sponsor Your Device” (Vogel et al., 2010). Whereas BYOD may be interpreted as employees being given money to purchase devices of their choice, this study will focus on IT providing access to corporate resources for employees’ personal devices whether provided or not.

IT departments usually buy standard equipment for ease of management and cost reduction. However, faster evolution of mobile equipment coupled with requisite business mobility makes it hard for organizations to keep up technological changes (Harris C. , 2012). There is also a paradigm shift where new technologies emerge in the consumer market as opposed to organizations. This makes employees frustrated by old technologies that their organizations keep using for longer periods (Niehaves, Köffer, & Ortbach, 2012). Employees believe devices they have and use on a daily basis will suit them better at work. Young employees want gadgets they can relate with in preference to those provided by the organization (Prensky, 2001). This has shaped the relationship between employees and organizations (Niehaves, Köffer, & Ortbach, 2012). Adopting BYOD implies firms open their networks to allow access to data by personal devices. Employees must accept policies for use of their devices at work to enforce accountability (Harris, 2012). In this regard, BYOD can be viewed as a service by corporate IT to facilitate interoperability of employees’ devices and the corporate infrastructure for business use. Organizations provide BYOD as a service by providing a model that allows employees use non-standardized devices at work (Loose, Weeger, & Gewald, 2013).

Organizations have to careful weigh their options before embracing this trend. There are opposing arguments on the benefits, costs and security implications of BYOD (Harris et al., 2012). Many scholars agree that organizations will likely benefit from this trend, but at the same time, IT departments may face challenges that can quickly get out of control. There is a thin line between managing corporate data on the

personal devices and breaching privacy. Security concerns and difficulties in getting support from the organization have been the main source of resistance to IT consumerization for a long time. Dean Evans (2015) found out that security risks emerge when corporate data is stored on an employee device that the organization has no control, especially when the device is lost. There is no clear line on data ownership on the personal device. According to Gatewood (2012) organizations are concerned about information security when employees use personal devices more than interoperability of these devices. However, increased demand for smart mobile devices at work by middle and top management is forcing IT department to embrace and support these devices without enough time to plan for it (Holtsnider and Jaffe, 2012). A study by Chellakari (2012) indicated that there is increased employee productivity and satisfaction. Workforce mobility brought on by BYOD is altering the traditional organization within the company. In this context, embracing BYOD can be considered as an organizational innovation. Damanpour et al. define organizational innovations as a means for creating changes in the organizations that strive to improve their performance level as result of managerial choices or imposed by an external source (Damanpour & Evan, 1984). BYOD is set to gain momentum with time (Fenn et al., 2011).

1.1.2 Non-Governmental Organizations in Kisumu County

Non-Governmental Organization's clear definition remains contested. However, NGOs have been seen as formations within civil society. Vakil (1997) defines NGOs as private, independent, not-for-profit organizations that seek to uplift lives of the less fortunate in society. NGOs in Kisumu County organizations generally engage in activities that alleviate suffering and promote common good like promoting interests of the less fortunate, environment protection, provision of social services and empower community (Cleary, 1997). They are highly flexible institutions taking a wide range of emerging ideas and expectations about social transformation and have wide spectrum of different values (Lewis, 2005; Morris-Suzuki, 2000). NGOs in Kisumu County have different roots based on the geographical and historical context and have specific features which differentiate them from other organizations (Stephenson, 2003). Being private and autonomous entities in their activities, these NGOs operate without direct governmental control, define their voluntary character,

do not seek political power and support development in line with their attributes (Schiavo-Campo et al, 2001).

This study will be carried within Kisumu County. Kisumu County a devolved unit of governance in Kenya. It is mapped out as the original Kisumu District with headquarters Kisumu town. Kisumu County hosts some of major world NGOs. It has over fifty NGOs mainly located with Kisumu town with field offices spread across the county. Some include Plan Kenya, Care Kenya, Concern Worldwide, World Vison Kenya, Impact Research and Development Organization, and SANA International. Their operations are mainly computerized and almost every staff using an ICT equipment in their daily work activities.

1.2 Research Problem

Most Non-Governmental Organizations in Kisumu County operate in remote areas due to their nature work. Mobility is not an option for their employees. Portability of tools of work makes personal devices preferred to traditional IT equipment. Most NGOs in Kisumu are not-for-profit and receive their funding from well-wishers, donors and governments (Willett, 2002). The future of an organization is never certain in the everchanging operating environment. For long term operations, an organization must create strategies for self-sustainability (Pearce and Robinson, 2003). Thompson and Strickland (2003) note organization's ability to adopt new practices in a fast-changing operation environment will help the organization remain in operations longer. There is always demand for better and more efficient use of resources that keep diminishing by NGOs. Therefore, an innovation that improves productivity, employee morale and flexibility as well as reduces costs will be highly welcome (Dell and Intel, 2011).

