# WIRELESS NETWORK UPTAKE AND ORGANIZATIONAL PERFORMANCE OF UNDEVOLVED GOVERNMENT MINISTRIES IN MACHAKOS TOWN, KENYA

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## DECLARATION

I understand that plagiarism is an offence and I therefore declare that this project report is my original work and has not been presented to any other institution for any other award.

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## DEDICATION

This research project is dedicated to my two dear children Mercy and Enoch Mulwa and to my dear husband Patrick Mulwa for their continued encouragement, prayers and support throughout my study period.

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## ABBREVIATIONS AND ACRONYMS

| | | |
|---|---|---|
| **E-mail** | **:** | Electronic Mail |
| **FPW** | **:** | Free Public Wi-Fi |
| **ICT** | **:** | Information Communication Technology |
| **IT** | **:** | Information Technology |
| **Laptop PC** | **:** | Laptop Personal Computer |
| **LAN** | **:** | Local Area Network |
| **M-business** | **:** | Mobile Business |
| **MDAs** | **:** | Ministries, Departments and Agencies |
| **NACOSTI** | **:** | National Commission for Science, Technology & Innovation |
| **PCs** | **:** | Personal Computers |
| **PIDEN** | **:** | Portable Information Devices and Electronic Networking |
| **SME** | **:** | Small and Medium Enterprise |
| **TV** | **:** | Television |
| **WAN** | **:** | Wide Area Network |
| **Wi-Fi** | **:** | Wireless Fidelity |

## OPERATIONAL DEFINITIONS OF TERMS

**Accessibility:** This refers to the ability to make information or activities sensible and meaningful for use by as many people as possible (Doherty, 2021).

**Employee Skills:** These are the principal or basic skills and characteristics that are needed at the work place. They are the general skills that make one desirable to an organization (Poister, 2015).

**Government Office:** This is an office in the national government, county government or in the public service, where payment for services rendered, and gains of the office are paid out of money provided by parliament (Constitution of Kenya, 2010).

**Lower level management:** This is the last level in an organization hierarchy which acts as a connection between the management and the operational labours, and mostly performs supervisory and inspection activities so as to control them (Noe et al, 2019).

**Management Support:** This refers to the things that an employer does in order to enhance the productivity of an employee in an organization (Poister, 2015).

**Middle level management:** The middle level management is subordinate to the top level management but is above the lower level management, and provides guidance to lower level staff (Noe et al, 2019).

**Network:** This refers to a group of two or more wireless devices which have the ability to commune with each other in the absence of centralized administrators (Cruz & Ortiz, 2017).

**Network Uptake:** This is the act of taking up and using of available networks. It also incorporates the rate of accepting the networks usage (Petri, 2018).

**Organization:** This is a group of people, who are methodically arranged according to a plan, and run to fulfil a requirement or to pursue common goals in a continual manner (Poister et al, 2015).

**Organizational: Performance** This refers to the degree to which an organization, with some informational, financial and human resources, positions itself effectively on the business market (Eleonora, 2020).

**Performance**: This is the achievement of a specific task which is calculated against predetermined known standards of accuracy, completeness, cost, and speed. It is the fulfillment of an obligation, that releases the performer from all liabilities under a contract (Poister et al, 2015).

**Rate of Usage**: This is the measure of a particular amount of a product consumed by a user in a given period of time (Doherty, 2021).

**Top level management:** This refers to the persons and teams who are charged with making primary decisions within an organization and are usually at the top of the corporate hierachy and carry a level of authority which is higher than the other levels (Noe et al, 2019).

**Undevolved government: office** This is where statutory delegation of power remains with the central government and there is no transfer of power to any regional administration (Devolution Handbook, 2014).

**Wireless Networks:** Wireless Networks is the conveyance of information or power amid two or more points which do not connect together through an electrical conductor. In actual sense no physical connection is seen with the natural eye since it is a wireless connection (Petri, 2018).

## ABSTRACT

The world is in the midst of rapid, revolutionary and often disruptive technological breakthroughs. Advances in artificial intelligence, 3D printing and wireless networks are transforming institutions and societies, with unfolding and often unforeseen consequences. The wireless network revolution has transformed the organizations performance with unprecedented speed and scale, delivering real-time data. The general objective of this study was to establish the effects of Wireless Networks Uptake on Organizational Performance in the undevolved government ministries in Machakos town, Kenya. The study was guided by the following specific objectives; to determine influence of wireless networks accessibility, the rate of usage, staff skills and management support on organizational performance in the undevolved government ministries in Machakos town. To achieve the objectives, 96 respondents were selected and questionnaires issued. Pearson correlations and ordinal regression models were applied in data analysis and inferences. Based on the study findings, wireless network staff skills and the wireless network accessibility at the work places were the main influential factors that affected the undevolved governmental ministries rating performance significantly. Every extra skill on Wi-Fi was expected to increase the ministry's ordered log-odds by 1.613 on average holding all the other factors constant. The staff who trained on Wi-Fi network were 5.018 times more likely to operate at a higher performance than those not trained, 66(71.74%) of respondents stated that, the wireless network usage enabled daily timely completion of tasks. Each of the predictor variable; the wireless network accessibility, Wi-Fi usage rate, Wi-Fi staff skills and the management support on wireless network utilizations had a positive relationship with the ministries' performance with Pearson Correlation values of 0.199, 0.205, 0.263 0.063 respectively and the p-values (2-tailed) of 0.005, 0.025, 0.035 and 0.525 respectively. However, the management support was not significant at $\alpha = 0.05$. The wireless network accessibility, Wi-Fi usage rate and the Wi-Fi staff skills were also significant predictors in the univariate ordinal regression analysis. However, in the multiple ordinal regression model only wireless network staff skills and the wireless network access variables were significant at $\alpha = 0.05$. Since staff training on Wi-Fi and its access featured as the principal driving force and central to effective and efficient duty performance, incorporation of wireless network skills in the curriculum of training institutions, induction manuals and provision of multiple channels and ample wireless network coverage within the work stations were recommended. Similar research but at different counties and institutions, to ascertain the results validity, reliability and the generalizability of the study was recommended for further research.

# CHAPTER ONE

## 1.0 INTRODUCTION

This chapter comprises of the background of the study, statement of the problem, objectives of the study and research questions. It also comprises of the justification of the study, limitations, scope of the study and assumptions.

## 1.1 Background to the Study

The study centered on demonstrating the effect of wireless network uptake on organizational performance in undevolved government ministries. The background of the study covered the evolution of wireless networks, use of wireless networks, wireless uptake in organizations both globally and locally, and also shows how organizational performance relates to the study.

### 1.1.1 Evolution of Wireless Networks

Since the revelation of electromagnetic waves not more than 50 years ago, the use of wireless communication has revolutionalised people's lives and changed their course of history. This is according to Petri (2018) in his study on the evolution of wireless networks. The researcher further affirmed that before the emergence of wireless networks there had been the coming into existence of radio and television broadcasting, along with radio navigation, later the rise of satellite communications leading to the evolution of wireless home networks and finally the increase of modern cellular technologies. Ortiz and Cruz (2017) described mobile network as accumulation of two or more wireless devices with the potentiality of communicating with each other with no assistance of any centralized administrator. The authors unearthed that these wireless networks do not have fixed routers, and that their nodes can be connected dynamically in an arbitrary manner.

Obi and Iwasaki (2015), in their study on e-government rankings, determined that e-government is faced with more difficulties than the private sector, and that the capacity of its human resource is directly associated with the benefits of employing Information Communication Technology (ICT) particularly for delivering e-services and offering

communication among the government and people. Obi and Iwasaki (2015) further ascertained that while a number of countries are now changing over from e-government to digital government, there still is sizeable disarray on what precisely this outcome depicts. The authors affirmed that e-government was from the start formed as a way of making use of the internet and other ICT to give current government services more effectively whereas e-government was taken to mean where relatively a great number of the citizens in numerous countries own and carry with them a smartphone, tablet or other internet connect device all day.

### 1.1.2 Use of Networks

Networks are specialized to handle one kind of data (keystrokes, voice or video) and typically connect to a special-purpose device (terminal, hand receivers and television sets). Computer Networks are built primarily from general purpose programmable hardware, and are able to carry many different types of data which support a wide ever-growing range of applications (Larry and Bruce, 2019). The authors further determined that it has become increasingly important to understand how computer networks are operated or managed. With the current proliferation of smartphones, the current generation is able to develop networked applications than in the past (Larry et al, 2019). Internet users represent the largest class of people who interact with the internet. The authors found that there are those who create applications, those who operate or manage networks (mostly behind the scenes job) and those who design and build the devices and protocols that collectively make up the internet (Larry et al, 2019). It is worth noting that wireless technologies differ from wired links in some important ways, while at the same time sharing many common properties.

A study carried out by Pundalik et al (2023) showed that one special feature of wireless networks is their capacity to keep people in contact even when they switch locations. The world has changed significantly as a result of wireless networks since they have made it much easier, reliable and efficient to transfer information from one area to another. The authors further affirmed that by sending and receiving data over the air through a wireless media, a wireless network is a flexible data communications system that lowers the need

for physical connections. Pundalik et al (2023) confirmed that owing to the recent developments in wireless networks and technology, the great majority of wireless devices in use today are able to connect with ease. Wireless networks transfer information between locations using electromagnetic waves without requiring any physical connections. Pundalik et al (2023) further confirmed the importance of wireless networks as being able to connect to several computers in a given area without the use of a physical cable. Besides being more productive, convenient and cost effective as compared to traditional wired networks, wireless networks are also mobile, simple to install, easy to keep adding more network sites, flexible and have been found to have a cheaper life span (Pundalik et al (2023).

### 1.1.3 Organizational Performance

Performance management is now a duty for most governmental and non-governmental organizations and in many countries, legislation and cabinet level entities have been made to reinforce it. Poister, Aristigueta and Hall (2015) in their study on organizational performance further learned that performance measurement consists of day-to-day measurement of the outcomes and efficiency of services or programs and that it is also the organized regulated collection of quantitative data on laid key indicators of organizational performance. Organizational performance is the analysis of a company's performance in comparison to the achievement of its goals and objectives. It consists of the real outcome of an organization as calculated based on its premeditated outputs. This means that all staff in the undevolved government ministries in Machakos town have a vital role to play if their organizations are to achieve their intended output.

A study carried out by Cascio and Montealegre (2016) showed that ICT is moving towards a fresh level which is founded on ubiquitous computing whose thought relate to a situation in which computational technology penetrates almost everything hence making people able to access and command their environment anywhere at any time. Cascio et al further noted that computer networks enable workers to perform their duties from their places of work, their homes and anywhere making them to end up getting together with new acquaintances,

be in new places which they have not been before and generally be able to stay connected to their offices anytime while being anywhere.

### 1.1.4 Wireless Uptake in Organizations Globally and Locally

Wireless Fidelity (Wi-Fi) has turned out to be of great importance in our daily lives with over a billion Wi-Fi access points connected to billions of devices such as smart phones, tablets, laptops, desktops and other user devices to the internet to make it possible for millions of applications to get to all people in everyplace (Kaveh and Prashant, 2021). The authors noted that in recent decades, the world is experiencing the beginning of the information age and the third industrial revolution, wireless access which has enabled a lot of innovations in the cyberspace applications leading to a significant impact in how people live, contact their businesses or even interact with the world. According to Rani et al (2020), the world of wireless telecommunications is changing quickly with the wireless industry seeing a new growth in the last few years with diverse generations being formed.

A study carried out by Muhammad (2022) defined wireless networks as the process of connecting people and nations, making the world a global village. The study defined a decade long revolution of wireless networks from the year 1980 to 2001 giving it the name first and second generation. The third and fourth generation networks started from 2015 onwards which unprecedentedly altered the global digital outlook making the world to be globally accessible from anytime at anywhere owing to the presence wireless networks. The fifth generation was found to provide more indoor coverage with enhanced signal proportion capabilities and energy efficiency. From this study, a densely connected world (through high-speed wireless and fully automated) appears to be a dream that must still come true. This study found that the global smart city is a new paradigm that has emerged with the massive growth internet of things that involves intelligent and smart connected devices. The idea of the smart city revolves around densely connected and automated-artificial intelligence-powered digital services in the urban life. The aim of the smart city massively utilizes digitalization through wireless networks in order to ease urban living (Muhammad, 2022).

A study carried out by Samphati, Imali and Chathurika (2023) asserted that with the ever-growing demand for wireless access, different generations of mobile communications have been developed, with increased and novel capabilities. The wireless local area networks market place was dominated by Wi-Fi in the early 2000s. The study found that in order to meet the service requirements of sixth generation by 2023, it becomes important to exploit the capabilities of wireless local area networks. Samphati et al (2023) further affirmed that the massive growth of emerging technologies is one of the key drivers behind the evolution of communication wireless networks and their capabilities. Emerging technologies continue to grow across diverse fields and facilitate a variety of services that benefit all kinds of end users. With the development of the fifth generation networks, wireless networks are highly defined by the services they offer, rather than the underlying technologies. In the sixth generation however, the definition of the wireless networks is further attached to a broader set of services and requirements (Samphati et al, 2023).

The primary justification for the sluggish uptake of mobile internet in Africa is the high cost of broadband data, which is still prohibitive especially for the poor. This is according to Skouby and Williams (2014) in their study on the African mobile story. The authors in their review cited Nigeria as one of the most populous countries in Africa with one of the fastest growing mobile market due to its high population of potential subscribers to reach to. For this reason, Skouby and William (2014) asserted that connectivity in Africa is growing due to the increasing deployment of mobile broadband services.

A study carried out by Kenechi (2022) showed that in Sub-Saharan Africa, 40% of the adult population are now connected to mobile internet services. However, the study further showed that another 44% live in areas covered by mobile broadband networks but do not yet use mobile internet services. The main barriers to mobile internet adoption were found to be affordability and lack of digital skills which should be made a priority by stakeholders in order to realise the potential of mobile connectivity which in turn will lead to economic growth and development in a post-pandemic world (Kenechi 2022). The study hoped that by end of year 2021, 515 million people should have subscribed to mobile services in Sub-Saharan Africa, representing 46% of the population which amounts to an increase of almost

20 million in 2020. The study further hoped that this subscription would increase by nearly 100 million by the year 2025. Sub-Saharan demography with a sizeable proportion of the population under the age of 18 means that the subscriber growth would remain strong for the foreseeable future as young consumers move into adulthood and are able to subscribe to mobile services and make use of wireless networks (Kenechi (2022).

The realization of e-government in Kenya has become one of the chief priorities of the government of Kenya in realising national development goals and objectives for material resource and for establishment of employment opportunities, as specified in the Kenya vision 2030 (Obi and Iwasaki, 2015). The authors ascertained that the Kenyan government is taking the initiative to put content in digital form, digitize content and provide services online and has through its e-government portal been able to offer basic online services to its citizens.

The Government of Kenya (2019) on its study of uptake of ICT and mobile telecommunications identified that Kenya has made enormous steps in encouraging the uptake of ICT services and that mobile telecommunications constituted about 44.1 million subscriptions for a collection of over 46.4 million people. The study noted that the digital divide should be looked at if all Kenyans are to take part actively in the knowledge economy. In some parts of the country for instance, such as Turkana, Mandera and Tana River, the uptake seemed far low with people walking to over 2km to access mobile cellular signal.

After fibre optic cables were introduced in Kenya, the internet access point of Kenyans began moving from cyber-cafes to mobile phones, with the devices being readily available and within reach, with greater ability to make use of, and connect to the internet (Ndemo and Weiss, 2017) in their study on fostering innovation. One of Kenya's big attainments is the new uptake and use of mobile services. The ICT revolution is a global and competitive phenomenon that leading to a new standard of creativity and innovation in nearly every part of the world. When historians write Africa's digital story, Kenya will most likely be given a high ranking of ICT revolution in the world (Ndemo et al, 2017).

The authors further confirmed that with the creativity and innovation going on, Kenya is witnessing a great shift. The authors affirmed that arguments as to why a country would or would not seek an ICT-enabled transformation will not arise. Ndemo et al 2017 confirmed that ICT can network actors and organizations across sectors and regions through wireless networks. Through wireless networks, Kenya has successfully grown its businesses through a number of operations (Ndemo et al, 2017).

A study carried out by the Communications Authority of Kenya in 2015 found that life has been made easier by the use of internet. The e-citizen platform has simplified lives for Kenyans who had to previously queue at government offices to look for files that were in most time missing. The increased internet penetration and wide use of wireless networks can be attributed to the shift in the manner in which government services are offered. Government services have slowly found their way into the e-platforms thereby helping reduce lead time and improve efficiency in offering these services. A study carried out in 2016 on various public institutions affirmed that learning institutions led in offering e-services with 74.3% being offered over the internet. Hospitals were found to be the public institutions with least services offered on the internet with only 24.7%. The e-commerce business environment in Kenya was thus found to be influenced directly by the increase in internet access within the country (Communications Authority of Kenya (2015).

### 1.1.5 Profile of Machakos Town Undevolved Government Ministries

All sectoral Ministries, Departments and Agencies (MDAs) of the national government contribute to the county governance and service delivery through rendering services based on their prescription, and national ministries are needed to give technical aid and aid the improvement of county governments' capacity (The County Governance Toolkit, 2020). The County Governance Toolkit (2020) further established that almost all national MDAs have deconcentrated structures at the county and sub-county levels – that is staff consecrated to and/or offices found in every county. To guarantee appropriate joint effort of all national government activities at the county level, the President – or the Cabinet Secretary in charge of national co-ordination appoints County Commissioners whose core

responsibility among others include coordination of National Government roles and service delivery.

A paper on Machakos County Integrated Development Plan (2015), noted that mobile network coverage within Machakos town was greatly on the rise with only a few areas known to have poor network. The improved network has influenced performance in that it has made work easy and enabled workers spare effort to accomplish other tasks. Land line connection and its use was found to be on the decrease, especially due to internet usage being the chief source of communication on the rise.

### 1.2 Statement of the Problem

In recent past, the work place has drastically changed. Life at the work place was one big slow pace. To conduct any business, people had to physically move from one place to another in order to transact. One had to physically be in an office to have a document done, and handed out for delivery using physical means. As seen in the background study, land line connection and its use has greatly been found to be on the decrease given that the usage of internet as the primary origin of communication is increasing, and that improved internet network has influenced performance by making work easier.

From the Machakos County Integrated Development Plan of 2018 - 2022, on the statistics gathered from the County's plan and on its objective of ensuring handiness of obtainable, adequate, dependable and inexpensive ICT services in the County, the key performance indicators showed that in 2018 there were only 3 offices installed with Local Area Network, there was no free public Wi-Fi access centres and no ICT policy in place. The government had a plan of increasing the number of government offices installed with Local Area Network from 3 to 18 in 2019, add 6 more in 2020 to give a total of 27 by the year 2022. The government also had a plan of installing 7 free public wifi access centres by the same period thus generally improving network connectivity and increasing internet coverage within the County. From the Machakos County Integrated Development Plan of 2023 – 2027, the ICT sub sector had improved the proportion of LAN connectivity from 70% to

95%. As at the same period, there was now an ICT policy in place thus confirming that there was general improvement in the ICT sector.

A research done by Okeyo & Kioko (2017) ascertained that many county governments are confronted with several challenges in efficiency and effectiveness due to poor levels of ICT infrastructure and that this has led to poor service delivery causing important services to take too long. Okeyo & Kioko further affirmed that inadequate and insufficient ICT facilities have given rise to pitiable degree of consciousness of internet facilities in the midst of policy makers, and inferior state of computer proficiency and ICT knowledge. The study established that management support and commitment play a crucial role in any initiation and adoption of ICT related programmes. The results of the study also determined that government regulatory framework had a positive and significant effect on the ICT integration and use. Okeyo & Kioko's study further established that failure to make effective use of technology manifests as a result of absence of coordination at different levels of the government.