NGOs in Kisumu County continue to incur huge expenses in purchasing ICT equipment and software licenses. In addition, they have a problem of disposing these pieces of equipment once they become obsolete contributing to environmental degradation due to e-waste. These expenses could be avoided by allowing employees to carry their own device that they are familiar with and avoid duplication of devices as well as improve staff morale (Hopkinson & James, 2009). A Cisco's study on IT and business leaders revealed that 95% of organizations had somehow embraced used of private device by employees for business with 84% of them providing limited

technical support as well, and while 36% provide full support. An IT Manager's Survey by Intel in 2012 revealed that employees are not necessarily paid for using personal devices. The Survey further states that saving cost is not seen as a benefit and the primary barrier is regulatory compliance. A Chief Information Officers survey by Gartner (2013), predicted 38 percent of companies will no longer provide workers with devices by the year 2016 and half of employees will be using their own devices by 2017. Gartner (2013) found out that BYOD is more predominant large and medium organizations.

Studies by Mbalanya (2013) and Arwa (2014) have shown that organizations in Kenya allow employees to use personal devices for work even without authorization by management. Wangutusi (n.d) notes that despite lack of BYOD policy, many employees in Kenya were using private devices at workplace. Whereas previous studies focused on publicly listed firms, this one will focus on NGOs within Kisumu County. This research will fill the gap in answering the following research question: How have NGOs in Kisumu county adopted BYOD?

1.3 Objectives

The overall objective of the study is to establish the state of adoption of BYOD by NGOs in Kisumu County.

Specifically, the study seeks to:

(i) Establish the extent to which BYOD is being used by NGOs in Kisumu County
(ii) Establish the challenges associated with the usage of the devices
(iii) Determine factors affecting adoption of BYOD by NGOs in Kisumu County

1.4 Value of the study

BYOD is relatively a new concept with limited literature available. This concept is expected to grow with time as more young employees join NGOs. NGOs work in dynamic environment requiring quick response to environmental changes. Adopting new innovations is one of the ways to business survival and long-term operations.

NGOs in Kisumu County continue incurring costs in purchasing and maintaining corporate IT systems. Volatility in NGO funding and activities requires prudent management of resources. Staff motivation and mobility when using BYOD are seen as positive results. This study will help management decide if personal devices can leverage investments in IT systems as well improve overall efficiency in organization.

BYOD concept has a lot of ambiguities more so when dealing with security. For instance, it is not clear if then business data on the employee device being for business belongs to the employee. It is not clear where the boundary is on the level of control of these private devices by the IT department. This research seeks to find out challenges associated with this concept to aid crafting policies that will maximise benefits of BYOD.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter review past theoretical and empirical literature on adoption of BYOD in organizations. It will identify the key issues that determine acceptance as well as implementation of BYOD in organizations. The main focus will be analysing past literature that resolves around theories on how innovations are adopted and technology acceptance models. Additionally, it will look at common frameworks that prior researchers have developed relating to how IT innovations are adopted in organizations.

2.2 Theoretical Framework

Traditional technology has diffused from organizations to individual users. Recent years have seen this practice change and organizations are the ones to accept consumer technology. Today's users are smarter with technology and what to choose what is right for them both at home and work (Dell and Intel, 2011). Below are some of IS theories that earlier researchers have used to explain how technology is adopted.

2.2.1 Technology Acceptance Model

Technology Acceptance Model (TAM) theory bases it argument on usefulness and usability of BYOD as seen by an individual as a determinant to its actual use (Davis, Bagozzi and Warshaw, 1989). These two factors are influenced by political, social and cultural factors. Over time researchers have tried to modify TAM to include other variables (Venkatesh and Davis, 2000). Agarwal and Prasad (1998) added compatibility too TAM. A study by Chau (1996) added short term and long-term usefulness to TAM. A study Chau and Hu in 2002 combined TAM with peer influence. Franco and Roldan (2005) found out that usefulness and behavioural intention were magnified by a group of users with a similar goal. TAM has been tested, verified and replicated empirically with criticism on its narrow view (Gounaris & Kori-tos, 2008).

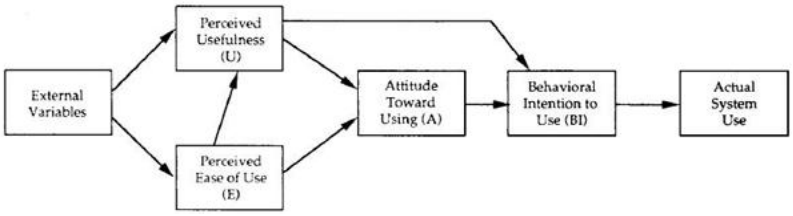

Figure 2.0.1 Technology Acceptance Model (TAM) by Davis (1989)

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

The UTAUT technology acceptance model was formulated in an effort explain user attitude towards an ICT innovation (Venkatesh, Morris, Davis, & Davis, 2003). This model combines eight other user acceptance models to give a better view of the of how users accept technology. This model uses four main concepts namely: performance expectation, social influence, effort expectancy and enabling conditions. These independent variables are indirectly influenced by gender, experience, age and volunteers of use. (Venkatesh et al., 2003)

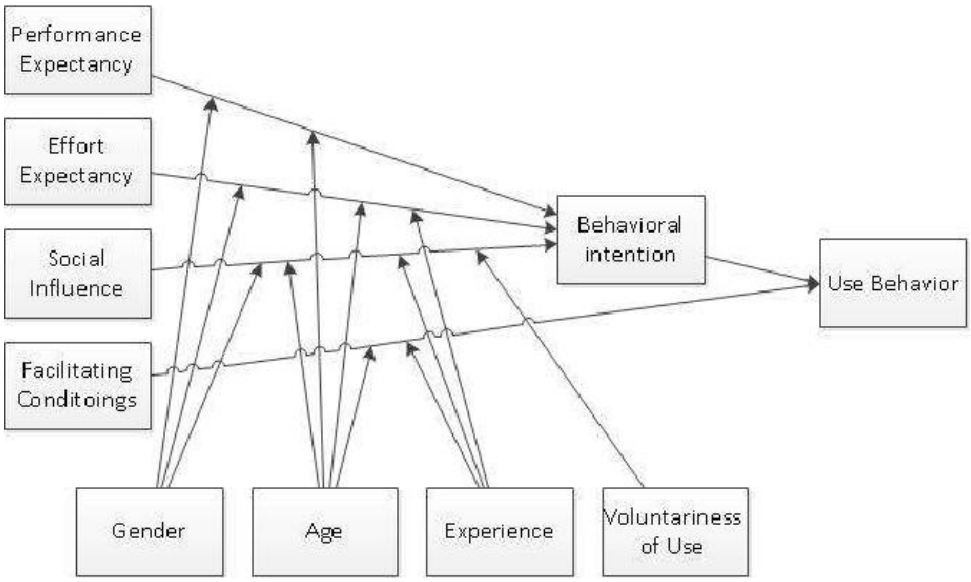

Figure 0.2.2 Unified Theory of Acceptance and Use of Technology proposed by Venkatesh et al. (2003)

2.2.3 Diffusion of Innovations

The model was introduced by Rogers (2003) regarding innovation acceptance. It states that a new idea spreads to its eventual users over time. Rogers (2003) indicates that users' ability to adopt a technology will depend on the knowledge users have about the technology in conjunction with other contextual factors. Diffusion of Innovations (DOI) is used to assess both individual and organization level of adoption

behaviour (Lai and Guynes, 1997). DOI is a widely used model and has helped in accelerating adoption by for identifying the main factors influencing innovation adoption (Rogers, 2003; Thong, 1999). Rogers (2003) suggests the likelihood of an innovation to succeed is determined by relative advantage, difficulty level, trialability, observability and compatibility. However, DOI seems to concentrate on individual characteristics and ignore other factors in the environment and organization that may as well affect adoption (Lee and Cheung, 2004). According to Brancheau and Wetherbe (1990) using DOI with other theories to will help in having a holistic view of the adoption process in organizations. DOI predicts that some categories of technology users are likely to embrace BYOD than others. This research will seek to identify employees' categories that adopt BYOD philosophy based on DOI theory.

2.3 Adoption of BYOD

In the past decade technology originated from enterprises to private households. But today, this has changed and consumers have the latest innovations on the market. There is also a shift in IT innovation from purpose and values to processes and practices (Andriole, 2012). These user-driven innovations led to the formation of IT consumerization, commonly referred BYOD (Ingalsbe et al., 2009). Andriole (2012) notes that employees come with experience they had with consumer technologies to their workplaces forcing their organizations to accept them. Today's employees are savvy about device portfolio on the market and want to choose what they feel suits them most to be productive rather than being given solutions by the IT department (Dell and Intel, 2011). Conversely, IT departments struggle to keep speed with changes constant changes in technology precipitating increased desire by employees to latest devices with latest technology to workplace (Monnappa, 2015).

Discovery of Blackberry introduced smart technology at work. Employees were given these smart devices to enable them work while away from office. The introduction of iPhone and Android changed course by enabling employees bring their own devices at work (Mansfield-Devine, 2012). BYOD concept revolves around smart devices but may as well include any mobile device purchased by the users and used for official work (Thomson, 2012). BYOD is implemented with varying levels of access and data storage (IBM Mobile - BYOD - Bring Your Own Device, n.d.). Bring your own device model requires a software to manage the devices that will connect to the

employer's infrastructure, a written policy outlining roles that will be played by the employer and the users in this arrangement. Users are expected to sign an agreement to acknowledge acceptance of the policy. (Berry, n.d.)