A report done by the Machakos County Government in November 2015 on ICT road map for the years 2015 - 2020 showed that there is need to avail services online in Machakos to enable citizens access and pay for government services online. The report also identified that the levels of ICT skills among the staff was low and that there were no ICT strategies and policies. The government hoped to address the above weaknesses in its road map for the year 2016 - 2020. Since this presents an unresolved problem, organizations had to embrace the uptake of wireless network uptake to improve their organizational performance.

Organizations belonging to the government in the world are faced with various difficulties as administrative, executive and judicial bodies keep on evolving into a digital working environment (McNabb, 2015). The author in his study on knowledge management in the public sector ascertained that nowadays people can receive calls at the comfort of their homes/offices any time and that businesses are conducted online with payments being done

online too. In the current modern office, one can type a document, sign it electronically, email it to its destination via a wireless network, and have it received almost immediately. Some studies were undertaken in the area of uptake of information technologies and employee or organizational performance in different organizations and sectors, which include research done by Okeyo & Kioko (2017) who focused their study on the Uptake of Information Communication Technology in Machakos County in Kenya. Rezaei, Zare, Akbarzadeh, & Zare (2014) also did their study on the Effects of Information Technology (IT) on worker productiveness in Shahr Bank, which was a case scenario of Shiraz in Iran. However, these studies provide quite insightful and useful information, none has studied the effect of wireless networks uptake on organizational performance in government organizations. Therefore this study aimed at establishing the effect of wireless networks uptake on government Ministries/organizations performance, specifically the undevolved government ministries within Machakos town.

## 1.3 Objectives of the Study

### 1.3.1 General objective

The main objective of this study was to establish the effect of wireless networks uptake on organizational performance in the undevolved government ministries in Machakos town.

### 1.3.2 Specific objectives

The specific objectives of this study were:

i. To determine the influence of accessibility level of wireless networks on organizational performance in the undevolved government ministries in Machakos town.
ii. To assess the influence of the rate of usage of wireless networks on organizational performance in the undevolved government ministries in Machakos town.
iii. To establish the influence of wireless network staff skills on organizational performance in the undevolved government ministries in Machakos town.
iv. To determine the effect of management support on the uptake of wireless networks on organizational performance in the undevolved government ministries in Machakos town.

## 1.4 Research Questions

i. To what extent does accessibility level of wireless networks influence organizational performance in the undevolved government ministries in Machakos town?

ii. To what extent does the rate of usage of wireless networks influence organizational performance in the undevolved government ministries offices in Machakos town?

iii. What is the influence of wireless networks skills on organizational performance in the undevolved government ministries in Machakos town?

iv. Is there a relationship between management support on the uptake of wireless networks and organizational performance in the undevolved government ministries in Machakos town?

## 1.5 Significance of the Study

The aim of the study was to establish the effect of wireless networks uptake on organizational performance in the undevolved government ministries in Machakos town. The study was of considerable importance to both employees of the undevolved government ministries and the government itself which in this case is the employer. It was expected that wireless networks should be used for the purpose for which it was originally designed for at the work place. This means that since its design is to make work easier, faster and even more efficient, then the outcome of its use should be evidently seen as such. The results of the study can be used by policy makers to make decisions. It was also expected that the Communications Commission of Kenya guided by its policies will facilitate access of wireless networks in the undevolved government ministries. On the other hand, the outcome of this research provides a body of empirical findings to future researchers to enable them make reference to the findings, and also identify gaps for possible further study.

## 1.6 Limitations and Delimitations of the Study

Some of the respondents had tight work schedules which made them not answer the questionnaires given to them in time. The researcher allowed the respondents ample time to fill in the questionnaires. A few questionnaires were not submitted to the researcher as

expected while some of the questionnaires ended up being misplaced by the respondents. The researcher had to issue other questionnaires as a replacement. Some respondents had fears in divulging information, but the researcher reassured them that confidentiality would be maintained and that the research was purely for purposes of academic work only.

### 1.7 Scope of the study

The study focused on wireless networks uptake on organizational performance in the undevolved government ministries within Machakos town. In particular, the researcher gathered data from the undevolved government ministries found within Machakos town. The researcher mainly focused on the following variables: Accessibility of wireless networks, the rate of usage of the wireless networks, employee skills and the management support to the employees. These were discussed as the independent variables while organizational performance was discussed as the dependent variable.

### 1.8 Assumptions

The study made the assumptions that all the respondents were willing to fill in the questionnaires. It also assumed that almost all the questionnaires that were issued would be returned duly filled and that the number of questionnaires to be returned after filling would be many.

# CHAPTER TWO

## 2.0 LITERATURE REVIEW

### 2.1 Introduction

This chapter comprises of the theoretical framework and literature review related to the topic under study. Also outlined in the chapter is the conceptual framework and operationalization of the variables identified for the study.

### 2.2 Theoretical Framework

Theoretical Framework relates to theories that will direct the study on determining what to measure and the statistical relationships between the dependent and independent variables in the study.

#### 2.2.1 The Technology Acceptance Model

The Technology Acceptance Model was introduced by Davis in 1986. This model is one of the widely used models that explains user acceptance behaviour. The model of Technology acceptance assists in predicting the acceptableness of a communication means and helps in identifying changes being introduced into the system causing it to become more acceptable to end users (Davis, Bagozzi & Warshaw, 1989). According to Davis et al (1989), the contents of the technology acceptance model include the detected helpfulness outlined as the level to which an individual has the belief that making use of a system will make performance better. The authors noted that the identified use of any system determines the attitude of a person in a remarkable way amidst the mechanisms of instrumentality and effectiveness. Davis et al (1989) noted that the identified ease of use can lead to a helpful way in making one's performance better. This is supported by the fact that the user needs to make use of little attempt with a means which is simple to make use of hence sparing effort to execute other duties.

Attitude influences intention which in turn influences actual behavior. Davis et al (1989) identified out that there are two elements that influence behavior directly in regard to decisions regarding using unprecedented technology which they named as the intent to

make use of, and the facilitating conditions. Davis et al (1989) further determined that the effort expectancy determinant concerns the subjective attitudes of possible users of the ease with which technological innovations can be made use of while the performance expectancy determinant can be shaped by extra factors like extrinsic motivation and expectations relating to the suitability of innovations and the improved performance which is likely to result from using them.

Research carried out by Hamed (2017) showed that Technology Acceptance Model explained the motivation of users by the following three factors; perceived usefulness, perceived ease of use and attitude towards use. Perceived usefulness and ease of use were found to have a considerable impact on the attitude of a user. The author however found that these can be determined as an unfavourableness and favourabless towards a system. Hamed (2017) also found some factors such as user training, system characteristics, user participation in design and implementation process to be factors that are considered in the Technology Acceptance Model. The author however ascertained that since Technology Acceptance Model ignored the social influence on adopting of technology, it has limitations of being applied beyond the work place. Since the intrinsic motivations are not addressed in the Technology Acceptance Model, the ability of Technology Acceptance Model to apply in a customer context where the acceptance and use of information technologies is not only to achieve tasks but to also fulfil the emotional needs, may be limited.

Staff IT proficiency and experiences promote the ease of use of technology, with technology acceptance and intention being moderated by the company's rules, policy and IT guidelines (Ding and Er, 2018). Ding et al, 2018 determined that the desire to promote personal or professional goals also moderate the attitude towards the improved use of IT to performing better which in turn enhances the intention to use the system. Ding et al 2018 further affirmed that employee's effectiveness or self-efficacy has a positive effect on ease of use and perceived use of a system. The use of technology is thus based on demonstrable experiences, and IT skills as moderating factors influencing the user's attitude, intention and use of technology (Ding et al, 2018).

The Technology Acceptance Model is the key model in understanding predictors of human behaviour towards potential acceptance or rejection of the technology (Andrina and Nokola 2019). The authors ascertained that at the very beginning of technology entering users' everyday life, there was a growing necessity for comprehending reasons why the technology is accepted or rejected. Andrina et al (2019) suggested that the user's motivation can be explained by three factors: perceived ease of use, perceived usefulness and attitude towards using. The authors speculated that the attitude of a user towards the system was a major determinant on whether the user will actually use or reject the system. The authors defined perceived usefulness as the degree to which the person believes that using the particular system would enhance their job performance. On the other hand, perceived ease of use was defined as the degree to which the person believes that using the particular system would be free of effort.

The Technology Acceptance Model principally relies on two factors which are detected usefulness and ease of usage, in addition to a person's beliefs and mental attitude towards a new technology approval (Zaineldeen et al, 2020). The Technology Acceptance Model relates to this study in that wireless networks are a recent innovation whose sole purpose is meant to improve performance mainly at the work place. If personnel at the work place adopt and accept the use of this new technology, then their work would move faster and with great ease and they will have spare time to do other tasks.

### 2.2.2 Diffusion of Innovation Theory

This theory was formulated by Rogers (1962) and it originated in communication to justify how gradually, an opinion or product acquires force and spreads through a specific group or social networks. According to Rogers, the outcome of this spread is that people, as part of a social network take on a new concept, behavior or problem. Adoption according to Rogers is taken to mean that an individual does a thing in a way that is different than how they had antecedently done, and that the person must comprehend the opinion, behavior or product as new invention. Adoption doesn't occur concurrently in a social network, instead it is a procedure in which some people are likely to take on the innovation as compared to others. Researchers have confirmed that people who take on an innovation upon its

inception have contrasting characteristics to people who take on an innovation after it has been put to use (Rogers 1962). Rogers categorized adoption for innovation into five classes of innovators, early adopters, early majority, late majority and laggards. The author affirmed that innovators are those first 2.5% of a grouping who are eager to take in a new thought and are considered daring. Next are the early adopters who are the next 13.5% of a group to take in an innovation and usually offer suggestions and information that other adopters seek on an innovation. The third category are the early majority who are the next 34% of the adopters. This group carefully thinks for some time before finally taking in a new idea. The late majority who form the next 34% are the next category who have to get strong pressure in order to adopt. The last category according to Rogers are the laggards who form the last 16% who possibly adopt an innovation when it is already obsolete and when there are already more recent ideas being used by the innovators. When creating the awareness of an innovation to a preferred population, Rogers (1962) indicated that it is vital to get to know the characteristics of that preferred population that cause it not to adopt the innovation.

Diffusion is the process through which an innovation is communicated through certain channels over-time and within a particular social system (Ogbonnaya, 2020). The author further found that individuals possess varying degrees of willingness to adopt innovations. The beauty of the Diffusion of Innovation Theory is that it applies to practically any type of innovation and it is widely used in different fields of human endeavor ranging from sociology, advertising, marketing, agriculture, healthcare to engineering and technology. The study found that there are four main elements that can be identified ie. innovation, communication channel, time and social system (Ogbonnaya, 2020). The author further determined that there are five characteristics that determine an innovation's rate of adoption; relative advantage, compatibility, complexity, trial-ability, and observability to people within a social system which is evidenced by adoption of ICT usage.

Diffusion of Innovations Theory examines a diversity of innovations by introducing four factors which include time, channels' of communication, innovation or social system all of which influence the spread of a new idea (Hamed 2017). The author found that Diffusion

of Innovation Theory integrates three major components ie adopter characteristics, characteristics of an innovation, and innovation decision process. In innovation decision step, there are five steps that need to be followed and these are confirmation, knowledge, implementation decision, and persuasion which take place through a series of communication channels among the members of a similar social system over a period of time (Hamed ,2017). According to Hamed, 2017, Diffusion of Innovation gives more focus on the system characteristics, organizational attributes and environmental aspects, and it has less power in explanatory and less practical for prediction of outcomes compared to other adoption models.

Diffusion of Innovation theory has been investigated for its role in achieving strategic goal of a firm and its organizational performance (Bader and Mohammad 2021). Bader et al (2021) study focuses on compatibility and innovativeness dimensions to examine organizational goals and firm performance. From this study, it was found that innovation is seen as the extent to which an individual engages activities that lead to selection either to adopt or reject an innovation. The author thus defined compatibility as the extent to which innovation is perceived as being consistent with the existing values, current working practices needs, and past experiences of potential adopters. From their research, Bader et al 2021 ascertained that in order to achieve organizational performance, employee strategic goals must be aligned. They also determined that use of technology in organizations help improve employee performance and help employees to achieve goals timely and cost efficiently. In addition to this, it was also confirmed that employee determination to achieve a firm's strategic goals significantly impact on an organization's performance (Bader et al, 2021).

If an individual collaborates more with the change agents that are relevant to an innovation in question, then that individual will have a high chance of adopting the innovation. If the individual is highly trained on the relevancy of the innovation, then it means that the person will have a higher chance of adopting the innovation (Bakkabulindi, 2014). The author categorized adoption of innovations into three ie individual adopter characteristics, perceived innovation characteristics and social system of organizational characteristics. In

individual adopter characteristics it is believed that interaction with change agents and training positively relate to the adoption of innovation while on the other hand age and income are both negatively and positively related to the adoption of innovations. On perceived innovation characteristics, it is believed that compatibility, user friendliness and observability are positively related to the adoption of innovations. For organizational characteristics, it is assumed that each organizational readiness for change, culture, size and leader's management style is positively related to the adoption of innovations (Bakkabulindi, 2014).

This theory relates to this study in that organizations will want to know how their employees will embrace their new innovation of bringing in the wireless networks at the place of work. The organizations would also be interested in knowing how their employees perceive this innovation. The theory is applicable in accelerating the adoption of important decisions aimed at changing the behavior of a social system.

### 2.2.3 The Constructivism Learning Theory

The Constructivism theory was authored by Piaget in 1936. Piaget's theory of constructivism reasons that people bring forth knowledge and form meaning from their experiences. One of the contents of the Piaget's theory of constructivism is the learning theory. The constructivism learning theory according to Bruner (1960) is supported by the fact that people draw their views of the world, depending on individual occurrences and internal knowledge. Bruner (1960) identified that learning depends on how a person understands and conceives the meaning of his or her experiences and that knowledge is made by the learner and since every person has diverse experiences and discernment, then learning becomes peculiar and diverse from one individual to the other. Learning according to Bruner is a progressive procedure where learners form new ideas or thoughts depending on their present or previous knowledge. Bruner further ascertained that the learner picks out and converts information, builds hypotheses and is able to make decisions while banking on a mental framework to do so. Cognitive structure gives cognisance and organization to experiences and enables an individual go way above the information already provided. Constructive theorists believe that learning is just the procedure of

modifying one's mental models to make room for his/her new encounters. The theory is used prepare people to solve their problems (Bruner, 1960). Thus, to be fruitful, the learner should have a meaningful foundation of knowledge with which to interpret and make up. According to Derinick (2016), the main rule of constructivism in education is that learning is ever a progressive procedure where fresh ideas are merely added onto and understood in as far as the present knowledge is concerned.

A study conducted by Tsulaia (2023) defined constructivism as a learning theory with the premise that individuals construct new knowledge based on prior knowledge and experiences. Constructivism has gained great popularity in the past decades but its ideology can be traced back to ancient times. The author confirmed that learning was found to be a process of intellectual growth based on personal experience. It was necessary to relate learning to real-life situation and support learners to gain practical life skills. Constructivism was also found by Tsulaia (2023) to have psychological basis as well. The main classifications were distinguished as cognitive constructivism, social constructivism and sociological constructivism. The author rooted cognitive constructivism back to Jean Piaget's theory of 1939 where the theory was found to represent an individualistic perspective. The social constructivism was rooted to the fact that every function in a child's cultural development appears twice ie. first on the social level, and later on the individual level. Lastly sociological constructivism was found to consider human kind's knowledge from an historical perspective (Tsulaia 2023).

A study carried out by Givi, Adova, Suriyani, Aang, Iifan and Anthon (2021) affirmed that the word constructivism generated from the word constructive meaning to build. Constructivism revolution was found to have deep roots in the history of Education. This revolution relies heavily on the work of Piaget who emphasized that cognitive change only occurs when the previous conception undergoes an instable process because it emphasized new formation (Givi et al, 2021). The authors affirmed that constructivism is the process of building or compiling new knowledge in the cognitive structure of learners based on their experience. Constructivism knowledge is constructed and not transferred. Constructivism theory has characteristics in the learning process namely learner-centred,

problem solving, discovery process, social interaction and new knowledge or understanding. The authors further found constructivism learning to bear the following elements: - paying attention to and prioritizing learners' prior knowledge, meaningful learning experiences, a conducive social environment and encouraging learners to learn in the scientific world.

Saif and Laszlo (2020) affirmed that the need to improve the skills and competencies of the working population has been influenced by recent global developments ie rapid pace of technological change and globalization. These changing circumstances led to the need for everyone incorporating lifelong learning into their career plan as skills should be enhanced and updated whenever the opportunity arises. Saif et al (2020) further clarified that this kind of expertise is not only acquired through formal education but also in trying to meet the needs of the wider society. The authors determined that adapting to change is a skill in itself, but it is rewarded by being enriched by the prospect of learning new things and the fulfilment that results from the natural desire to learn and evolve. Further, the authors affirmed that the Constructivism Theory contends that knowledge construction by the learner can be formed from both their existing knowledge and their social interaction process with the surrounding environment. When a constructivist standard is adopted in the work place, workers and managers begin to appreciate that they have diverse and frequently approved viewpoints about what training is required. This comes as a result of both parties acknowledging that they have constructed their perceptions of the organization independently (Saif et al, 2020).

The constructivism learning theory relates to this study in that wireless networks entails change in knowledge and is aimed at problem solving. Based on this theory, employees will be expected to embrace new ideas and concepts in order to problem solve in their organizations.

### 2.2.4 Contingency Theory of Leadership

The Contingency Theory of Leadership was authored by Fielder in 1964. This theory contains two primary factors that lead to a successful leadership (Fielder, 1964). Fielder

(1964) points these two factors as the leader's nature, and the level to which a certain condition provides the leader with power, control and dominion over a condition. Fielder's contingency theory majorly centered on a contingency model of leadership in firms. The theory comprises of the relationship between leadership style and the favorableness of a condition. Fielder's Contingency theory is applied by understanding one's leadership style, undertaking one's situation, and deciding which leadership style is best. Fielder's theory is a class of behavioural theory that indicates that there is no conclusive way of organizing a firm, heading an organization or making decisions and that the right kind of organizing banks on the type of task or environment which a person is handling. Instead, the contingency theory believes that the best action depends on the internal and external situations. Fielder (1964) in his theory stated that complex organizations use performance measurement to reduce uncertainty.

Learned people seem to come to a consensus that leadership involves a procedure of influence so as to attain set objectives. That is why the accomplishment or non accomplishment of organization goals is connected mostly with the kind of leadership that is found in the organization (Vidal et al, 2017). Vidal et al further ascertained that by being closely connected to change, leaders give direction in growing the organization's future dream and they are interested with the views of their followers and encourage them to work towards achieving it. This involves being more intuitive and sympathetic with people developing with the situation to encourage others to accomplish what they would not have attained on their own.

A study by Yang and Allison (2022) adopted contingency theory to examine the relations between the local government and its activist publics in a confrontational crisis in China. The study found that positive and long-term organization public relationships are important in enhancing trust and reducing negative outcomes from threats in a crisis. The authors found contingency theory as a great field for relationship management in an organization and that it helps adopt a co-oriented approach to examine contingent organization public relationships from the perspectives of the organization and its public or stakeholders. Contingency theory began as a theoretical framework that allowed for a more complex

understanding of crisis or conflict management (Yang et al, 2022). The authors affirmed that the theoretical significance of adopting the contingency theory is in order to inform the relational management standard.

A study carried out by Blerona, Abetare and Berim (2021) affirmed that work-motivated leaders are primarily concerned with achieving a goal, while leaders are motivated by maintaining relationships with others and still others are associated with developing close interpersonal relationships. The author quoted Fielder (1964) who to measurer leadership style developed a measurement framework for measuring the least preferred collaborator to work with. Blerona et al (2021) confirmed that leaders who score high on this scale are described as motivated relationships while those who score low are identified as motivated tasks. The authors further identified that contingency theory predicts that certain leadership styles are effective in certain situations. Organizations should identify key personality factors of different employees whose personality shows how to cope with different situations based on their way of thinking in terms of leadership styles (Blerona et al, 2021). Management of organizations should analyse factors that influence the identification of leadership styles in order to create a more favorable work environment.

A study by Suni, Pankaj and Ashish (2024) showed that digitalization goes beyond the simple adoption of technologies and that it is associated with changes in management and organization styles to leverage the full benefit of the underlying technology. The study further affirmed that there have been multiple forces in the industry that have been pushing for higher digitalization in organizations. Some of these forces emerge from the organization's stakeholders especially suppliers and customers adopting digital technologies with shareholders demanding the organization to be seen as more digitally connected (Suni et al, 2024). The authors argued that there seemed to be lack of quantitative models that can provide guidance to managers for the digitalization of organizations and that such models would enable managers change their management practices to accommodate the digitalization within their organizations. Contingency theory has therefore been used to study different technological and digitalization initiatives within organizations (Suni et al, 2024).

The contingency theory relates to this study in that managers need to study their current environments and see how best they can deal with the current situations within their organizations and take the necessary measures to organize them.

## 2.3 Empirical Review

Empirical review looks into the previous empirical studies in response to specific research questions. It is also based on observed and calculated phenomena which will derive knowledge from real experiences instead of theories or beliefs.

### 2.3.1 Accessibility of Network Uptake and Organizational Performance

The world of wireless and mobile devices is developing at a very high rate, with a large number of people depending entirely on their wireless devices in the workplace and at home (Doherty, 2021). Doherty's study on Wireless and Mobile Devices Security main objective was to explore the development of wired networks to wireless networking and get to know its effect on the business world. Doherty's findings involved the increasing usage of mobile devices which require organizations to become more enlightened in securing this technology and decide on how well they can safeguard their assets. This study relates to the current study in that it brings to light the fact besides having access to wireless networks, organizations need also to increase their wireless networking while at the same time ensuring the security of their data.

Information networking has come out as a multifaceted varied area of research in previous decades (Pahlavan, 2021). The objective for Pahlavan's study on understanding communications networks for rising cybernetics applications was to show how wireless internet has evolved over the years. Pahlavan in his study ascertained that networking has evolved from the old wired telephones to cellular voice telephones and from access that is wired to wireless access to the internet information networks and this has had a deep impact on people's lives and it has led to enormous growth in the wireless networking field. Pahlavan's study relates to the current study in that his study shows how organizations should try and keep up with the pace of changing technology in as far as wireless networking is concerned.

Cell phones, smart phones, and tablets are now outnumbering desktop computers (West, 2014). The objective for West's study on going mobile is to show how the mobile technology is giving look to the society, communications and the world economy. West (2014) learned that a great change has been witnessed in how people gain access to utilise and share information. The author further unearthed that powerful mobile devices and advanced digital applications make users to form business enterprises, gain right to financial and health care records, interact with officials in public offices or even make transactions online. West (2014) further determined that worldwide such devices and applications have assisted to minimise social imbalance, raised involvement in federal life and education levels. This change in the way consumers and business enterprises gain right to information and the extensive aftermath of comparable use, depicts an important critical point. West's findings relate to this study's objective in that his study shows how wireless networks can make work easier leaving one with time for accomplishing other tasks. The study by Chipeva et al. (2018) noted the internet availability and accessibility doesn't always guarantee increased organizational performance since there are more underlying factors such as the behavioral intention of the staff, as well as the effect of age.

### 2.3.2 Rate of Usage of Wireless Networks and Organizational Performance

In the electronic technology period, people are putting their focus on the production and sale of commodities and services through electronic data, information and knowledge (Cascio & Montealegre, 2016). Cascio et al in their study in the way technology is causing changes at work and in organizations further discovered that this new technology is assisting people perform better and quicker as compared to former periods and is also making way for newfound ways of control, co-ordination, and collaboration on activities more promptly and even at decreased price. Cascio et al further determined that many firms are equipping infrastructure, devices and workers with networked sensors and actuators which make it possible to observe an environment, give an account on their condition, obtain direction, and take measures putting into consideration the information they obtain. Cascio et al's study relates to the current study in that they are encouraging organizations to make use of wireless network for quicker results.

The wireless communication sudden change has brought about important revolution to data networking and telecommunication (Chlamtac, 2021). Chlamtac in his study on wireless networks determined that by releasing the user from the cord, personal communications networks, wireless LANs, mobile radio networks and cellular systems, the promise of a fully distributed mobile computing and communications anytime anywhere is being realized and that wireless networks provide a worldwide forum for archival value contributions supporting these fast-growing issues of interest.

Wireless communications have a powerful effect on making the standard of life better in this century and smart phones industry has become a highly sought after field, hence high-level research needs to be carried out so as to make better the quality of service in wireless communications environments (Khatib, 2014). This is as per Khatib's study on present day issues in wireless communications. The findings by Khatib (2014) relates to the study objectives in that it shows that research has been done to better service quality in wireless communications.

It has become possible for people to link up with each other in a comparatively cheap and suitable way all day (West 2014). The author on his study on how wireless technology is reshaping people's lives further identified that for the first time, in the developed and developing countries, the evolution in mobile technology has come together with creation of jobs and knowledge transfer and in addition strengthened the social and economic connections. The author discovered that the emergence of mobile technology is the quickest developing technology in history. The author gives an example of a survey carried out which showed that mobile subscribers round the world have grown considerably from 2.3 billion in 2008 to 3.5 billion in 2014 with a steady growth to 3.9 billion in 2017. West determined that the increasing number of mobile devices has become notable, this being evidenced by the fact that many people now own several cell phones, smart phones or tablets. The findings by West (2014) relate to the study objective in that the author discovered that mobile technology is growing very fast hence portraying the rate of usage as expanding. However, Jalagat (2017) in his study of evaluating the Impacts of IT Usage rate on Organizational Performance noted that increased internet applications and

mobiles/devices usage in the had no significant relationship with work output with Pearson coefficient and p-values of 0.208 and 0.051 respectively.

### 2.3.3 Influence of Employee Wireless Network Skills and Organizational Performance

Training is the most function of human resources management. It is the systematic application of formal processes to help people to acquire the knowledge and skills necessary for them to perform their jobs satisfactorily (Armstrong, 2020). Training consists of an organization's planned efforts to help employees acquire job-related knowledge, skills, abilities, and behaviors, with the goal of applying on the job (Noe & Hollenbeck, 2019). Digital literacy, which is one of the challenges of integration of technology in academic courses, has been defined in the current literature as the competencies and skills required for navigating a fragmented and complex information ecosystem (Blau, Shamir-Inbal & Avdiel, 2020).

Organizations and government sector are currently confronted with stiff competition and ever-changing technological advancements within their business environments. For organizations to confront these challenges head-on, they are expected to have well-equipped employees with sufficient relevant training and development (Vinesh, 2021). Laing (2021) views training and development as a planned process to modify attitude, knowledge, skill or behaviour through learning experience to achieve effective performance in an activity or range of activities. The key purpose, in the work situation, is to develop the individuals' abilities and satisfy the organisation's current and future needs. According to Landa (2018), training on technology has a significant positive relationship with employee performance in today's office work. Utete (2021) states that the failure or success of an organization rests on the effectiveness of training and development strategies.

Siriwardena and Morais (2019) stated that effective staff training of an organization's human resources is associated with both immediate and long-term returns. Training is important for improving performance; it increases individual and organizational competencies. It is also key to unlock potential growth and development opportunities to

achieve a competitive edge. Training programmes acquaint employees with advanced technology and help them attain strong competencies and skills for handling the newly introduced technology (Siriwardena et al, 2019). Training facilitates updating employee skills and leads to increased wellbeing, commitment and a sense of belonging to the organization, directly strengthening the firm's competitiveness. Moreover, the authors mentioned that training is a significant variable in enhancing organizational productivity. They further mentioned that research has conclusively proved that training is a powerful instrument in the successful attainment of a firm's goals resulting in high performance and productivity of the firm.

Inspite of the fact that ICT and computer usage have never taken the place of the human decision making, their effectiveness in helping managers and workers make accurate decisions by use of the correct information and speeding up tasks cannot be ignored (Rezaei, Rezaei, Zare, Akbarzadeh and Zare (2014). This is as per their study on the effects of information technology on the productivity of employees. Rezaei et al (2014) further ascertained that many firms have realised the value of IT and its effect in quickening proper task performance and growing satisfaction of customers, support systems, manager's decision making and the organizations effectiveness. The future ICT worker will require expertise to solve today's enterprise problems (Deley & Mindel (2018). Deley & Mindel (2018) in their study on internet communications technology skills and systems of engagement further determined that devolved decision making on if ICT will give more problems or solutions to organizations rely on the extent in which ICT practitioners have committed themselves, given their fluency and skill to find out what right means for people and the society. Rezaei's and Deley & Mindel's findings relate to this study's objective in that it brings to light the fact that employees need to have the right ICT skills in order to address the organization's needs.

In the developing world, users have now migrated from the desktop and laptop phases of information technology to hand held devices. People now make use of cellphones, smartphones and tablets for transfer of information, commerce and trade. This is as reported by West (2014) in his study on how wireless technology is reshaping peoples'

lives. The author's objective was to know the impact of wireless technology on peoples' lives. West unearthed that consumers enjoy the easy usage of mobile devices. They take delight in accessing e-mail, manage e-commerce and even accessing a broad variety of applications that are being used. West (2014) further discovered that going mobile means that leaders have to relook their entire operation for a wireless world. West's findings relate to the study objectives in that he makes employees know that they need to be more informed on the advantages of being in a wireless world.

A research carried out by Geerdts, Gillwald, Calandro, Chair, Moyo, and Redeman (2016), on developing smart public Wi-Fi whose objective was to get to know the effect of public wi-fi that has no cost and its user access. The authors determined that with smartphones becoming more accessible (even among low-income people) and having the computing power and the required screen size for considerable usage of internet, one optimistic solution was the provision of free public Wi-Fi (FPW) by the local authority. Geerdts et al (2016) further ascertained that Wi-Fi was relatively cheap and offered fast data speeds and was in most cases attainable in urban, high-density environments where there are more demands. According to this study, smart phones were found to give an acceptable user exposure of the internet (ranging from browsing to emailing, to watching of videos) Geerdts et al, also determined that the cheaper smartphones getting into the market with growing screen size and quality, memory storage capacity and processing power allow a vast experience with the most popular social networking and messaging services (for instance face book, messenger, WhatsApp, Instagram, twitter and even snapchat). The study further established that productivity applications like Microsoft office suite are accessible on smartphones in addition to other cloud services and that smartphones afford an adequate stand-along internet access experience. In summary the study found that connected mobile devices have turned out to be increasingly many, more powerful and easier to operate, with diverse free applications and services available. Geerdts et al's findings relate to this study's objective in that it enables employees know that they need to be knowledgeable in order to make use of the available productivity applications and connected mobile devices. The staff training in the office related skill is necessary for

improved organizational performance. However it is not sufficient if the individual staff self-competence is not developed (Salman et al., 2020).

### 2.3.4 Management Support on Wireless Network Uptake and Organizational Performance

Utete (2023) states that organizations and governments are expected to focus on building employees' positive performance by providing employees with tools and skills to meet new realities and challenges. He further indicated that globalization, new market demands, innovation and intelligent economy are the main challenges and drivers for institutions to maintain and improve employee performance. According to social exchange theory (SET) (Liao et al., 2019) and organizational support theory (Rhoades and Eisenberger, 2002), companies need to give support to their workers, so that they obtain higher incentive to work hard and get better performance.

A research carried out by Okeyo & Kioko (2017) on the uptake of information communication Technology in Machakos County, Kenya whose study objective was to determine how uptake of ICT in Machakos County depends on the support of management, revealed that top management is necessitated to give the required commitment and support for the commencement and adoption procedure to be a success. This is because Okeyo and Kioko (2017) found the top management to have the ability to control the culture of an organization by impacting others within the organization. These findings by the Government of Kenya combined with Okeyo & Kioko's findings relate to this study objective in that it clearly shows that management support is very vital in the organization's performance.

Government organizations worldwide are faced with some difficulties as administrative, executive and judicial bodies continue to develop into a digital work environment. This is according to McNabb (2015) in his study on knowledge management in the public sector. McNabbs objective was to find out how government agencies are providing mobile communications capability for their employees in order to enable them to interact. The author determined that as information is assembled, electronic tools such as personal hand-

held devices, smartphones, tablets and laptop computers have liberated knowledgeable employees from the control of being confined to a desk. The author however noted that not every government worker may participate in the usage of IT at the same time, as some administrators and workers may remain absolutely computer literate. The findings by McNabb relate to the study objective in that it brings to light the fact that the management of any organization needs to ensure that there are set policies and guidelines that oversee wireless network operations in their organizations.

A study carried out by Hsuan-Yu, Feng-Hsu, Hung-Tai and Lu-ui (2018) affirmed that the management of any organization plays an important role in shaping the organization's service innovation, related strategies and decisions. The management has always played a vital role in backing employees, assisting them with problem solving and creating harmonious interaction and cooperation among various job functions. The authors further confirmed that current research suggested that management support is a key driver in overcoming obstacles and enhancing an organization's technological ability to successfully adopt and implement new services or products. Hsuan-Yu et al (2018) defined management support as the degree to which the management creates a facilitative climate of support, trust and helpfulness on performance. The allocation of resources to support the functions of the organization are the responsibility of the management. Thus, the management need to be committed in providing its organization with all the resources necessary to work effectively (Hsuan-Yu et al 2018).

Helene, Helene (2021) affirmed that the management of any organization has been identified as a key recurring factor which is critical to information systems. By virtue of their leadership role, the management is able to ensure sufficient allocation of resources and act as a change agent to create a more conducive environment for information systems and implementation. The management also has the authority to influence other members of the organization and are likely to succeed in overcoming organizational resistance (Helene et al 2021). The management can take the form of managerial guidance in planning, design, development and implementation of activities. They can thus support the adoption and use of wireless networks within its organization (Helene et al 2021). The

successful planning require that the management provide great attention, human resources and funding to such activities. The authors further confirmed that from previous undertaken studies, it has been proved that even well-supported projects can fail under either too little control or too much attention. Therefore, in order to produce positive outcomes and avoid negative ones, a judicious balance must be maintained (Helene et al 2021).

### 2.4 Research Gap

According to Doherty (2021), there is a growing use of mobile devices that demands organizations to find ways of securing their data. Networking has been found to evolve from traditional wired telephony to the current wireless access to the internet information networks thus creating a big impact on people's lives (Pahlavan, 2021). According to West 2014, businesses can be built and online transactions made through making use of powerful mobile devices and sophisticated digital applications.

Cascio and Montealeague (2016) discovered that wireless network technology helps workers to improve in the way they do things as compared to previous times. Chlamtac (2021) also found that wireless communication evolvement is causing necessary changes to data networking, telecommunication and is making integrated networks a dream come true. According to Khatib (2014), with wireless networks, people can now associate with altogether in a comparably cheap and expedient way all day.

Many organizations have come to know why IT is of paramount importance and the impact it has on speeding up correct performance of tasks and enhancing customer satisfaction (Rezaei et al, 2014). Geerdts et al (2016) also found that smart phones were found to accord an acceptable user experience of the internet. Okeyo and Kioko (2017) found that the top management is key in offering needed commitment and support and has the power to influence others within the organizations. Okeyo et al 2017 further found that it is the duty of the management to coordinate the effort of workers so as to achieve set goals of their organizations and that it is within the mandate of the management to ensure proper coordination between human and other resources in achieving set goals. According to

Macnabb (2015), the availability of electronic tools such as smartphones, tablets, and laptops have freed workers from being chained to a desk.

Wireless Networks uptake and its effects on Organizational Performance on government employees have been investigated in previous studies. West (2014) in his study of how wireless technology is reshaping people's lives unearthed that with the enabling of wireless technology, people are able to interact with each other in a rather cheap and expedient way throughout the day irrespective of one's location i.e., whether the person is in the office or at home. The author indicated that wireless networks have brought about creation of jobs and transfer of knowledge as well as expanded social and economic connections and that consumers of wireless networks take regard in the act of mobile devices being handy, and that they benefit from accessing e-mail, carrying out e-commerce and accessing a great variety of applications.

Employers are progressively making use of new Information and Communication Technologies and global electronic networks to commence virtual organizations (Hernandez and Roberts (2018). Given the lack of skill and monotonous 'click based' nature of much of the data entry work offered on micro work platforms, these tasks are likely to be automated in due time. The authors ascertained that it is possible that the next phase of automation technologies may cause millions of employees to become redundant. It is good to understand more about connectivity experiences in various government organizations, their technology practices, digital literacies and the need and priorities of those currently lagging behind. It could mean that some government organizations may have been left to lag behind in terms of wireless network uptake.

Most of the above studies have been undertaken from outside Kenya and majorly from the Western countries. Though several previous studies have been carried out on the uptake of wireless information technologies and their effect on employee or organizational performance in different organizations and in different fields, none of these studies address their effect on organizational performance in the uptake of wireless networks in government organizations, and none of them has been done to research on the effect of

wireless networks uptake on organizational performance in the undevolved government ministries in Machakos town. This study thus seeks to fill this gap by trying to assess the influence of the uptake of wireless networks on the organizational performance in the undevolved government ministries within Machakos town.

### 2.5 Conceptual Framework

The conceptual framework shows the relationship between the dependent variable which is Organizational Performance and the independent variables which include accessibility of wireless networks, rate of usage of the wireless network, employee skills and management support together with the respective indicators which are essential and indispensable components of accessible wireless networks.

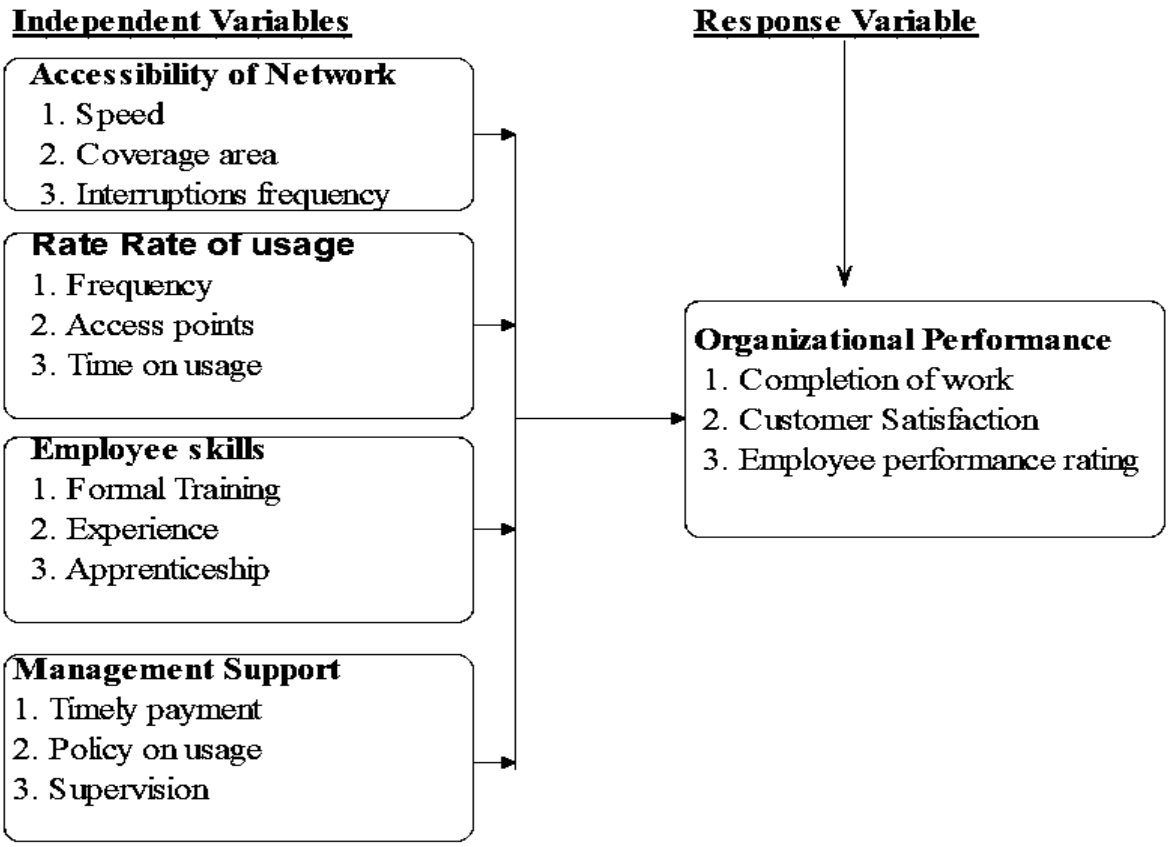


**Figure 2.1: Conceptual Framework, Source: Researcher 2022**

### 2.5.1 Accessibility of Wireless Networks

As indicated in the conceptual framework, accessibility of wireless network refers to having a reliable wireless network in an organization that will be able to cover the expected area. The network should also have the right speed so as to enhance organizational performance in the undevolved government organisations. For a wireless network to be quite effective, there should be minimal or no interruptions at all.