2.3.1 Benefits of BYOD

Consumerization generally leads to increased employee autonomy and independence. Workers with high technical competencies can earn more by making device and software decisions by their own as well as providing their own technical support (Harris et al., 2011; PWC, 2011). BYOD can mean more than increased productivity. Users having grown accustomed to their smartphones and tablets that are usually easy, efficiency and mobile find it much easier to work on their devices when they use familiar applications available of these devices. Users can also have time and space flexibility with these devices. Users can easily update smartphones and tablet software, customizing them to meet their needs something that they cannot do with corporate technology. Most of the time they have current and cutting-edge technology on their devices. This flexibility offered by BYOD makes employees work for longer hours because they work from any location at any time. (Sheldon, n.d.; Beauchamp, 2016). High level of user-friendliness in consumer products like intuitive operating concepts or appealing design has become the evaluation criteria for corporate technology as well (Weiß & Leimeister, 2012). Andriole states that "… there's a reverse technology-adoption life cycle at work: employees bring experience with consumer technologies to the workplace and pressure their companies to adopt new technologies" (Andriole, 2012).

BYOD can save some cost for the organization because employees not necessarily have to be paid for using their devices in place of those provided by organizations and the workers will need less training (French et al., 2015). BYOD can even minimize application costs because there are many free consumer applications like Evernote and Dropbox. Employees mostly pay for the data and voice services and will likely care more for these devices reducing support costs and improve security (Sheldon, n.d.). Organization can take advantage of newer, secure technology without incurring the high cost of upgrades (French et al., 2015).

2.3.2 Challenges of BYOD

There exist technologies that can support BYOD environment but organizations are yet to redraft their policies to safeguard information that reside on mobile devices that they don't control directly. Thus, security is the number one challenge in BYOD implementations. (Gatewood, 2012). Monnappa (2015) notes that BYOD environment employees use different devices making a uniform support system impossible. Thus, the support desk may have to incur more costs to support different models and version of equipment used (French et al., 2015).

IT department must deal with employees' privacy concerns when their organizations access personal data stored on these private devices. IT should strike a balance between protecting organization's proprietary information without breaching employees' privacy rights, which have proven to be a tough task. (Sheldon, n.d.) Consumerization makes IT department lose control. Employees take advantage of lack of clear policies to make decisions on technology (Harris et al., 2011; PWC, 2011). Companies are prone to knowledge loss when employee separate and are exposed to security risks. Gens et al (2011) notes that Chief Information Officers must craft strong strategies for adopting consumerization of IT if they have to tap its benefits.

2.3.3 Determinants of BYOD

Innovations meant for the consumer markets have increasingly made their way into corporate environment in the recent past. This has had an effect on corporate information management fuelled by emergency of new technologies like wikis, social media and blogs. Additionally, new technology has started emerging to consumers first meaning employees already have experience with the new innovation (Weiß & Leimeister, 2012).

Generally, IT departments rarely keep up with changes in technology. More so, new IT products and services initially introduced to individuals make staff feel inadequate with the technology at work (Weiß & Leimeister, 2012). Employees who have experience with ICT innovations used for private purposes want to have similar user experience in the corporate environment because they believe their infrastructure will fulfil their expectations (Holtsnider et. al. 2012; Finell 2010; Davenport, 2005).

The boundary between private and business life is continually narrowing driving employees, particularly the younger generation, to use familiar devices the already own in the business environment (Holtsnider and Jaffe 2012). Increased desire by middle and top management to use smart mobile devices like tablets has made IT department embrace these devices without proper planning (Holtsnider and Jaffe 2012). Current generation of employees want to work anywhere anytime. Study suggests increased mobility and flexibility lead to increased job performance and therefore adoption BYOD policy (Loose et al., 2013).

2.4 Empirical studies.

Prior researches have shown productivity as the main driver of the adoption of BYOD while compliance regulations and security concerns were the main barrier (Insights on the Current State of BYOD in Enterprise, 2012). BYOD leads to productivity gains with increasing workload (Ingalsbe et al., 2011; Niehaves et al., 2012). Employee satisfaction has been found to be the main benefit of BYOD due to consumerization of IT. Cost saving may not be a factor when implementing BYOD because the cost saved on devices may be incurred in extended support required by IT department. IT department suffers managerial challenges with regard to job descriptions. It is not easy to monitor data plan for personal and corporate use (Chellakari, 2012).