### 2.5.2 Rate of Usage of Wireless Networks

Rate of usage is the process through which employees portray their frequency of use of the wireless networks. It also entails how accessible these wireless networks are to employees. An organisation should ensure that it is able to meet the cost implications hence enhancing organizational performance

### 2.5.3 Employee Skills

Employee skills in the use of wireless networks through experience, formal training or apprenticeship will also shape the organizational performance in the undevolved government ministries. Employees are able to discover their capability by being able to apply their skills.

### 2.5.4 Management Support

Management support is quite key if the success of upholding use of wireless networks is to go by. The management is tasked with making certain decisions which include funding and decision making. Management support influences the use of wireless networks a great deal in that it makes decisions and implements those decisions. The management also ensures the rightful allocation of resources hence enabling the use of wireless networks to uphold organizational performance.

### 2.5.5 Organizational Performance

Organizational performance is achieved when completion of work and set targets are achieved. Few or no customer complaints assures an organization of continued growth. Customers who are satisfied customers will always come again and in addition refer other

clients to the particular organisation. Bakare (2020) refers employee and organizational performance to how workers behave in the workplace and how well they perform the job duties obligated to them. Ngema, Rajlal and Utete (2022) state that performance is associated with the quantity of output, quality of output, the timelessness of output, presence or attendance on the completed and effectiveness of work completed. Otherwise, where workforce resources development of an organization is not given the appropriate attention, the implication could be poor organizational performance (Adanlawo, Nkomo and Vezi-Magigaba, 2023).

# CHAPTER THREE

## 3.0 RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter comprises of the following; research design, target and sample population, sampling procedure and sample size, research instrument, pilot study data collection procedure, data analysis and presentation, and ethical issues in research.

### 3.2 Research Design

Research design involves a systematic, controlled, convincing and demanding investigation and description of what is unknown, and establishment of associations and conclusions that allow the correct prediction of results under a given set of conditions (Kumar, 2019). Kumar further stated that a research design involves picking out gaps in knowledge, authentication of the already known, and recognition of previous errors and limitations.

The research design for this study was descriptive design and it determined the data characteristics of the variables and established the predictive power of explanatory variables in the study. Sileyew (2019) determined that a research design is meant to give a suitable framework for a study and that, important decisions in research design process is the option being made in regard to research approach as it controls the way information for a study is acquired. Also, descriptive research statistics involve putting into detail the attributes of a certain individual, or of a group. Specific predictions, explanation of facts and attributes of individuals, group or situations can be made. It allows usage of the collected primary data, and also gives the opportunity for one to apply the outcome of the study (Sileyew, 2019).

Descriptive research comprises of survey and fact-finding examination of different kinds (Mishra & Alok, 2017). Mishra et al further stated that the primary aim of descriptive research is explanation of the set of events as presented and that the researcher has no direct control over the variables but can give feedback on what is happening or what has

happened. Mishra further described the advantage of descriptive research as being able to provide a comprehensive picture of the characteristics, behaviours and attributes of a given population. This study therefore sought to describe the opinions, attitudes and knowledge on assessing the determinants of wireless networks on organizational performance in undevolved government ministries within Machakos town.

### 3.3 Target Population

Target population means all the members of a real or hypothetical set of people, events or objects to which one wishes to generalize the results of the research (Pandey & Pandey, 2015). The population of this study was the 8 undevolved government ministries in Machakos town. This was the unit of analysis. However, the unit for which data was collected was the top, middle and lower level managers, and all other employees who were not in management levels in each of the undevolved government ministries in Machakos town as shown in table 3.1.

**Table 3.1: Target Population**

| Ministry | Top Level Management | Middle Level Management | Lower Level Management | Other Employees | Total Population |
|---|---|---|---|---|---|
| Culture and Social Heritage | 1 | 1 | 2 | 8 | 12 |
| Interior and Coordination | 1 | 2 | 2 | 9 | 14 |
| State Department for Labour | 1 | 1 | 1 | 2 | 5 |
| Transport, Infrastructure, Housing, Urban Development & Public Works | 1 | 2 | 3 | 12 | 18 |
| State Department for Correctional Services | 1 | 1 | 2 | 10 | 14 |
| State Department for Devolution | 1 | 1 | 2 | 9 | 13 |
| State Law Office and Department of Justice | 1 | 1 | 1 | 6 | 9 |
| Lands and Physical Planning | 1 | 1 | 3 | 6 | 11 |
| **TOTAL** | **8** | **10** | **16** | **62** | **96** |

Source: Government offices of Machakos, 2022

### 3.4 Sample Size and Sampling Procedure

Since the target population for this study was small, the study conducted a census instead of sampling. Census is an effort to study every unit in a given population (Kamatchi, Sheeba, Thirumagal, Malini and Sriranjani, 2023). Kamatchi et al 2023 further stated that a census generally attempts to gather information on all eligible elements in a given population hence giving an advantage of getting more accurate and reliable results. For this study, the researcher used the entire targeted population of 96.

### 3.5 Research Instruments

The researcher made use of questionnaires to gather data. According to Kothari (2019), a questionnaire is a list of organized questions which follow a specific order. The questionnaires were designed for the purposes of gathering data and were divided into two sections i.e., Section I which dealt with personal information (limited to only general questions) whose purpose was to allow the researcher to understand population dynamics and trends across different age groups (Syed (2016). Section II which consisted of the questions centred on the research variables identified for meeting the study's objectives.
The responses to the questionnaire were designed on a 5 - point likert scale of measurement such that; 1- Strongly Disagree (SD), 2- Disagree (D), 3- Neutral (N), 4- Agree (A) and 5- Strongly Agree (SA) and other closed-ended questions.

### 3.6 Pilot Testing

A pilot study seeks to establish if a research can be done and if the researcher should proceed with it (Malmquist, Hellberg, Mollas, Rose & Shelvin, 2019). Malmquist et al 2019 further established that having conducted a pilot study, a researcher would be in the know-how and be prepared to face the difficulties that may occur in the substantive study and gain more confidence in the instrument being used for collection of data.

Therefore, a pilot test was executed by issuing questionnaires to about 10% of the sample population (in this case the target population since it was small to be sampled). The pilot test was randomly carried out from the various non-devolved government offices in neighboring Makueni town. A sample population of 10 respondents for the pilot testing

was used to ensure reliability and validity of the research instrument. The respondents given the questionnaires helped to determine the reliability of the questionnaire after which from the responses given the researcher adjusted them accordingly before carrying out the actual research. Just like the researcher's questionnaire were targeting top level, middle level, lower level officers and all other employees in the non-devolved government ministries in Machakos town, the pilot study was also carried out on the same categories of staff in the neighboring Makueni town.

### 3.6.1 Validity of the Instruments

Validity refers to the extent to which evidence and experts support the interpretations of test scores entailed by proposed uses of tests. This is using a specific instrument to represent a specific domain of indicators. The instruments used in this study were validated by having the questionnaire pre-tested and adjusted by the researcher with the guidance of the supervisors to check on content and form validity. Sileyew (2019) recommended that the validity of the instrument is asking the correct questions framed from the least ambiguous way and based on the study objectives. The researcher therefore gave the questionnaires to a few respondents, with a goal of ascertaining validity.

### 3.6.2 Reliability of the Instruments

Reliability is the measurement of uniformity, or the extent to which a research instrument gives similar results under similar conditions by use of the same subject (Sileyew, 2019). Cronbach alpha, as a measure of internal consistency, was used to test the internally generated reliability of the instrument. The higher the score, the more reliable the generated scale is. (Sileyew, 2019) argued that a Cronbach's alpha of 0.7 is an acceptable reliability. From the feedback got from the pilot test, the questionnaires were modified and a final one developed. In this study, a Cronbach's Alpha of 0.7 and above was considered as an acceptable reliability.

## 3.7 Data Collection Procedure

The researcher handed over the questionnaires to the various offices in person after seeking consent from the applicable authorities to do so. Once the respondents filled in the

questionnaires, the researcher collected them in person. The researcher used the drop and pick method since it saved on time and resulted in higher completion rates as supported by Kothari (2019).

### 3.8 Data Analysis and Presentation

The data analysis preparation was conducted by organizing, categorizing and coding the data to ease the analysis. Descriptive statistical analysis was done and presented in graphical figures, frequency tables and percentages. Inferential statistical tests per objective were conducted using the ordinal logistic regression, which usually works well when the response variable is ordered, assuming that the response occurrences are independent. The response variable for this study was departmental ordered performance, which was categorized as follows:

$$y_i = \begin{cases} 1 = poor \\ 2 = average \\ 3 = good \\ 4 = excellent \end{cases}$$

Since one of the assumptions in the ordinal logistic regression analysis is that the dependent variable is measured on an ordinal level, but one or more of the independent variables are either continuous, categorical or ordinal. In order to satisfy the model assumptions the explanatory variables for this study were as follows:

Wi-Fi network accessibility, Wi-Fi rate of usage, employee training and skills on Wi-Fi and the management support on Wi-Fi usage. For an outcome $Y$ with levels j=1, 2... J and $x_i$ explanatory variables, then the linear regression model can be represented by the equation.

$$\log\left(\frac{P(Y \le j)}{1 - P(Y \le j)}\right) = \text{logit}\left(P\left(Y \le j\right)\right) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k x_k$$

Where;

$Y$ = ordered response variable

$P(Y \le j)$ = Represents cumulative probabilities of the Y being in category j or lower

α= is the intercept term specific to category j and reference levels

$\beta_i$ = set of regression coefficients associated with each predictor variable

$x_i$ = set of exploratory variables

Other ordinal logistic regression assumptions include absence of multi-collinearity and proportional odds. The ordered logistic regression analysis output posts several statistics values such as cumulative logit, cumulative odds, cumulative proportions, categorical probabilities and odds ratio. This research objective of the statistical inquiry was centered on the decision of cumulative proportions, categorical probabilities and odds ratio, since their interpretation would be more rational and understandable in the case of ordered performance in an organization. Cumulative proportions compares the cumulated higher categories with the remaining cumulated lower categories and odds ratio is a measure of association between an exposure and an outcome. In which case the research measured the odds that performance would occur given the Wi-Fi access, Wi-Fi usage, staff skills and training on Wi-Fi and the top manage support on Wi-Fi utilization. This was conducted under the assumption that the odds ratios were identical for all categories and the observations were independent.

### 3.8.1 Ordinal Logistic Regression

An ordinal variable is a categorical variable in which the levels have a natural ordering (e.g., depression can be categorized as Minimal, Mild, Moderate, Moderately Severe, and Severe). Ordinal logistic regression can be used to assess the association between predictors and an ordinal outcome. Ordinal logistic regression or (ordinal regression) is used to predict an ordinal dependent variable given one or more independent variables (Ripley, 2023). Sesay et al. (2021) applied an Ordinal Logistic Regression model to identify factors influencing students' academic performance at Njala University. The technique could effectively identify the main factors influencing the academic performance of the undergraduate students at Njala University, thereby recommending the technique the most appropriate with an ordered response variable. Xu et al. (2020) explored the risk factors associated with illness severity of COVID-19, namely moderately, severely and critically ill, which meant the response variable was ordinally scaled, a cumulative logit model was used to investigate the effect of predictors of COVID-19 severity. This multi-

centre retrospective study encompassed COVID-19 patients classified as being moderately, severely and critically ill. All patients were divided and placed into moderate, severe and critical illness groups.

Muya, (2018) applied Ordinal logistic regression analysis method in analyzing the students' performance in KCSE in Kiambu County, Kenya across National Schools, Extra county schools, County Schools, Sub County schools. After analysis, the findings showed that the subjects that contributed the most to the students overall performance were Swahili & Biology. Mathematics did not significantly contribute. Students' gender did significantly have an effect on the students overall grade. The study recommended ordinal logistic regression techniques for its ability to classify the students into the appropriate performance levels. Mahmood et al. (2018) used Ordinal Logistic Regression Analysis in Evaluating Teachers' Performance Level of High Schools (12th grades) in Kurdistan Regional Government. Based on the study findings four variables; student's average in Kurdish subject, number of classes, geographical location and status of school had a significant effects on teachers' evaluation in $12^{th}$ class of scientific high schools, and the overall percentage of correct classification was about 87%, which meant that the Ordinal logistic regression model had the ability to predict teacher's performance level appropriately.

Therefore the current study deployed the ordinal logistic regression technique given the ordered nature of the study's response variable, the undevolved ministries within Machakos county performance categorized into; poor, average, good and excellent as influenced by the independent variables which were Wi-Fi; access, usage rate, staff skills and management support on Wi-Fi utilization.

### 3.9 Ethical Considerations

The researcher got a letter of authorization from the University to carry out data collection. Permission was also sought from NACOSTI by the researcher so as to collect data. The respondents were reassured that all information collected was kept confidential by the researcher and was solely used for research purposes only. The respondents were requested

to indicate; the names of particular offices where they worked, their ages and formal educational levels with their identities remaining anonymous. Personal information collected was only limited to general information.

# CHAPTER FOUR

## 4.0 RESULTS

### 4.1 Introduction

This chapter presents the study findings and the interpretation of results. This is done following the order of objectives. For each objective, descriptive findings were presented followed by inferential statistics where applicable and interpretation of the findings. Data was analysed and presented in form of tables and charts.

### 4.2 Pilot Test Analysis

A sample population of 10 respondents for the pilot testing was used to ensure reliability and validity of the research instrument. The overall purpose of this pilot study was to assess the feasibility of conducting a large full-scale study since it was placed in the context of the main study. The overall reliability Cronbach's Alpha score was 0.728, implying the instruments' item measure was consistent or dependable. The construct reliability was also conducted by putting together the variable that were addressing a common factor and the Cronbach's Alpha scores ranged between 0.632 to 0.802. The validity analysis was conducted through the questions item correlation computation. All the items had less than 0.05 Pearson's coefficient of correlation. This meant that the questions in the questionnaire were valid and they adequately represented the underlying construct which they were supposed to measure. These results were incorporated into the main study results since the questionnaire framework was in the same context of the main study.

### 4.3 Questionnaire Response Rate

Eight state departments chosen from which a sample comprising of 96 were picked, the questionnaires were completed by 92 of 96, giving a response rate of 95.8%. The high response rate minimized the chances for nonresponse bias and simultaneously enhanced the reliability and validity of the study findings. The response per department is summarized in figure 4.1.

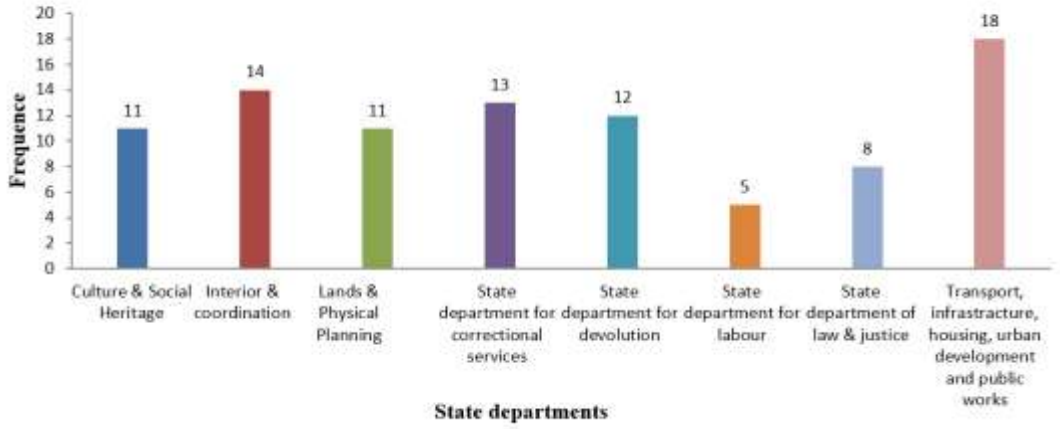


**Figure 4.1: Departments**

Transport, Infrastructure, Housing, Urban development and Public Works had the highest number of respondents 18(19.57%) followed by Interior and coordination 14(15.22%). The least responses were in the State department for labour and state department of law and justice with 5(5.43%) and 8(8.70%) respondents respectively.

### 4.4 Respondents Demographic Information

The respondents' demographic information such as gender, years of experience and formal training level status were determined and summarized in terms of tables and graphs in the successive sections.

#### 4.4.1 Respondents' Gender distribution

The respondents were requested to state their gender and the gender distribution is summarized in figure 4.2.

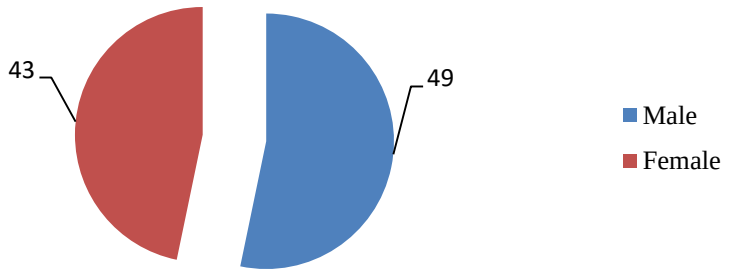


**Figure 4.2: Gender**

Most of the respondents 49(53.26%) were male and 43(46.74%) were female. The respondents' years of experience is summarized in figure 4.3.

### 4.4.2 Respondents Working Experience

The study sought to find out the working experience in years of the respondents. The summary of the findings is given in figure 4.3.

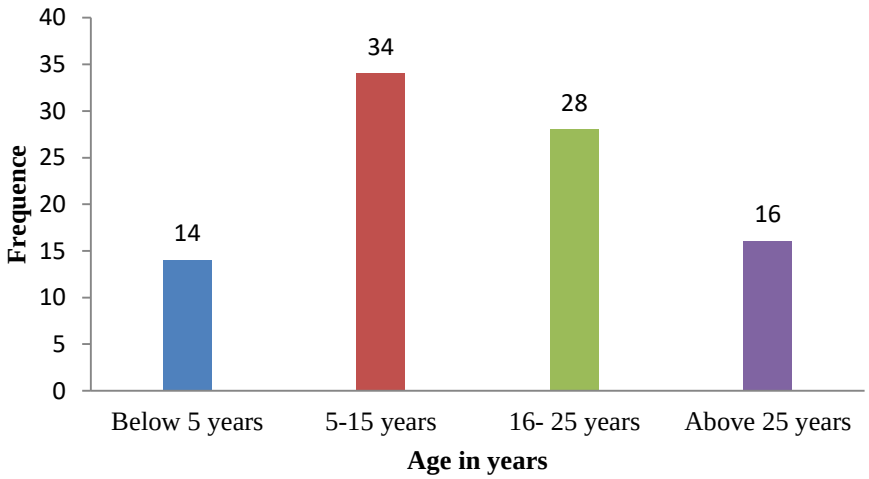


**Figure 4.3: Years of Experience**

Most of the respondents 34(36.96%) years of experience ranged between 5 to 15 years, followed by those with 16 to 25 years of work experience, constituting to 28(30.43%). Those with less than 5 years' experience were the least 14(15.22%).

### 4.4.3 Respondents Formal Education Level

The respondents' formal education level is summarized in figure 4.4.

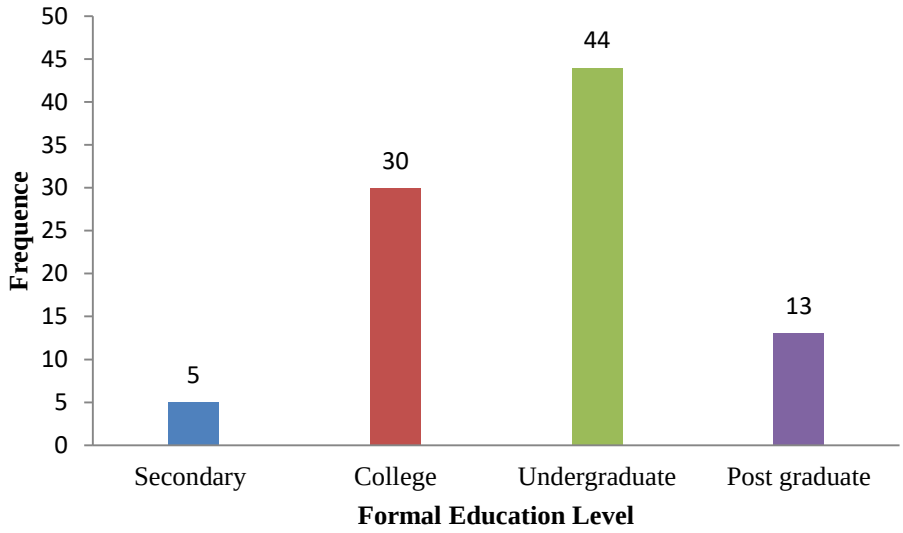


**Figure 4.4: Formal Education Level**

Out of the sampled respondents, 44(47.83%) had a bachelor's degree, 13(14.13%) had a post graduate degree. Only 5(5.43%) had a form four certificate with 30(32.61%) having middle college certificates.

### 4.4.4 Respondents Employment Level

The respondents' employment level is given in figure 4.5.

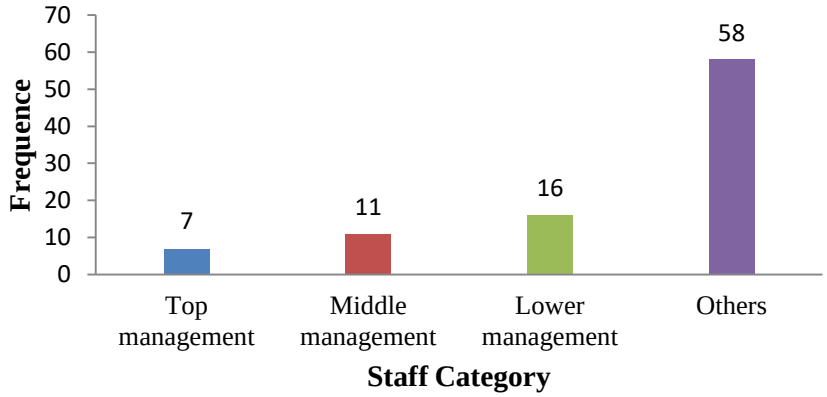


**Figure 4.5: Staff Category**

The respondents were categorized into either management or non- management levels, where the non- management formed 58(63.04%) of the sample. The management level was regrouped into top, middle and lower management, with 7(7.61%), 11(11.96%) and 16(17.39%) falling under top, middle and lower management levels respectively.

### 4.5 Descriptive Statistics Analysis

The summary statistics quantitatively describing the organization's performance, wireless network; access, usage rate, staff skills and the management support on wireless network were presented in terms of frequencies and percentages as shown in the succeeding sections.

#### 4.5.1 Descriptive Statistics Analysis on Organizations' Performance

The study sought to establish how wireless networks uptake influenced the organizations' performance. According to 53(57.6%) of the respondents due to its uptake the set targets were met, 34(37%) cited that, due to its use customer complaints were reduced and 66(71.74%) stated that, the wireless network usage enabled timely completion of tasks.

To ensure improved wireless networks uptake and hence organizational performance increase, 75(81.52%) suggested that the management should offer needed support and commitment to ensure improved wireless networks uptake. About two thirds of the respondents 62(67.39%) suggested that the management should create awareness of and ensure enhanced ICT level skills among its staff. Lastly 74(80.43%) suggested that the management should have in place organizational policies relating to wireless networks and ensure that such policies are adhered to by its staff. The study conducted univariate ordered regression and ordered logistic regression for all independent variables. For the purposes of this study, the organizations' performance was categorized into four levels in an ordered manner; level 1 (poor), level 2 (average), level 3 (good) and level 4 (excellent). The specific levels were pegged on the respondents rating of their organizational performance with regard to the customers' satisfaction categorized as 0-25%, 26-50%, 51-75% and 76-100%, where the categories were labeled; poor, average, good and excellent respectively.

### 4.5.2 Descriptive Analysis of Wireless networks Accessibility Level and organizations' performance

The study sought to determine how wireless networks accessibility level affected the organizational performance. About three quarters of the respondents could access the wireless networks as summarized in table 4.1.

**Table 4.1: Wireless Network Access**

| Access Wireless Network | Frequency | Percentage |
|---|---|---|
| Yes | 73 | 79.3 |
| No | 19 | 20.7 |
| Total | 92 | 100.0 |

About one fifth of the sampled population had no wireless network coverage at all within the working premises. The wireless coverage level is summarized in figure 4.6.

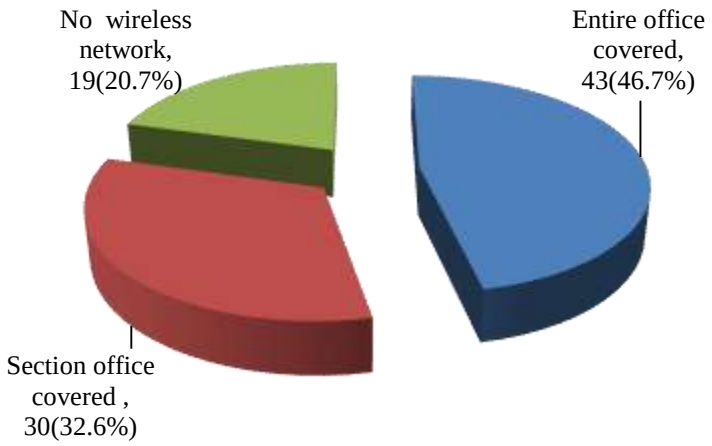


**Figure 4.6: Coverage Level**

According to the respondents, there were departments offices without any wireless coverage at all while others were partially covered as cited by 30(32.6%) of the respondents and other offices were entirely covered as cited by 43(46.7%) of the respondents. The coverage distribution per departments is summarized in figure 4.7.

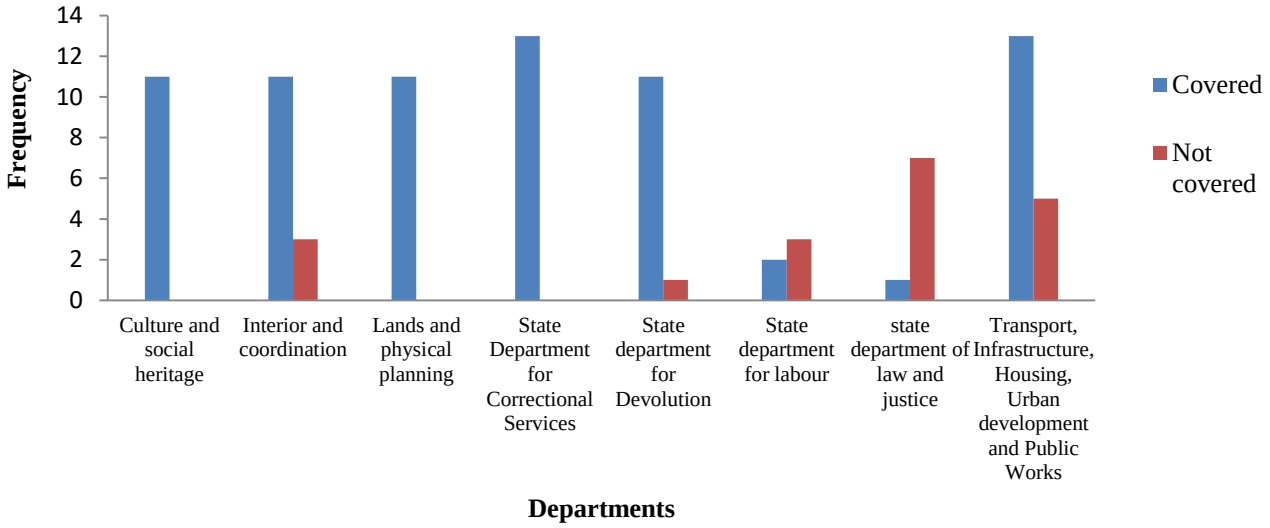


**Figure 4.7: Departments Coverage**

There was no department without the wireless network as a whole. However, there were some offices partially covered and others not covered completely. Departments entirely covered included; Culture and social heritage, Lands and physical planning and the State department for Devolution department. The rest had partial coverage. The respondents would access the wireless network through varied channels as summarized in figure 4.8.

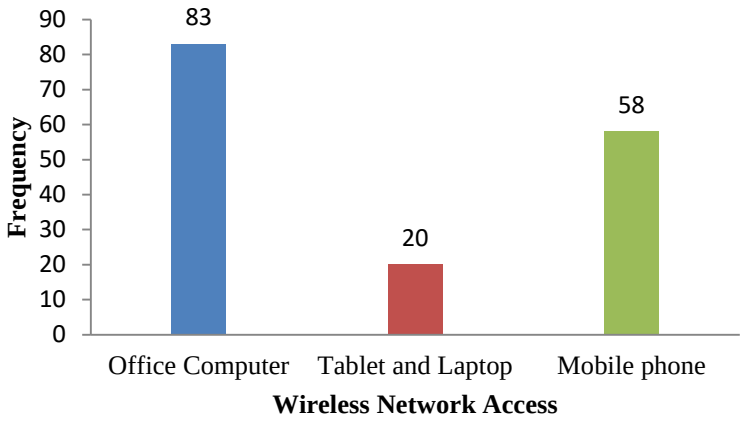


**Figure 4.8: Network Access Channels**

Majority 83(90.22%) of the respondents accessed the network through the office computer, 58(63.04%) accessed through their own mobile phones and 20(21.74%) could access the wireless network through tablets and laptops. About three quarters 70(76.09%) of the respondents commented the fast speed of the wireless network within their offices. The overall average access was 78.9%, meaning that office internet service worked for about 79% of the staff by the time of the research. The respondents were subjected into a five-point Likert scaled items whose responses were assigned the values: 1-Strongly Disagree, 2-Disagree, 3- Neutral, 4- Agree, and 5-Stronly Agree. Table 4.2 gives the summary of the responses on the items.

**Table 4.2: Wireless Network Access Likert Responses**

| Statement | N | Min | Max | Mode |
|---|---|---|---|---|
| The entire office is wholly covered by a wireless network | 92 | 1 | 5 | 2 |
| Only a section of the office is covered by the wireless network | 92 | 1 | 5 | 4 |
| There is no wireless network available at all in the office | 92 | 1 | 5 | 1 |

Based on the likert scale statements responses only 43.5% at most agreed to the statement that the entire office was covered by a wireless network. In a scale of 1-5 where the five point scale was assigned the values such that: 1- strongly disagrees and 5- strongly agree the mode was 2 and the average score and the standard deviation were 3.35 and 3.42 respectively for that statement. About 38% of the respondents consented to the statement that only a section of the office was covered by the wireless network and in scale 1-5 the mode was 4. While majority 82.6% disagreed with the statement that there was no wireless network available at all in the office and in scale of 1-5 the mode was 1. This implied the wireless network coverage and uptake was still at low levels within the offices of the respondents. Figure 4.9 gives the summary in percentage.

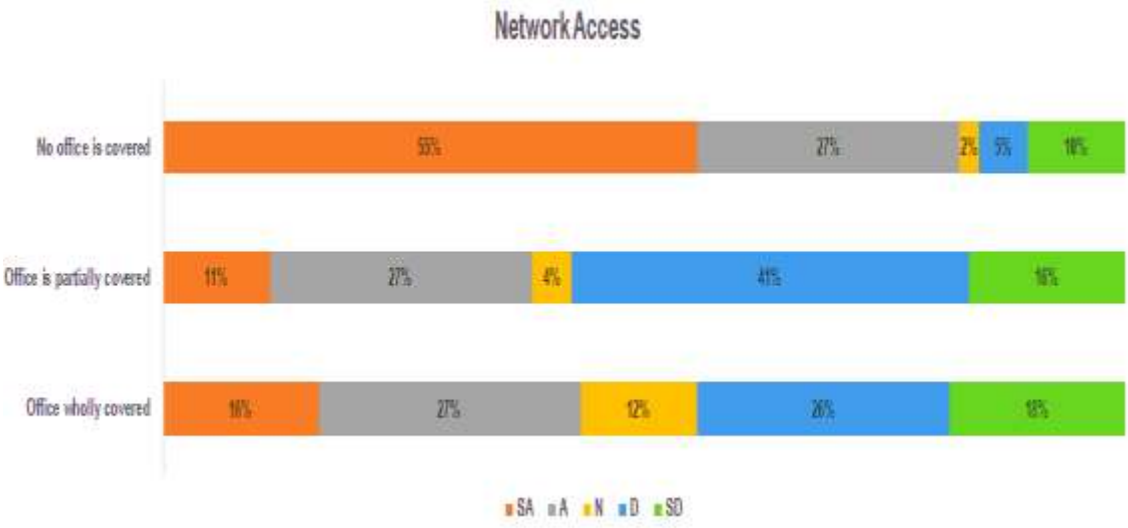


**Figure 4.9: Network Access Likert**

Based on the likert scale responses 55% of the respondents at least agreed with the statement that there was no wireless network available at all in the office. Only 2% were neutral and 5% and 10% disagreed and strongly disagreed respectively with the statement. Most of the respondents disagreed and strongly disagreed with the statement that only a section of the office was covered by the wireless network, where 41% and 16% disagreed and strongly disagreed respectively with the statement. The responses to the statement that the entire office was wholly covered by wireless network was fairly distributed whereby, 16% and 18% strongly agreed and strongly disagreed respectively, 27% and 26% agreed and disagreed respectively with only 12% being neutral.

### 4.5.3 Descriptive Analysis of Wireless Networks Rate of Usage and Organizations' Performance

The study sought to determine the respondents' wireless network daily usage on official matters. Table 4.3 gives the summary of usage rate per day.

**Table 4.3: Wireless Network Usage**

| Daily Usage | Frequency | Percentage |
|---|---|---|
| 0 hours | 6 | 6.5 |
| 1-2 hours | 39 | 42.4 |
| 3-4 hours | 30 | 32.6 |
| Above 4 hours | 17 | 18.5 |
| Total | 92 | 100.0 |

Based on the study findings, majority (42.4%) of those who responded were using the wireless net between 1 to 2 hours on average per day. Only 17(18.5%) were using the wireless net for more than 4 hours on average per day on official activities. The respondents were subjected into a five point Likert scaled items whose responses were assigned the values: 1-Strongly Disagree, 2-Disagree, 3- Neutral, 4- Agree, and 5-Stronly Agree. Table 4.4 gives the summary of the responses on the items.

**Table 4.4: Wireless Network Usage Likert Responses**

| Statement | N | Min | Max | Mode |
|---|---|---|---|---|
| Available wireless network in the office is freely available without restriction | 92 | 1 | 5 | 2 |
| Staff are able to access wireless networks even through their mobile electronic devices | 92 | 1 | 5 | 1 |
| During working time there is no restriction from the management on the frequency of usage on wireless networks | 92 | 1 | 5 | 1 |
| Wireless networks ease communication from one computing electronic device to another | 92 | 1 | 5 | 5 |
| The cost of maintaining wireless networks in the office is quite manageable | 92 | 1 | 5 | 3 |

Depending on the responses in table 4.4, the mode in a scale of 1-5 of the responses on the wireless network availability in the office being freely available without restriction was 2.

This meant that majority of the respondents disagreed with the statement. More than half of the respondents opposed the statements that staff were able to access wireless networks even through their mobile electronic devices where 30 respondents disagreed and 31 strongly disagreed with the statement. Majority of the respondents did not agree with the statement that during working time there was no restriction from the management on the frequency of usage on wireless networks, where 33 disagreed and 45 strongly disagreed, hence in scale of 1-5, the mode 1. The cost of maintaining the wireless network in the office being quite manageable received mixed responses where majority (41) were indifferent with only 4 strongly agreeing, 12 agreeing, 22 disagreeing and 13 strongly disagreed, hence, in a scale of 1-5 the mode was 3. Table 4.5 gives the summary of the responses on the items.

**Table 4.5: Wireless Network Official Usage**

| Statements | N | Min | Max | Mode |
|---|---|---|---|---|
| Official communication in the office is majorly done via email | 92 | 1 | 5 | 4 |
| Staff are allowed to work away from the office using wireless networks | 92 | 1 | 5 | 3 |
| Wireless networks have made work life a lot easier | 92 | 1 | 5 | 4 |
| Employees cannot currently do without wireless networks | 92 | 1 | 5 | 2 & 3 |

According to the study findings in table 4.5 most of the official communication was done through email as supported by 28 and 43 of the respondents who strongly agreed and agreed respectively to the statement, with a mode of 4 in a scale of 1-5 where 1-strongly agree and 5-strongly disagree. The statement on whether the staffs were allowed to work away from the office using wireless networks responses were normally distributed where majority (29) were neutral, only 6 strongly agreed, 14 strongly disagreed, 20 agreed and 23 disagreed. Therefore, in a scale of 1-5, the mode was 3. Most of the respondents (52, 56.52%) agreed with the statement that, wireless networks made work life a lot easier. While the statement that the employees could not do without wireless network had a bimodal responses of 2

and 3 in a scale of 1-5 where 1-strongly agree and 5-strongly disagree of (33, 35.87%) each. Figure 4.10 summarizes the responses in percentages.

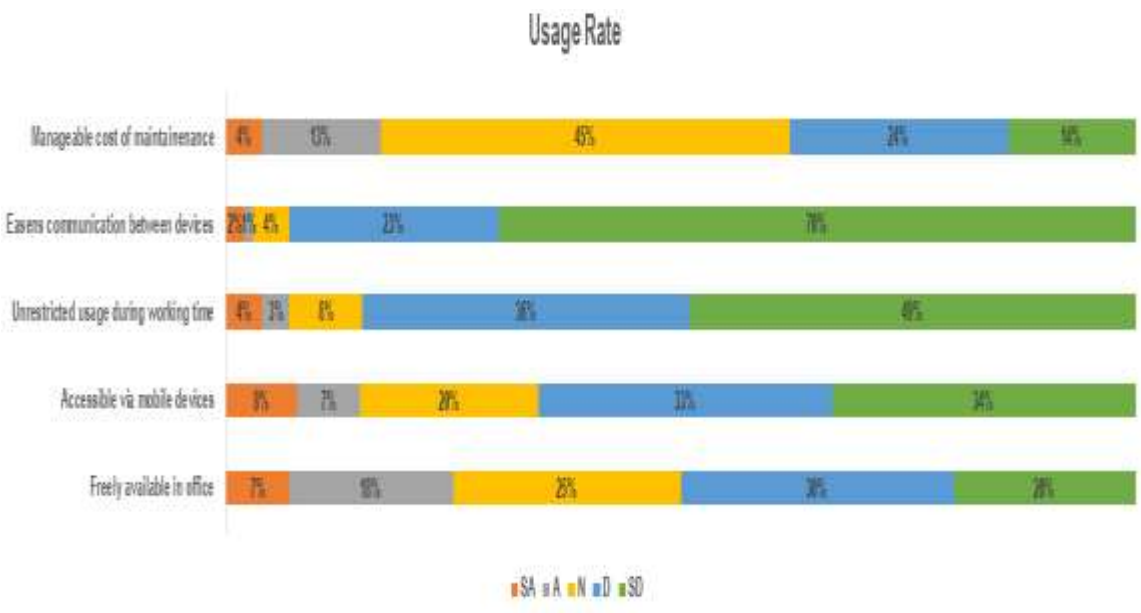


**Figure 4.10: Usage Rate Likert**

Majority of the respondents disagreed with the statement that the available wireless network in the office was freely available without restrictions, where 20% strongly disagreed, 30% disagreed and 25% were neutral. This meant there were control and restriction usage measures such as passwords. The respondents who strongly disagreed and disagreed with the statement that during working time there is no wireless network usage by the management were 49% and 36% respectively, 8% were neutral with less than 10% at least agreeing with the statement. Almost half of the respondents (45%) were indifferent on the cost of maintaining the cost of wireless network in the office, with 24% and 14% strongly disagreeing and agreeing respectively that it was cheap.