BYOD is driven by employees and thus empowers employees to control their work (Niehaves, Köffer, & Ortbach, 2013). It is argued employees are usually convinced that technology they chose will fit their knowledge and experience and satisfy their needs (Harris et al., 2011). IT department is forced to relax some of its restrictions to accommodate personal devices. As a result, an organizational is likely to suffer increased complexity, security breaches, less control and performance. According to Weiß et al. (2012), BYOD brings varying challenges to IT department that cannot be adequately addressed by IT management. Organization can expect significant savings from adopting BYOD (Ingalsbe et al., 2011). Schaller (2011) suggests organization should redraft their policies towards this phenomenon.

BOYD is mostly viewed as hardware and software on these personal devices. But in practice this trend alters business processes and practices. IT departments may be reorganized to lean structure or to reflect new support requirements for IT devices (Logan, Austin and Morello, 2004). Some studies have shown that BYOD introduces

competitive advantage because it introduces creativity and positively changes view of employees about the organization. BYOD devices does not necessarily eliminate traditional IT costs. Studies have shown that CEO are more positive about embracing BYOD based on perceived benefits as compared to IT executives (Harris C. , 2012).

Generally, organizations agree that BYOD is the future of IT although some entities especially Government departments see it as impractical. However, IT consumerization is still an evolving concept and its benefits are yet to be fully understood in different environments. (Vile, 2011).

2.5 Summary of Literature and Knowledge Gap

This chapter looked at IT consumerization as an IT innovation in organizations and examined the factors that determine how IT innovations are accepted in organizations. It looked at some of the publications and scientific researches on the topic many of which have yet been conducted in this area. Researches in this area have been mainly conducted by consulting firms giving descriptive and normative advice to executives. The chapter also looked at some of the issues in the adoption of BYOD. It also discussed some common theories that relate to innovation adoption as well user acceptance model. In addition, it looked at the different determinants illustrated in IT literature.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the methodology that was used in the study. It described the research design, population of the study, sample size, sample design, data collection method, and the data analysis techniques that were used.

3.2 Research Design

This study used the descriptive design with cross-sectional survey method as a method of collecting data. In this method, quantitative data was collected which was key in assessing how NGOs in Kisumu County have adopted BYOD. This method was selected because it best suited the objectives of this study.

3.3 Population of study

The population of the study was all NGOs registered and licensed to operate in Kisumu County.

3.4 Sample Design

There were 75 NGOs operating in Kisumu County as of 2018 according to NGOs Board. Sample size of ten of NGOs in Kisumu County was selected using simple random sampling. This technique was selected to give equal change to NGOs and reduce sampling error. Lottery method was used to achieve randomness.

3.5 Data Collection

Primary data was collected using a structured questionnaire. The questionnaire was filled by five management staff from each selected NGO. I used two methods to administer the questionnaire. First method was to drop and pick later for NGOs within Kisumu Central Business District. For NGOs in far places, I used Adobe forms and emailed them to interviewees who filled and send them back.

3.6 Data Analysis

Data analysis for was done using descriptive statistics. This included tables, frequency, charts and percentages to measure and compare outcomes.

CHAPTER FOUR: FINDINGS AND DISCUSSION

4.1 Introduction

This chapter looks at the analysis and findings of the research. Data was collected using questionnaires designed to satisfy then objectives of the study, focussing on the adoption of Bring Your Own Device by Non-Governmental Organizations within Kisumu County.

4.2 Response Rate

The target for this study was 60 respondents from ten NGOs within Kisumu county. The final questionnaire was presented electronically using Adobe forms as well as physically by the researcher and his assistant. A total of 38 filled questionnaires from all the ten NGOs that were sampled were returned making 63% of the respondents.

Response Rate	Frequency	Percentage %
Responsive	38	63
Non-Responsive	22	37
Total	60	100

Table 4.1 Response rate, Source: Survey data

The response rate of 63% met the required threshold to make good conclusions from the study based on Mugenda and Mugenda (2003) assertion.

4.3 Distribution of Respondents

The chosen respondents were in positions that allowed to be knowledgeable about Bring Your Own Device concept. Key attributes about the respondents were collected to understand their demographic characteristics. Most respondents were female making 53%.

Gender	Frequency	Percentage %
Male	18	47
Female	20	53
Total	**38**	**100**

Table 4.2 Gender spread; Source: Survey data

Majority of the respondents were graduate at 61% as show in the table below.