### 4.5.4 Descriptive Analysis of Wireless Networks Staff Skills and Organizations' Performance

The study sought to determine on how the staff skills on the use of wireless network influenced the organizations' performance. The respondents' training frequency on wireless network skills is summarized in figure 4.11.

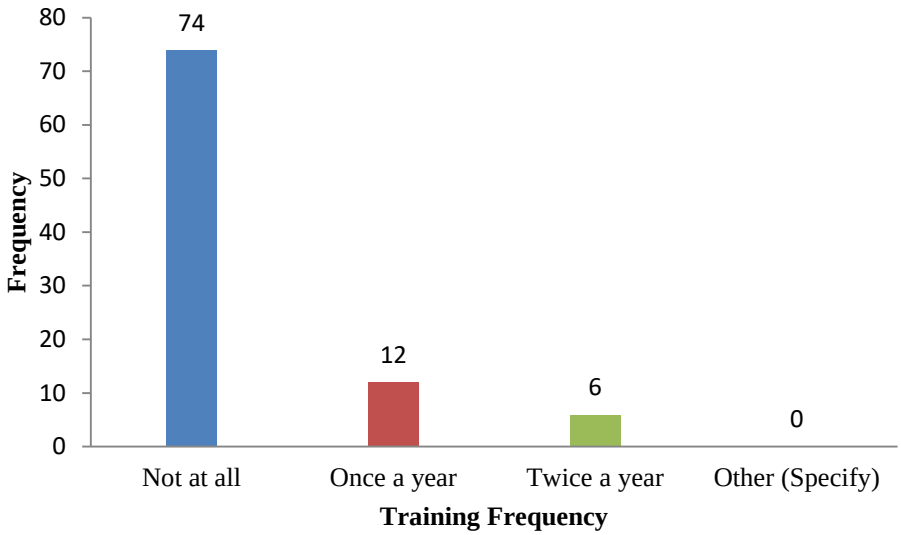


**Figure 4.11: Network Skills Training**

Majority 74(80.4%) of the respondents were never trained on wireless network skills in their organizations. Few got training once per year and less than 10% were trained twice a year. The training was majorly on the job and interactive. The respondents were subjected into a five point Likert scaled items whose responses were assigned the values: 1-Strongly Disagree, 2-Disagree, 3- Neutral, 4- Agree, and 5-Stronly Agree. Table 4.6 gives the summary of the responses on the items.

**Table 4.6: Wireless Network Staff Skills**

| Statements | N | Min | Max | Mode |
|---|---|---|---|---|
| Staff need to be trained in order to make use of wireless networks | 92 | 1 | 5 | 4 |
| Staff need experience on the use of wireless networks | 92 | 1 | 5 | 4 |
| The management of any organization need to put in place proper guidelines on proper use of available wireless networks | 92 | 1 | 5 | 5 |
| Sometimes staff uses available wireless networks/internet for their own work/communication. | 92 | 1 | 5 | 4 |

Depending on the result findings in table 4.6 the respondents' responses on whether the staff needed to be trained on wireless network usage there were31 respondents who strongly agreed with the statement, 53 agreed with the statement, 5 were neutral and only 3 disagreed with the statement of having the staff trained. Therefore, in a scale of 1-5 where 5-strongly agree and 1-strongly disagree, the mode was 4. The mode for the staffs need to have experience on the use of wireless networks was 4. Most of the respondents agreed with the statement that some of the staff used the wireless network for personal work. Whereby; 15 strongly agreed with the statement, 61 agreed and 10 were neutral the mode was 4 in scale of 1-5. The respondents supported the need to have proper guidelines on available wireless network usage in place, with 56 strongly agreeing, 31 agreeing and only less than 5 disagreed to the statement of having the proper guidelines on the proper use of the available wireless network, and therefore, in a scale of 1-5 where 5-strongly agree and 1-strongly disagree, the mode was 5. Figure 4.12 presents the responses in percentages.

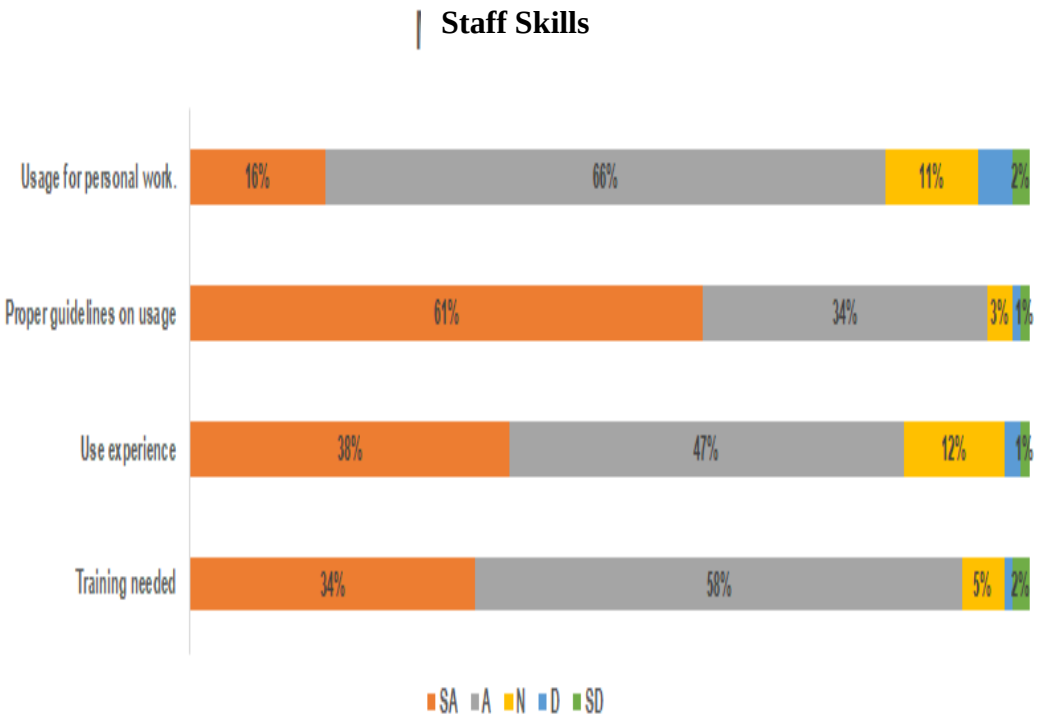


**Figure 4.12: Staff Skills Likert**

The respondents expressed the need for staff training on wireless network usage with 34% strongly agreed with the statement, 58% agreeing, 5% being neutral and only less than 5% disagreed with the statement. Majority of the respondents were in agreement with the statement that some staff use the wireless network for personal work where 16% strongly agreed, 66% agreed and 11%. Therefore only less than 10% disagreed with the statement. Overwhelmingly, the respondents supported the need to have proper guidelines on available wireless network usage in place, with 61% strongly agreeing, 34% agreeing and only less than 5% disagreed to the statement.

### 4.5.5 Descriptive Analysis of Management support on Wireless Uptake and Organizational Performance

The study sought to establish how the management supported the uptake of wireless network in the organization. Figure 4.13 summarizes the respondents' responses on the management support.

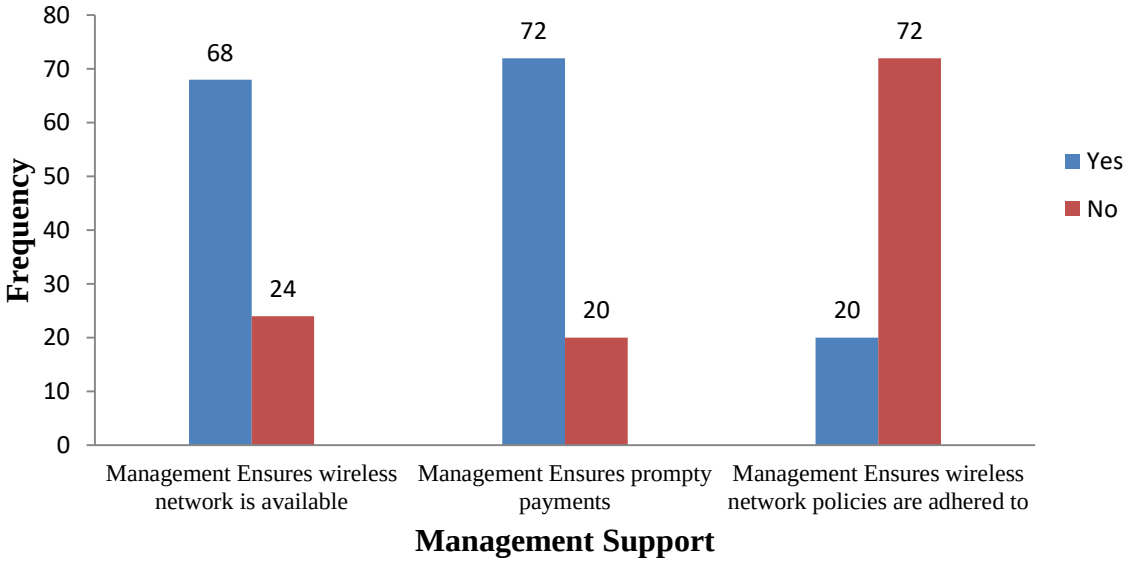


**Figure 4.13: Management Support**

Based on the respondents' responses, 73.9% agreed with the statement that managements ensured wireless network was available, while 78.3% agreed with the statement that management ensured prompt payments to have the network flow without disconnections,

but only 21.7% agreed with the statement that management ensured that the wireless network policies were adhered to. In order to analyze the management wireless network support, the respondents were asked to respond to the itemized statements by either declaring them as; true, not true or don't know. Whereby the responses were assigned the values; Don't know=1, Not true= 2 and True=3. Table 4.7 gives the responses summary on the management's wireless network support.

**Table 4.7: Wireless Network Uptake and Management Support**

| Statement | N | Min | Max | Mode |
|---|---|---|---|---|
| The Management has put in place a policy regarding the use of wireless networks in the office | 92 | 1 | 5 | 2 |
| Supervision mechanisms have been put in place by the Management to monitor staff as they make use of the available networks | 92 | 1 | 5 | 2 |
| The Management takes disciplinary measures on employees found going against the wireless networks policy rules | 92 | 1 | 5 | 2 |
| Employees are allowed to make decisions/ suggestions/ recommendations regarding the use of wireless networks in the organization | 92 | 1 | 5 | 3 |
| As an employee I am satisfied with the overall performance of the wireless network put in place by the management. | 92 | 1 | 5 | 3 |

Most of the respondents (55, 59.78%) did not qualify the statement that there was a policy regarding the use of the wireless network. Therefore, in a scale of 1-3 where 1=don't know and 3=true, the mode was 2. Close to two thirds (60, 65.22%) of the respondents did not agree with the statement that there was a supervision mechanism on the available wireless network and the mode the statement was also 2. According to (49, 53.26%) of the respondents, the management did not take disciplinary measures on employees found going against the wireless networks policy rules, the mode score for this statement was 2. Most

of the respondents (58, 63.04%) qualified the statement that employees were allowed to make decisions/ suggestions/ recommendations regarding the use of wireless networks in their organization and therefore the mode score for this statement was 3. Majorities (70, 76.87%) were satisfied with the wireless network performance in their organizations and therefore the mode score for this statement was 3 also. Figure 4.14 gives the summary of the responses in percentage.

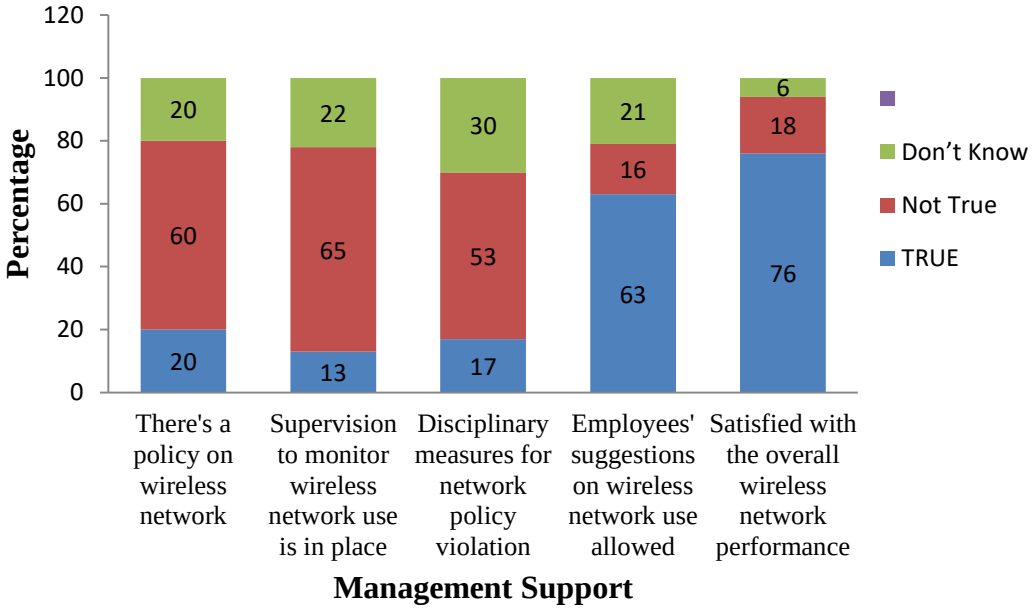


**Figure 4.14: Management Network Support**

Based on the study findings there was neither policy regarding the use of the wireless network nor supervision mechanism on the available wireless network since majority 60% and 65% of the respondents indicated that there was no policy and supervision respectively. Also, it was noted that 20% did not know the existence of such a policy leaving on 20% who were certain about the existence of the policy. About half of the respondents 53% opposed the statement that management took disciplinary measures on employees found going against the wireless networks policy rules. Majority 76% were satisfied with the wireless network performance in their organizations while 63% agreed to the statement that employees were allowed to make decisions/ suggestions/ recommendations regarding the use of wireless networks in the organization

### 4.6 Correlations and Ordinal Regression Analysis

Correlation was used to test the relationships between the organization's performance and each of the independent variable. Correlation coefficient was used to express the nature and strength of the relationship. Ordinal regression analysis was also conducted with the organization's performance being the response variable since it had a clear ordering of the category levels.

#### 4.6.1 Ordinal Logistic Regression Assumptions Tests

The study conducted the ordinal logistic regression model assumptions test to ensure that it was a valid model. The assumptions of the ordinal logistic regression include;

a) The ordered dependent variable,
b) One or more of the independent variables either continuous, categorical or ordinal.
c) No multi-collinearity.
d) Proportional odds

The response variable was ordered performance level, which was categorized as:

$$y_i = \begin{cases} 1 = poor \\ 2 = average \\ 3 = good \\ 4 = excellent \end{cases}$$

Measured on an ordinal level such that, $Poor < Average < Good < Excellent$. Therefore, assumption of ordered dependent variable was not violated. The assumption of having one or more of the independent variables either being continuous, categorical or ordinal also was not violated since the rate of Wi-Fi usage, management support and staff skills and training were recorded on a likert scaled responses which were continuous with Wi-Fi access being categorical.

The computed a correlation matrix and conducted collinearity diagnostics to ensure the absence of multi-collinearity among the independent variables. The findings are summarized in figure 4.15 and table 4.8.


**Figure 4.15 Correlation Matrix**

**Table 4.8 Multicollinearity test**

| | Collinearity Statistics | |
|---|---|---|
| **Variable** | **Tolerance** | **VIF** |
| Wi-Fi usage rate | 0.870 | 1.149 |
| Staff skills and training on Wi-Fi | 0.865 | 1.157 |
| Management Support on Wi-Fi usage | 0.886 | 1.128 |
| Wi-Fi Access at the work place | 0.889 | 1.125 |

*a. Dependent Variable: Organization Performance*

Based on the results in Table 4.8, the tolerance values were 0.870 for Wi-Fi usage rate, 0.865 for staff skills and training on Wi-Fi, 0.886 f for management support on Wi-Fi and 0.889 for the Wi-Fi access in the work place. These values are well above the threshold value of 0.10 hence the measure did not have multicollinearity based on those tolerance values.

On the Variance Inflection Factor (VIF) column, the values were between 1-5. Therefore the two collinearity statistics confirmed that, there was no collinearity among the study's

explanatory variables. There was a significant linearity relationship between the response variable and each of the three numeric independent variables. To test the sameness of the relationship between each pair of outcome groups the proportional odds test was conducted and the findings are summarized in table 4.9.

**Table 4.9: Test of Parallel Lines[c]**

| Model | -2log likelihood | Chi-Square | Df | Sig |
|---|---|---|---|---|
| Null Hypothesis | 158.149 | | | |
| General | 154.226[a] | 3.923[b] | 8 | 0.864 |

*The null hypothesis states that the location parameters (slope coefficients) are the same across response categories*

*a. The log-likelihood value cannot be further increased after maximum number of step-halving*

*b. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.*

*c. Link function: Logit.*

The null hypothesis of the proportional odds assumption test, also referred to as the parallel regression assumption test was that there is no difference in the coefficients between models, and since the results were non-significant, the null hypothesis could not be rejected. Hence, the study neither violated the proportional odds assumption nor any of the assumptions. Otherwise, the study would have deployed a different logistic regression model.

### 4.6.2 Accessibility Level and organizations' performance Correlation Analysis

Pearson coefficient of correlation was used to establish whether there was a significant relationship between wireless network accessibility and the organizations' performance. Table 4.10 gives the summary of correlation findings.

**Table 4.10: Wireless Access and Organization's performance**

| | Wireless Access | Organization's Performance |
|---|---|---|
| Pearson Correlation | 1 | 0.199** |
| Sig-(2-tailed) | - | 0.005 |
| N | 92 | 92 |

**. Correlation is significant at the 0.05 level (2-tailed).

Based on the Pearson Correlation value of 0.199, it implies that, there was a positive relationship between the wireless network access and the organization's performance. Given that the p-value (2-tailed) 0.005 was less than 0.05 it meant that the null hypothesis was rejected at $\alpha = 0.05$ and therefore wireless network access could be used to predict the organization's performance significantly at $\alpha = 0.05$.

### 4.6.2.1 Ordinal Regression of Wireless Network Access on Performance Level

To determine the influence of wireless network access on performance, the study conducted ordinal regression of access on the organizational performance. Table 4.11 gives the summary of the findings.

**Table 4.11: Parameter Estimates for Wireless Network Access**

| | | | | | | 95% CI | |
|---|---|---|---|---|---|---|---|
| Model | Estimate | Std. Error | Wald | Df | Sig | Lower Bound | Upper Bound |
| Threshold | | 0.476 | | 1 | 0.000 | -3.008 | -1.142 |
| [perf=1] | -2.075 | | 19.013 | | | | |
| | | 0.329 | | 1 | 0.017 | 0.141 | 1.430 |
| [perf=2] | 0.786 | | 5.714 | | | | |
| | | 0.522 | | 1 | 0.000 | 2.547 | 4.595 |
| [perf=3] | 3.571 | | 46.732 | | | | |
| Location | | 0.524 | | 1 | 0.000 | 1.850 | 3.902 |
| [access=0] | 2.876 | | 30.170 | | | | |
| | | 0.388 | - | 0 | - | - | - |
| [access=1] | 0[a] | | | | | | |

Link function: Logit

a. This parameter is set to zero because it is redundant.

Wireless network access was a significant factor at $\alpha = 0.05$ in predicting the organizations' performance given that $P - value = 0.000$ which was less than 0.05. The value of the ordinal regression coefficient 2.876 implied that, the staff who accessed Wi-Fi network performed 2.876 higher on average compared to the staff without an access, given all of the other variables in the model were held constant. Table 4.12 gives the summary of the categorical probabilities and odds ratio associated with particular levels of performance.

**Table 4.12: Ratios from Wireless Network Access**

| | Performance Levels | | | |
|---|---|---|---|---|
| Rate of use | 1 | 2 | 3 | 4 |
| Cumulative logit | - | -4.951 | -2.09 | 0.695 |
| Cumulative proportion | 1.000 | 0.993 | 0.890 | 0.333 |
| Categorical probability | 0.007 | 0.103 | 0.557 | 0.333 |
| Odds ratio | 17.74 | 17.74 | 17.74 | 17.74 |

The probability of progressing form level 1 (poor) to level 2 (average) was 0.007, from level 2 (average) to level 3 (good) was 0.103 and from level 3 (good) to level 4 (excellent) was 0.557.

The proportion of performing at excellent level was 0.333, then the proportion of performing from good and above was 0.890. The proportion of performing from average level and above was 0.993 under the prevailed circumstances.

The odds of the respondents with access to wireless network having their organizations achieve a higher performance level was approximately 18 times the odds for those without the access. Therefore, wireless network accessibility leveraged the organizations' performance.

### 4.6.3 Usage Rate and Organizations' Performance Correlation Analysis

Pearson coefficient of correlation was used to establish whether there was a significant relationship between wireless network usage rate and the organizations' performance. Table 4.13 gives the summary of correlation findings.

**Table 4.13: Wireless Network Usage Rate and Organization's Performance**

| | Usage Rate | Organization's Performance |
|---|---|---|
| Pearson Correlation | 1 | 0.205** |
| Sig-(2-tailed) | - | 0.025 |
| N | 92 | 92 |

**. Correlation is significant at the 0.05 level (2-tailed).

Based on the Pearson Correlation value of 0.205, it implies that, there was a positive relationship between the wireless network usage rate and the organization's performance. Given that the p-value (2-tailed) 0.025 was less than 0.05 it meant that the null hypothesis was rejected at $\alpha = 0.05$ and therefore wireless network usage rate could be used to predict the organization's performance significantly at $\alpha = 0.05$.

#### 4.6.3.1 Ordinal Regression of Wireless Network Usage Rate on Performance Level

The study conducted ordinal logistic regression of wireless network usage rate on the organizational performance. The findings are summarized in table 4.14 and table 4.15.

**Table 4.14: Parameter Estimates for Wireless Net Usage rate**

| | | | | | | | 95% CI | |
|---|---|---|---|---|---|---|---|---|
| Model | | Estimate | Std. Error | Wald | Df | Sig | Lower Bound | Upper Bound |
| Threshold | | | 1.357 | 4.889 | 1 | 0.027 | 0.341 | 5.658 |
| [perf=1] | | 3.000 | | | | | | |
| | | | 1.435 | 15.074 | 1 | 0.000 | 2.759 | 8.386 |
| [perf=2] | | 5.572 | | | | | | |
| | | | 1.544 | 26.300 | 1 | 0.000 | 4.893 | 10.947 |
| [perf=3] | | 7.920 | | | | | | |
| Location | Rate | 1.705 | 0.388 | 19.308 | 1 | 0.000 | 0.945 | 2.466 |

Link function: Logit

Based on the study findings in table 4.14; any extra hour in wireless network usage for the organization, would result to 1.705 increase of the ordered log odds of being in a higher level of organization's performance, given all of the other variables in the model are held constant.

The odds ratio and the categorical probabilities are summarized in table 4.15.

**Table 4.15: Parameters from Wireless Network Usage Rate**

| | Performance Levels | | | |
|---|---|---|---|---|
| Rate of use | 1 | 2 | 3 | 4 |
| Cumulative logit | - | 1.295 | 3.867 | 6.215 |
| Cumulative proportion | 1.00 | 0.215 | 0.000 | 0.000 |
| Categorical probability | 0.785 | 0.215 | 0.000 | 0.000 |
| Odds ratio | 5.501 | 5.501 | 5.501 | 5.501 |

The probability of progressing from level poor (1) to average level (2) in performance was 0.785 and 0.215 respectively. The probability of progressing from good level (3) to excellence level (4) of performance was 0.000 under the prevailed circumstances.

The proportion of performing from good and above was 0.000. The proportion of performing from average level and above was 0.215 under the prevailed circumstances.

The odds of the respondents with higher rate of wireless network usage having their organizations achieve a higher performance level was approximately 6 times the odds for those with lower rate of usage. Therefore, increasing wireless network usage rate leveraged the organizations' performance significantly.

### 4.6.4 Staff Skills and Organizations' Performance Correlation Analysis

Pearson coefficient of correlation was used to establish whether there was a significant relationship between wireless network staff skills and the organizations' performance. Table 4.16 gives the summary of correlation findings.

**Table 4.16: Wireless Network Staff Skills and Organization's Performance**

| | Staff Skills | Organization's Performance |
|---|---|---|
| Pearson Correlation | 1 | 0.263** |
| Sig-(2-tailed) | - | 0.035 |
| N | 92 | 92 |

**. Correlation is significant at the 0.05 level (2-tailed).

Based on the Pearson Correlation value of 0.263, it implies that, there was a positive relationship between the wireless network staff skills and the organization's performance. Given that the p-value (2-tailed) 0.035 was less than 0.05 it meant that the null hypothesis was rejected at $\alpha = 0.05$ and therefore wireless network staff skills could be used to predict the organization's performance significantly at $\alpha = 0.05$.

#### 4.6.4.1 Ordinal Regression of Wireless Network Staff Skills on Performance Level

The study conducted ordinal logistic regression of wireless network staff skills on the organizational performance. The findings are summarized in table 4.17 and table 4.18.

**Table 4.17: Parameter Estimates for Wireless Network Staff Skills**

| | | | | | | | 95% CI | |
|---|---|---|---|---|---|---|---|---|
| Model | | Estimate | Std. Error | Wald | df | Sig | Lower Bound | Upper Bound |
| Threshold | [perf=1] | 4.130 | 1.138 | 13.180 | 1 | 0.000 | 1.900 | 6.360 |
| | [perf=2] | 7.554 | 1.330 | 32.238 | 1 | 0.000 | 4.946 | 10.162 |
| | [perf=3] | 10.603 | 1.565 | 45.898 | 1 | 0.000 | 7.535 | 13.670 |
| Location | Staff Skills | 2.238 | 0.360 | 38.657 | 1 | 0.000 | 1.532 | 2.943 |

Link function: Logit

According to the study findings in table 4.17; one extra skill or training in wireless network in an organization, would result to 2.238 increase of the ordered log odds of being in a

higher level of performance in an organization, given all of the other variables in the model are held constant. The wireless network skill was a significant factor in predicting the organizational performance at $\alpha = 0.05$. The odds ratio and the categorical probabilities are summarized in table 4.18.

**Table 4.18: Parameters from Wireless Network Staff Skills**

| | Performance Levels | | | |
|---|---|---|---|---|
| Rate of use | 1 | 2 | 3 | 4 |
| Cumulative logit | - | 1.892 | 5.316 | 8.354 |
| Cumulative proportion | 1.00 | 0.131 | 0.005 | 0.000 |
| Categorical probability | 0.869 | 0.126 | 0.005 | 0.000 |
| Odds ratio | 9.375 | 9.375 | 9.375 | 9.375 |

The probability of progressing from level (1) poor to average level (2) in performance was 0.869 and 0.126 respectively. The probability of progressing from good level (3) to excellence level (4) of performance was 0.005 under the prevailed circumstances.

The proportion of performing at excellent level was 0.000, then the proportion of performing from good and above was 0.005. The proportion of performing from average level and above was 0.131 under the prevailed circumstances.

The odds of the respondents with wireless network skills, having their organizations' achieve a higher performance level was approximately 9 times the odds for those without. Therefore increasing wireless network skills leveraged the organizations' performance significantly.

### 4.6.5 Influence of Wireless Networks Management Support on organizations' performance

The study sought to determine how supporting the wireless networks by the management influence the organizations' performance. The Pearson's correlation, univariate and odds

ratio analysis were conducted and their findings are summarized in tables 4.17, 4.18 and 4.19 respectively.

#### 4.6.5.1 Wireless Networks Management Support and Organizations' Performance Correlation Analysis

Pearson coefficient of correlation was used to establish whether there was a significant relationship between the management support on the wireless network utilization and the organizations' performance. Table 4.19 gives the summary of correlation findings.

**Table 4.19: Wireless Networks Management Support and Organization's Performance**

| | Wireless Access | Organization's Performance |
|---|---|---|
| Pearson Correlation | 1 | 0.063 |
| Sig-(2-tailed) | - | 0.525 |
| N | 92 | 92 |

**. Correlation is significant at the 0.05 level (2-tailed).

Based on the Pearson Correlation value of 0.063, it implies that, there was a positive relationship between the management support on wireless network usage and the organization's performance. Given that the p-value (2-tailed) 0.525 was greater than 0.05 it meant that the null hypothesis could not be rejected at $\alpha = 0.05$ and therefore management support on wireless network usage could not be used to predict the organization's performance significantly at $\alpha = 0.05$.

#### 4.6.5.2 Ordinal Regression of Wireless Network Management Support on Performance Level

The study conducted ordinal logistic regression of wireless network management support on the organizational performance. The findings are summarized in table 4.20 and table 4.21.

**Table 4.20: Parameter Estimates for Wireless Network Management Support**

| Model | Estimate | Std. Error | Wald | df | Sig | 95% CI | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Threshold | | 1.209 | 3.285 | 1 | 0.070 | -4.561 | 0.178 |
| [perf=1] | -2.191 | | | | | | |
| | | 1.149 | 0.002 | 1 | 0.969 | -2.206 | 2.296 |
| [perf=2] | 0.045 | | | | | | |
| | | 1.171 | 2.995 | 1 | 0.084 | -0.269 | 4.320 |
| [perf=3] | 2.026 | | | | | | |
| Location Mgt | | 0.323 | 0.350 | 1 | 0.554 | -0.442 | 0.823 |
| Support | 0.191 | | | | | | |

Link function: Logit

According to the study findings in table 4.20; every extra management support on wireless network usage for office work in an organization, would result to 0.191 increase of the ordered log odds of being in a higher level of organization's performance, given all of the other variables in the model were held constant. The management support was not a significant factor in predicting the organizational performance at $\alpha = 0.05$ given that its P-value= 0.554 was greater than 0.05. The odds ratio and the categorical probabilities are summarized in table 4.21.

**Table 4.21: Parameters from Wireless Network Management Support**

| | Performance Levels | | | |
|---|---|---|---|---|
| Rate of use | 1 | 2 | 3 | 4 |
| Cumulative logit | - | -2.382 | -0.146 | 1.835 |
| Cumulative proportion | 1.00 | 0.916 | 0.536 | 0.138 |
| Categorical probability | 0.084 | 0.380 | 0.398 | 0.138 |
| Odds ratio | 1.210 | 1.210 | 1.210 | 1.210 |

The probability of progressing form level (1) poor to average level (2) in performance was 0.084 and 0.380 respectively. The probability of progressing from good level (3) to excellence level (4) of performance was 0.398 under the prevailed circumstances.

The proportion of performing at excellent level was 0.138, then the proportion of performing from good and above was 0.536. The proportion of performing from average level and above was 0.916 under the prevailed circumstances.

The odds of the respondents who enjoyed management support on Wi-Fi usage at the work place, having their organizations' achieve a higher performance level was 21% more the odds for those without. Therefore, extending the support through Wi-Fi usage policy formulation and regulation by the management leveraged the organizations' performance.

### 4.7 Multiple Ordinal Regression and Model Fitness

The study conducted ordinal logistic regression for all the variables to establish their significance in the model. Prior to conducting the analysis, the model fitness was evaluated.

#### 4.7.1 Model Fitness

The study carried out measures to determine how well the observed data corresponded to the fitted (assumed) model. The response variable level and the factor independent variables were analyzed. Tables 4.22 and 4.23 give the case processing summary.

**Table 4.22: Case Processing Summary**

| | | N | Marginal % |
|---|---|---|---|
| Performance | Poor | 5 | 5.4% |
| | Average | 27 | 29.3% |
| | Good | 41 | 44.6% |
| | Excellent | 19 | 20.7% |
| Access | Yes | 50 | 54.3% |
| | No | 42 | 45.7% |
| Total | | 92 | 100.0% |

The case processing summary table clearly gives the labeled factor variables and the ordered dependent variable included in the analysis and their values. It also gives the

descriptive statistics on the ordered response per category. This confirmed the variables needed for the analysis. Table 4.23 gives the summary of the goodness of fit analysis.

**Table 4.23 Goodness of Fit[a]**

| | Value | Df | Value/df |
|---|---|---|---|
| Deviance | 169.848 | 198 | 0.858 |
| Scaled Deviance | 169.848 | 198 | |
| Pearson Chi-Square | 197.388 | 198 | 0.997 |
| Scaled Pearson Chi-Square | 197.388 | 198 | |
| Log Likelihoodb | -93.677 | | |
| Akaike's Information Criterion (AIC) | 199.354 | | |
| Finite Sample Corrected AIC (AICC) | 200.342 | | |
| Bayesian Information Criterion (BIC) | 214.484 | | |
| Consistent AIC (CAIC) | 220.484 | | |

Dependent Variable: Org_ Performance

Model: (Threshold), rate2, staff skills and training, Msupport

a. Information criteria are in smaller-is-better form.

b. The full log likelihood function is displayed and used in computing information criteria.

By looking in the Goodness of Fit table, and the value at the Value/df column for the Pearson Chi-Square row, the number is 0.997 which was close to 1, the ideal value, coupled by the fact that it was more than .05**,** it meant that the model fits the data well. Therefore the data analysis proceeded. The Omnibus test also gave P-value of 0.016 which confirmed and validated was statistically significant and fit for usage. The study also conducted chi-square statistic which gave out (P<0.000) indicating that the Final model gave a significant improvement over the baseline intercept-only model. The study conducted the goodness-of-fit test to compare the observed values to the expected (fitted or predicted) values. Table 4.24 gives the summary of the goodness of fit analysis.

**Table 4.24: Goodness of Fit Analysis**

| | Chi-Square | Df | Sig |
|---|---|---|---|
| Pearson | 330.744 | 265 | 0.004 |
| Deviance | 157.616 | 265 | 1.000 |

Link function: Logit.

The statistics in table 4.24 indicates that the study had a good model since the P value was large (P=1.000) hence the null hypothesis that the observed data was consistent with the fitted model could not be rejected. The study conducted a test on how the chosen explanatory variables explained the performance variation. Table 4.25 gives the summary of the findings.

**Table 4.25: Pseudo R- Squared**

| | R- Squared |
|---|---|
| Cox and Snell | 0.501 |
| Nagelkerke | 0.551 |
| McFadden | 0.289 |

Link function: Logit.

The study's pseudo $R^2$ values (Nagelkerke = 55.1%) in table 4.25, indicates that the explanatory variables explain a relatively a bigger proportion of the variation between the wireless network; access, rate of usage, staff skills and the management support and the organizations' performance. The extraneous proportion of 44.9% was the unexplained variation due to other factors that affected the organizations' performance but not related to the wireless network utilization.

### 4.7.2 Multiple Ordinal Regression Analysis

The study conducted ordinal regression analysis where the response variable had an ordering four level response items on organizations' performance. The ordinal dependent variable four levels were categorized as; "poor" (1), "average" (2), "good" (3), and "excellent" (4) against four independent variables which included wireless network;

access, usage rate, staff skills and management support. Table 4.26 gives specific values about the relationship between the explanatory variables and the response variable.

**Table 4.26: Parameter Estimates for Multiple Ordinal Regressions**

| Model | Estimat | Std. Error | Wald | df | Sig | Exp(B) | 95% CI Lower Bound | 95% CI Upper Bound |
|---|---|---|---|---|---|---|---|---|
| Threshold [perf=1]; $\alpha_1$ | 5.521 | 2.132 | 6.707 | 1 | 0.010 | ----- | 1.343 | 9.698 |
| [perf=2]; $\alpha_2$ | 9.000 | 2.282 | 8.551 | 1 | 0.000 | ----- | 4.527 | 13.474 |
| [perf=3]; $\alpha_3$ | 12.414 | 2.498 | 9.690 | 1 | 0.000 | ----- | 7.518 | 17.311 |
| Location | | 0.442 | | 1 | 0.068 | 2.237 | -0.061 | 1.671 |
| Usage Rate | 0.805 | 0.419 | 3.323 | 1 | 0.000 | 5.018 | 0.792 | 2.434 |
| Staff Skills | 1.613 | 0.356 | 4.821 | 1 | 0.831 | 1.079 | -0.622 | 0.774 |
| Support mgt | 0.076 | 0.594 | 0.046 | 1 | 0.036 | 3.473 | 0.081 | 2.409 |
| [Access=0] | 1.245 | | 4.392 | 0 | | | | |
| [Access=1] | 0[a] | | | | | | | |

Link function: Logit

a. This parameter is set to zero because it is redundant.

Since the response variable has 4 levels, there are 3 intercepts, stored in a component of the model. These are log-odds of cumulative probabilities such that for the predictors at their reference level, the inverse logit of the first intercept is P(Y≤1) and the inverse logit of the second and third intercept are P(Y≤2) and P(Y≤3) respectively. Hence the linear ordinal logistic regression equation is;

$$\log\left(\frac{P(Y \le j)}{1-P(Y \le j)}\right) = \text{logit}\left(P\left(Y \le j\right)\right) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k x_k$$

$$\log\left(\frac{P(Y \le j)}{1-P(Y \le j)}\right) = 5.521 + 0.805(Usage\_rate) + 1.613(Staff\_skills) + 0.076(Adm\_support) + 1.245(Access)$$

The value 5.521 is an intercept and represents the log-odds of Y≤1 holding all the predictor variables at their reference level. Every extra hour in the Wi-Fi usage for office work was expected to increase the organization ordered log-odds by 0.805 on average holding staff Wi-Fi skills, management support and Wi-Fi access constant. Every extra skill or training on Wi-Fi usage was expected to increase the organization ordered log-odds by 1.613 on average holding the Wi-Fi usage rate, management support and Wi-Fi access constant. The staff trained on Wi-Fi network usage were 5.018 times more likely to perform higher than those not trained, based on their odds. Every extra management support on Wi-Fi usage at the work places increased the organization ordered log-odds by 0.076 on average holding staff Wi-Fi skills, Wi-Fi usage rate and Wi-Fi access constant. The respondent who accessed Wi-Fi network in their place of work were 1.245 higher on average in their performance compared to those who did not and they were 3.473 times more likely to perform higher than those who had no access, based on their odds.

There were only two variables that were significant in the model at $\alpha = 0.05$, having P-values less than 0.05 thresholds, which were the wireless network staff skills and the wireless network accessibility. The wireless network usage rate and management staffs' support on wireless network utilization affected the organizations' performance positively also but they were not significant at $\alpha = 0.05$ in the ordinal regression model since their p-value were greater than 0.05 threshold.

Based on the result of the multiple ordinal logistic regression analysis, it could be concluded that wireless network staff skills and the wireless network accessibility at the work places were the main influential factors that affect the undevolved governmental ministries rating performance by the time the research was conducted**.** This was because their P- values were less than the 0.05 critical values. The two had the highest change in the log odds of the

response for a unit change in each one of them, holding all other explanatory variables constant.

# CHAPTER FIVE

## 5.0 DISCUSSION

### 5.1 Introduction

This chapter gives the summary of the key study findings and comparative analysis with the past research findings on similar area of study.