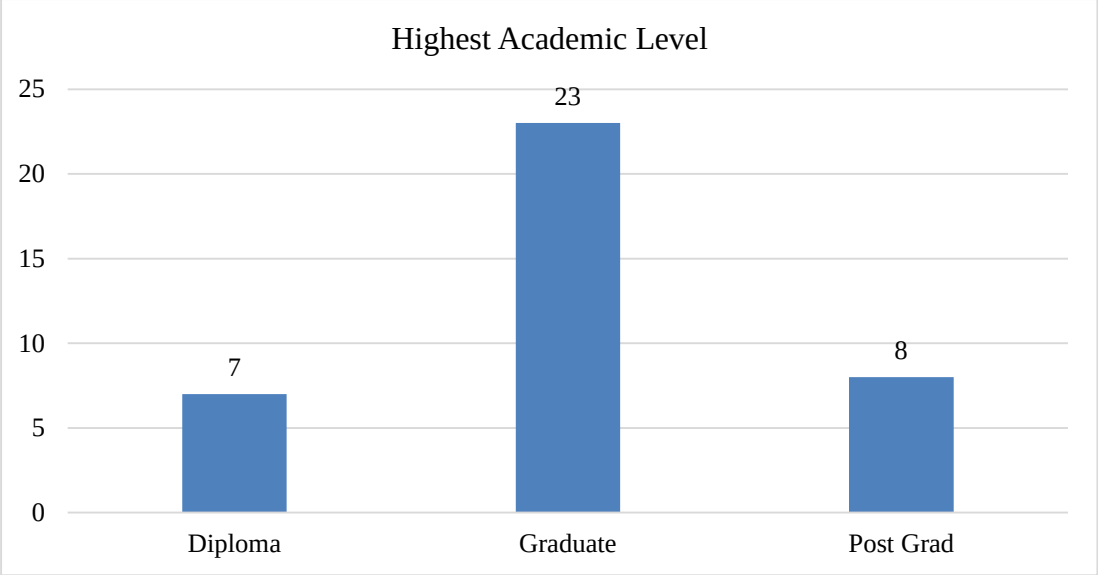

Table 4.3 Highest Level of Academic Qualification; Source: Survey data

Respondents were mainly made of adults above 35 years as show below.

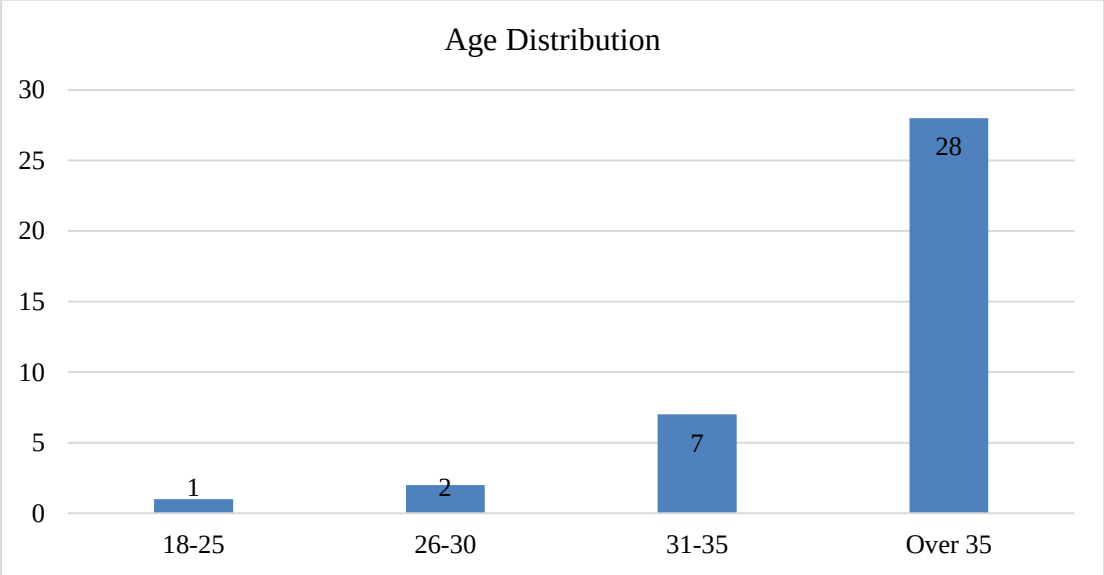

Table 4.4 Age Distribution; Source: Survey data

4.4 Adoption of Bring Your Own Device

The analysis found out that 84% of respondents use their own devices at work. Each of the respondent who use private device at work employed at least a smartphone making it the most used private device at 100%. This can be attributed to the fact that most respondents already own the smartphones and are portable. In most cases the organization usually provide laptops at workplace which makes it uncommon for employees to carry their laptops.

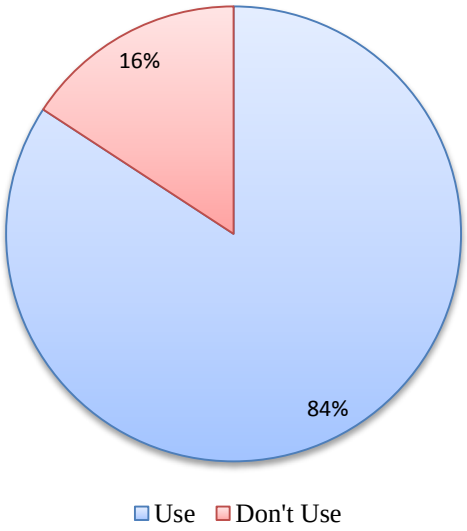

Figure 4.1 Use of Private Device at Work; Source: Survey Data

Device	Frequency	Percentage %
Smartphone	26	68
Laptop	12	32
Tablet	4	11
eBook reader	0	0
iPad	2	5
Other	4	11

Table 4.5 Device Use; Source: Survey Data

4.4.1 Use of Bring Your Own Device

Results show that 80% of organizations sampled have allowed Bring Your Own Device in some form. Only 16% of respondents admitted there exists a policy to guide Bring Your Own Device.

4.4.2 Extent of Personal Device Use

Extent of Use of Personal Devices at Work	Frequency					Mean Score	Mode	Standard Deviation
	Never	Rarely	Occasionally	Often	Always			
	1	2	3	4	5			
Sending and receiving corporate emails	12	4	8	10	4	2.31	3	1.41
Access company intranet	20	4	0	10	4	1.84	1	1.56
Reading and sending corporate social media updates	18	6	8	4	2	1.77	1	1.25
Access company extranet	24	4	2	6	2	1.54	1	1.33
Sharing office files	22	4	2	0	8	1.64	1	1.63
Storing corporate data	22	0	6	4	6	1.77	1	1.58
Accessing corporate enterprise resource planning software	18	8	2	6	4	1.81	1	1.44
Access payroll or HR related programs	28	2	4	2	2	1.36	1	1.18
Reading corporate documents	18	2	8	2	8	1.97	1	1.60
Perform offsite/cloud backup	0	0	0	2	0	4.00	4	0.00
Access to organizations Apps and Data	0	0	0	0	2	5.00	5	0.00

Table 4.6 Extent of use of BYOD; Source: Survey data

4.4.4 Challenges to use of Personal Devices

Challenges to Use of Personal Devices	Frequency					Mean	Mode	Standard Deviation
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree			
	1	2	3	4	5			
I have no support from IT for my private device(s)	12	0	18	4	4	2.31	3	1.30
My device(s) is incompatible with corporate	10	16	10	0	0	1.85	2	0.75

infrastructure								
My organization does not allow use of private device(s)	16	4	10	2	6	1.99	1	1.46
I am limited on the kind of services/data I can access with my personal device(s)	6	8	10	6	8	2.70	3	1.36
My device(s) lacks required security features	14	8	10	2	4	1.97	3	1.30
Form factor is not appropriate for intended corporate use	8	2	20	4	2	2.44	3	1.10
My device(s) lacks ability to support our enterprise applications	12	12	10	2	2	1.95	1	1.10
Legal requirements do not permit use of private devices	12	8	12	2	4	2.09	1	1.27
My device(s) can be accessed by other people	18	6	8	4	2	1.77	1	1.25
It is sometimes difficult to manage my device within my organization	0	0	0	2	0	4.00	4	0.00
Unauthorized sharing of data on my devices	0	0	0	0	2	5.00	5	0.00

Table 4.7 Challenges to Use of Personal Devices; Source: Survey Data

4.4.3 Determinants of Bring Your Own Device

Determinant	Frequency	Percentage %
Time and space flexibility	8	21
My organization has a policy that encourages BYOD	6	16
I already own the device suitable for my work	12	32
ICT department provides support for BYOD	10	26

Table 4.8 Determinants of Bring Your Own Device; Source: Survey Data

4.5 Discussion

Bring Your Own Device has gained momentum globally in the last few years as depicted in the literature review. This phenomenon has been confirmed locally by Arwa (2014) . A study by Etale (2013) found out that smartphone and iPads were the used devices in BYOD.

This study found out personal smartphone , laptops, tablets, iPads and desktops are used at work by 78% of repondents. However smartphone is the leading personal device used at work at 68%. Respondents who carry personal devices to work (32%), do so because they already have a device they believe suites their work and a further 26% have support from ICT department. Despite many respondents using personal devices at work and getting support from ICT department only 16% of them admitted their organizations have a policy in place to guide this practice.

Analysis of the respondents reveals device compatibility is not a challenge when using personal device at work although 10% of respodents said their devices do not support enterprise applications. This could be attributed to the fact that many enterprise systems are used for along time before new technology is embraced.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on the summary of the findings and recommendations from data analysis.

5.2 Summary of findings

It is clear NGOs in Kisumu County somehow allow use of personal devices for work and some go further by having ICT department support these devices. However, a few have formalized the process by having a policy in place to guide adoption of BYOD. The main factor in using private device at work place came out as employees already owning devices they feel are suitable for their work.

5.3 Conclusion

BYOD is a concept that has taken roots in organizations and employees are well versed with it. Organizations needs to embrace this trend and put in measures to streamline its use to enjoy it benefits. This study found out that 32% of respondents have devices that suites their work while a 26% of get support from ICT departments implies NGOs can take advantage of personal devices and make a saving on their investments by allowing employees to use their own devices with appropriate guidelines. Only 16% of NGOs had a policy in place to guide the use of personal devices at work. This makes them face risks that they may not be prepared. More effort needs to be put in place by NGOs to manage BYOD concepts.

5.4 Recommendations

This research shows that BYOD has already taken root in NGOs in Kisumu County. Thus, NGOs should be proactive in taking measures that will guide the use of personal devices at work. Since only 16% have a policy in place from the study, this leaves the use of personal devices at work to be guided by employees' intuition on how to use the device and how to manage office data on these personal devices. NGOs should take necessary steps to avert risks that they may face with the lack of BYOD guidelines. In light of the COVID-19 pandemic, more employees have been forced to use their personal devices without time for planning by NGOs. This calls for urgent and speedy actions by NGOs to manage this trend because it is widely in use.

5.5 Limitations of Study

This study focussed on employees' perspective on how NGOs in Kisumu County have adopted BYOD. Management perception was not directly measured in this study. Furthermore, circumstances that force employees to use their devices, for example being force to work from home due to a pandemic or floods, were not directly measured.

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APPENDIX 1

Sample Questionnaire

Dear Respondent,

My name is John Kutoto Fokisi. I am a post-graduate student at University of Nairobi conducting a research on "The Adoption of Bring Your Own Device at Work place by Non-Governmental Organizations in Kisumu County, Kenya" as a partial fulfilment of the requirement for award of Master of Business Administration. I wish to request your participation in this research for approximately fifteen minutes. The information requested is needed purely for academic research purpose and will therefore be treated with utmost confidentiality. I will appreciate your response coming through on or before October 20th, 2019. Kindly tick appropriately the options as guided. Thank you in advance.

SECTION A

1. Please select your age category
   a. 18 - 25 years ( )
   b. 26 – 30 years ( )
   c. 31 – 35 years ( )
   d. Over 35 years ( )
2. What is your highest academic qualification?
   a. Diploma ( )
   b. Graduate ( )
   c. Post graduate ( )
   d. Other (Please specify) ……...……..…
3. What is your gender?
   a. Male ( )
   b. Female ( )
4. Organization name: ……..……..
5. Your department……..

6. Number of employees in your organization
   a. 0 - 500 ( )
   b. 501 – 1000 ( )
   c. 1001 – 1500 ( )
   d. 1501 – 2000 ( )
   e. 2001 – 2500 ( )
   f. Over 2500 ( )
7. Ownership:
   a. Local ( )
   b. Foreign ( )
   c. Both (local and foreign) ( )
8. Do you use personal mobile device at the work place? If No, skip the next question
   a. Yes ☐
   b. No ☐
9. Please select the personal device(s) you use. (Tick all that apply)
   a. Smartphone ☐
   b. Laptop ☐
   c. Tablet ☐
   d. eBook reader ☐
   e. iPad ☐
   f. Other (Specify)……..

SECTION B

On a scale of 1-5, please indicate by ticking extent to which you use your personal device(s) for activities listed below.

(1- Never, 2- Rarely, 3- Occasionally, 4-Often, 5-Always)

	1	2	3	4	5
Sending and receiving corporate emails					
Access company intranet					
Reading and sending corporate social media updates					
Access company extranet					
Sharing office files					

Storing corporate data					
Accessing corporate enterprise resource planning software					
Access payroll or HR related programs					
Reading corporate documents					
Any other (please specify and rate)					

SECTION C:

On a scale of 1-5, please rate how the following are challenges to the use of private device at work

(1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree)

	1	2	3	4	5
I have no support from IT for my private device(s)					
My device(s) is incompatible with corporate infrastructure					
My organization does not allow use of private device(s)					
I am limited on the kind of services/data I can access with my personal device(s)					
My device(s) lacks required security features					
Form factor is not appropriate for intended corporate use					
My device(s) lacks ability to support our enterprise applications					
Legal requirements do not permit use of private devices					
My device(s) can be accessed by other people					
Any other (please specify and rate)					

SECTION D:

What determines your usage of BYOD in your organization?

1. Time and space flexibility ☐
2. My organization has a policy that encourages BYOD ☐
3. I already own the device suitable for my work ☐
4. ICT department provides support for BYOD ☐

APPENDIX 2

Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 499352

Date of Issue: 18/March/2020

RESEARCH LICENSE

This is to Certify that Mr.. John Fokisi of University of Nairobi, has been licensed to conduct research in Kisumu on the topic: ADOPTION OF "BRING YOUR OWN DEVICE" AT THE WORK PLACE BY NON-GOVERNMENTAL ORGANIZATIONS IN KISUMU COUNTY, KENYA for the period ending : 18/March/2021.

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