### 5.2 Summary of the Major Findings

The study had most of the respondents being males and the respondents had at least five years of work experience. Majority of the sampled respondents, had the bachelor's degree, while the minority had form four certificates. The respondents were categorized into either management or non- management levels, where the non- management formed the larger sample. The management level was regrouped into top, middle and lower management. The respondents cited several benefits of utilizing the wireless network such as; meeting the set targets reduced customer complaints, and timely completion of tasks.

For the purposes of the study analysis, the organizations' performance were categorized into four levels in an ordered manner; level 1 (poor), level 2 (average), level 3 (good) and level 4 (excellent). The specific levels were pegged on the respondents rating of their organizational performance with regard to the customers' satisfaction categorized.

The multiple ordinal regression method was applied to rate the effect of each of the chosen independent variable on the organizations' performance.

The baseline performance of the organization at reference levels of the predictor variables was a positive value above five. It represented the log-odds of $Y \leq 1$ holding all the predictor variables at their reference level. Every extra hour in the Wi-Fi usage for office work, an increase skill or training on Wi-Fi usage and the increased Wi-Fi access would result to the increase of the organization ordered log-odds on performance. The staff trained on Wi-Fi network usage were much more likely to perform better than those not trained, based on their odds. The management support on Wi-Fi usage at the work

places would increase the organization ordered log-odds positively though insignificantly.

### 5.2.1 Wireless Network Access and Organizations' Performance

The first objective of this study was to determine the influence of accessibility level of wireless networks on organizational performance in the undevolved government ministries in Machakos town. Based on the study findings there was a positive and statistically significant relationship between the wireless network accessibility and the organization's performance with a Pearson Correlation value and the p-value (2-tailed) confirming the positivity and significance of the association. The univariate ordinal regression analysis indicated an increase in the ordered log odds of being in a higher level of performance, when wireless network access increased given all of the other variables in the model were held constant.

Based on the multiple ordered regression analysis output respondent who accessed Wi-Fi network in their place of work were higher on average in their performance compared to those who did not and they were much more likely to continue performing higher than those who had no access, based on their odds.

This study finding were in consistent with Pahlavan, (2021) research findings whose study objective was to understand how wireless internet had evolved over the years. Pahlavan in his study learned that networking had evolved from the old wired telephones to cellular voice telephones and from access that was wired through wireless access to the internet information networks and this had had a deep impact on people's lives which led to better organizations' performance with enormous growth in the wireless networking field. Wireless network brings about more agility and flexibility in working arrangements since from a single working base the officer can reach out to several departments within or outside the County offices. The county and national offices should endeavor to operate and live up to the current level of Wi-Fi network connectivity and enhance their operational efficiency and effectiveness.

The findings were true reflection of the West, (2014) study on how the mobile technology is giving a new shape to the society, communications and the global economy. The study indicated that the smart phones and tablets usage was on the increasing trend and eased the business transactions.

True to his study findings mobile connectivity could be considered essential and very important for what has come to be known as the "Internet of Things." Today in most organizations communications is linked through high-speed networks and cloud-based solutions. The Wi-Fi accessibility in both the county offices and national public offices is not only necessary but sufficient input for daily office operations.

However, as cited by Chipeva et al. (2018) the internet availability and accessibility doesn't always guarantee increased organizational performance since there are more underlying factors such as the behavioral intention of the staff, as well as the effect of age. Their study explored the digital divide by checking the phenomenon at the individual level and dug into the individual pattern of adoption and use of a broad set of information and communications technologies (ICT). The study provided insights on factors affecting technology adoption and the role of personality on individual usage behavior by introducing a conceptual model combining the extended unified theory of acceptance and use of technology (UTAUT2) and the five-factor model of personality. Unlike the current study, they collected the data in Bulgaria and Portugal, hence a possible a multi-group country differences among other factors like effect of age on Wi-Fi usage regardless of accessibility.

### 5.2.2 Wireless Network Usage Rate and Organizations' Performance

The second objective of the study was to assess the extent by which the rate of usage of wireless networks influenced organizational performance in the undevolved government ministries offices in Machakos town. Based on the study findings wireless network usage rate varied among the respondents. However, majority (of the respondents were using the wireless net between 1 to 2 hours on average per day where as a minority were using the wireless net for more than 4 hours on average per day on official activities.

There was a positive and statistically significant relationship between the wireless network usage rate and the organization's performance with a Pearson Correlation having a positive value and the p-value (2-tailed) being less than the critical value at five percent significance level. The univariate ordinal regression analysis indicated an increase in the ordered log odds of being in a higher level of organization's performance for every increase in wireless network usage rate given all the other variables in the model were held constant.

As observed by Chlamtac, (2021) in a study on wireless networks deployment, where the study ascertained that by releasing the user from the cord, personal communications networks, wireless, LANs, mobile radio networks and cellular systems, the promise of a fully distributed mobile computing and communications anytime anywhere was being realized and that wireless networks provided a worldwide forum for archival value contributions supporting these fast-growing issues of interests in the business world and institutions. The Wi-Fi usage guarantees continuous engagement devoid of downtime with more advantageous features such as seamless roaming and scalability to the demands of a specific office, ministry or county.

The current study findings were in agreement with Cascio & Montealegre, (2016), findings in their study on the way technology was bringing about changes to work and organizations, where they discovered that the new infrastructure was enabling people do things better and quicker than in the previous periods and it also enabled new ways of control, co-ordination, and collaboration on activities more readily and even at lower costs. The current and previous studies indicate that Wi-Fi network penetration and usage rates has causal effect on both efficiency and reduced operational organization costs. Therefore in this era of economic downtown every county and national government should endeavor to strengthen the Wi-Fi bandwidth in the office premises to save on costs and time.

The findings by Khatib (2014) also related to the study objectives positively in that it showed that research had been done to improve on the quality of service in wireless communications and that urgent work could be done using wireless networks. In our days the organizations and the government ministries have the ability to optimize the

performance of multiple applications on their network and gain visibility into the bit rate and packet rate of their network. This ensures they can engineer the traffic on their network and change the way that packets are routed to the internet or other networks to avoid transmission delay. This also ensures that the organization achieves the expected service quality for applications and delivers expected user experiences. This also ensures the county office deliveries flow seamlessly un interrupted.

However, Jalagat (2017) in his study of evaluating the Impacts of IT Usage rate on Organizational Performance noted that increased internet applications and mobiles/devices usage had no statistically significant relationship with work output with both the Pearson coefficient and p-values indicating insignificance association. The research employed the questionnaire survey design method and random sampling technique to select 60 participants. The data analysis used statistical tools such as frequencies and tables, weighted mean and standard deviation, correlation, T-Test and regression analysis. The differences could be attributed to the scope and the data analysis methods.

### 5.2.3 Wireless Network Staff Skills and Organizations' Performance

The third objective of the study was to establish the influence of wireless networks staff skills on organizational performance in the undevolved government ministries in Machakos town. The study noted that wireless networks had not reached its full potential and utilization in Machakos County undevolved government ministries. This could be attributed to lack of training among the staff given that, as per the study findings majority of the respondents were never trained on wireless network skills over their work experience. The few who got training was majorly on the job and interactive.

There was a positive and statistically significant relationship between the wireless network staff skills and the organization's performance with a positive Pearson Correlation value and a significant p-value (2-tailed). The univariate ordinal regression analysis indicated an increase in the ordered log odds of being in a higher level of performance, for every acquisition of wireless network staff new skill when controlled for Wi-Fi access, usage rate and the management support.

The study findings were in consistent with Armstrong, (2020) study findings' research on skills acquisition and job performance. Based on his research findings, training is the most basic function of human resources management and it is the systematic application of formal processes to help people to acquire the knowledge and skills necessary for them to perform their jobs satisfactorily. The county government ministries once they train their staff on Wi-Fi and technology can provide a practical chance to put into practice the newly acquired skills and knowledge. Every theory developed by either the academics or consultants need to be tried in a real-world context and in-line with the ministry, organization or business objectives, to establish if there is any positive and productive change. The undevolved ministry could train their staff on Wi-Fi and technology office usage and compare their performance before and after training.

The study findings were compatible with the research findings by Masri and Suliman (2019), which noted that, even if an employee doesn`t demonstrate an innate talent, his performance can be improved through continuous training and development programs. This means every county ministry needs to budget for staff training and development as part of the strategic plan cycle.

Training is key for staff performance and it consists of an organization's planned efforts to help employees acquire job-related knowledge, skills, abilities, and behaviors, with the goal of applying on their respective job, Noe and Hollenbeck (2019) stated in their study that aimed at disentangling performance management, performance appraisal and performance measurement as often misconstrued by management, human resource management and other related disciplines researchers across the globe. Therefore, the research findings for this study confirmed the necessity of staff training on specific areas of engagement. To note also is that, performance management, measurement and appraisal should be treated separately to avoid misrepresentation or duplicates of concepts within the research arena.

Vinesh (2021) research findings observed that organizations and government sector are currently confronted with stiff competition and ever-advancements within their business

environments. For organizations to confront changing technological fronts, they need to face these challenges head-on, they are expected to have well-equipped employees with sufficient relevant training and development. His research deployed mixed method research approach; by conducting semi-structured interviews from managers and surveys to support staff to establish the driving factors on organizational performance and to collect additional insights and understand the driving factors and reasons concerning why employees responded to the survey items the way they did. The data analysis for the quantitative part used SPSS, and the qualitative data was analyzed using thematic analysis. Therefore, this research findings underscored his finding by the fact that, those trained on Wi-Fi skills performed better than the staff that did not receive any training.

The current study findings on the effect of Wi-Fi staff training on the organizations' performance objective were in agreement with Laing (2021) research findings who viewed training and development as a planned process to modify attitude, knowledge, skill or behaviour through learning experience to achieve effective performance in an activity or range of activities in an organization. The research used a questionnaire to collect data. The questionnaire was designed using structured questions to collect primary data from employees and personal interviews were held with some management staff of the organization. Most of the employees were of the view that training and development were effective tools for both personal and organizational success. The key purpose, in the work situation, is to develop the individuals' abilities and satisfy the organization's current and future needs.

Utete (2021) study states that the failure or success of an organization rests on the effectiveness of training and development strategies of the employer. Based on the study findings, the staff training is the principal driving force and central to effective and efficient job performance. These findings resonated very well with the current study findings. Hence, based on the preceding study findings on the influence of staff training on IT usage generally and specifically Wi-Fi usage it is undisputable that training on technology has a significant positive relationship with employee performance in today's office work.

The study by Siriwardena and Morais (2019) stated that effective staff training of an organization's human resources is associated with both immediate and long-term returns. Training is important for improving performance; it increases individual and organizational competencies. It is also key to unlock potential growth and development opportunities to achieve a competitive edge. Training programmes acquaint employees with advanced technology and help them attain strong competencies and skills for handling the newly introduced technology. Training facilitates updating employee skills and leads to increased wellbeing, commitment and a sense of belonging to the organization, directly strengthening the firm's competitiveness. Moreover, they mentioned that training is a significant variable in enhancing organizational productivity. This implies that training is a powerful instrument in the successful attainment of a firm's goals resulting in high performance and productivity. This meant, staff training on Wi-Fi usage should be a going concern for the undevolved county government ministries or any organization, institution and ministry.

The findings were in tandem with Rezaei et al (2014) study findings on the effects of information technology on employee productivity. One of their study conclusion recommendations was; although ICT and computer use have not at any time replaced the human decision making, their ability to assist managers and workers make the correct decisions by use of correct information and speeding up tasks cannot be disregarded. They further determined that many firms had discovered the significance of IT and its impact on speeding up accurate performance of tasks and enhancing satisfaction of customers, support systems, manager's decision making and the organizations effectiveness.

However, as noted by Salman et al. (2020) in study on Employee Competencies as Predictors of Organizational Performance, the staff training may not always result to increased organizational performance until the individual employee work on their self-competency, which is more of individual-focused development approach. This implies that, the staff training on Wi-Fi technology should be laced by the individual staff right attitude and sacrifice. Otherwise the much trainings won't match the expected performance output.

### 5.2.4 Wireless Network Management Support and Organizations' Performance

The fourth and last objective of the study was to determine whether there was a relationship between management support on the uptake of wireless networks and organizational performance in the undevolved government ministries in Machakos town. Based on the study findings the management needed to up scale the staff support on the wireless network utilization, the study pointed out that, there was a positive but statistically insignificant relationship at five percent significance level between the management support on wireless network utilizations and the organization's performance with a dismally positive Pearson Correlation value. The univariate ordinal regression analysis indicated that, for every one unit increase in wireless network management support there was a positive increase in the ordered log odds of being in a higher level of performance, given all of the other variables in the model were held constant.

Utete (2023) in his research findings stated that organizations and governments are expected to focus on building employees' positive performance by providing employees with tools and skills to meet new realities and challenges. He further indicated that globalization, new market demands, innovation and intelligent economy are the main challenges and drivers for institutions to maintain and improve employee performance. The fact that there was a positive relationship between the management staff support on Wi-Fi utilizations is an indication of the convergence between this study's findings and Utete's research findings. In this era of artificial intelligence, digitization and automation of most county and government services provision of Wi-Fi within the work stations should be treated with urgency and priority by all county ministries.

According to the study by Landa (2018), which sought to investigate the influence of leader support and integration of information technology on staff and institutions' perfromance, mediating the effect of the Technological Knowledge Level (TKL). The study used Structural Equation Modeling (SEM) to analyse the extent to which leader support influences the IT integration, mediated by the TKL when controlled for demographic factors such as age, gender and prior knowledge. The yielded results reveal that the integration of IT among the staff was positively influenced by leader support; the higher

the support the staff receive from their leaders, the better the integration of IT. These findings underscore the role of the top management in Wi-Fi technology utilization level.

Further similar findings were the social exchange theory (SET) (Liao et al., 2019) and organizational support theory (Rhoades and Eisenberger, 2002), who both recommended that, companies need to give support to their workers, so that they obtain higher incentive to work hard and get better performance. The theories suggested that, far from being independent, the different parts of the employee–employer association considered by the two theories are mutually interdependent and the key processes identified by each theory influence the relationships described by the other theory. To further the understanding of the employee–employer relationship, the theories provide an integrated account that emphasizes the interdependence of perceived organizational support and the psychological contract. Therefore it calls for the management to be intentional in supporting the staff through non-interrupted Wi-Fi supply for improved organizational performance.

These findings were similar to study findings on research carried out by Okeyo & Kioko (2017) on the uptake of information communication Technology in Machakos County, Kenya whose study objective was to determine how uptake of ICT in Machakos County depended on management support. The researchers adopted a qualitative approach with conversational semi-structured interviews and self-completing questionnaires. The findings revealed that top management support was necessary in order to give the required commitment and support for the initiation and adoption process to be successful. This confirms the common adage in human resource management that, one can delegate authority, but cannot delegate responsibility. Implying the top management should consciously be alert in supporting the staff to ensure the organizations' remain on course to their specific mission and vision.

However, according to the study by Aguinis et al. (2018), management support can be a powerful influence on employee motivation and performance. However, management support systems do not always live up to expectations, unless it is invested in training and development activities. The study recommended reassignment as an option since employee

could be better suited for another position within the organization with different responsibilities. Therefore it is advisable prior to terminating the services of an employee due to poor performance having accorded him/her the infrastructural support not limited to Wi-Fi and salary allowances to reassign him/her other duties.

# CHAPTER SIX

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Introduction

This chapter presents the conclusions and recommendations of the study. The recommendations were further categorized into policy, practice and academicians.

### 6.2 Conclusions

Based on the study findings and their interpretations the following conclusions were made in relation to each objective studied:

The ordinal regression is a better option in the study involving ordinal form of the response variable. According to the result of this study, the most likely associated indicators with the performance were, the wireless network staff skills, which had a positive and significant effect on organizations' performance. The Pearson Correlation analysis applied had a positive value and the p-value (2-tailed) was less than the critical vale at five percent significance level. The univariate ordinal regression analysis indicated that, for every one unit increase in wireless network staff skill there was a significant increase in the ordered log odds of being in a higher level of performance, given all of the other variables in the model were held constant. In the hierarch of effectiveness, staff skills ranked second after the wireless network access on the organizations' performance among all the independent variables in the study.

The wireless network accessibility and coverage within the working area had a positive and significant effect on organizations' performance with a Pearson Correlation having a positive value and the p-value (2-tailed) having a value less than the critical value at five percent significance level. The univariate ordinal regression analysis showed that, for every one unit increase in wireless network access there was a significant increase in the ordered log odds of being in a higher level of performance, given all of the other variables in the model were held constant. The wireless network had the highest effect on performance among all the other independent variables in the study. The study established that there was a clear link between the wireless network usage rate and the organizations performance.

The respondents' wireless network usage rate affected the organizations' performance positively and significantly at five percent significance level. The Pearson Correlation analysis had a positive value and the p-value (2-tailed) was less than the critical value at five percent significance level. The univariate ordinal regression analysis indicated that, for every one unit increase in wireless network usage rate there was a positive increase in the ordered log odds of being in a higher level of organization's performance, given all of the other variables in the model were held constant.

The management staff support on wireless network utilization had a positive but insignificant effect on the organizations' performance at five percent significance level. The Pearson Correlation analysis had a positive value and the p-value (2-tailed) was more than the critical value at five percent significance level. The univariate ordinal regression analysis indicated that, for every one unit increase in wireless network management support there was a positive change in the ordered log odds of being in a higher level of performance, given all of the other variables in the model were held constant. This was least effective among all the independent variables in the study.

Therefore, it was evident that wireless network accessibility, usage rate and staff skills/training on how to utilize it had a direct positive and significant effect on organizations' performance. Although the management support had some positive effect on the organizations' performance, it was not significant at five percent significance level.

### 6.3 Recommendations

Based on the study findings and the preceding conclusions, the following recommendations were made.

#### 6.3.1 Recommendations for Policy

The undevolved government's ministries managers need to be cognizant of the larger societal and generational contexts in which their staffs live their daily formal and social lives in order to install wireless network connectivity in every office. On the other hand the

Communications Commission of Kenya should ensure facilitation of access to wireless networks on all organizations that have ensured compliance to its policies.

Researchers should further examine the efficiency and cost- effectiveness of conducting businesses and office work online and level of attainment of the desired outcomes. This should form the basis for hybrid office operations among the undevolved ministries as a matter of policy.

### 6.3.2 Recommendations for Practice

Largely, given that Wi-Fi proved to have an important effect on workplace productivity by allowing employees to collaborate in real time, and access information quickly. Organizations must have a dependable Wi-Fi network in order to maintain productivity, improve customer service, and increase employee satisfaction.

Human resource management department in each of the undevolved national ministry should conduct training need assessment to improve employees` performance in the ministry. Prepare the Wi-Fi usage training programs of their employees as a continuous activity and systematic way with clear ministry's strategic mission and objectives. The undevolved government's ministries managers should help staff members to develop the skills they need to engage with wireless network information and communications. This also should include development of wireless network manuals and form part of new staff orientations.

Since Wi-Fi usage rate was found to be a positive predictor of employee and organizations' performance in the undevolved ministries, human resource management should provide conducive Wi-Fi working environment, adequate and necessary support gadgets to use Wi-Fi in the work stations. Given that the Internet has evolved into a necessary tool in the modern workplace and Wi-Fi access and coverage was a significant predictor of improved employee and organizations' performance. In order to maintain productivity and competitiveness, the ministries must have a reliable and robust internet network and the managers should provide multiple channels and ample wireless network coverage within

the work stations. Each ministry should envision to universal access, and shift from the current access situation to one with high-quality, fully reliable internet access in all departments within the ministry.

### 6.3.3 Recommendations for Academicians

More rigorous similar research in different counties on the impacts of wireless network on organizations and institutions performance can be carried out so as to ascertain the validity, reliability and the generalizability of the study findings. The training institutions, government and other policy makers, should comprehend the importance and developmental necessity of wireless network in learning and working hence incorporate it in the curriculum development to enhance Wi-Fi usage rate and knowledge. The institutions of higher learning should develop and mount short managerial courses targeting the undevolved government's ministries managers to train them on the wireless network knowledge and skills which their staff need to operate optimally in their formal duties.

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## Appendix i: Letter of Transmittal

Cecilia N Katumo

P O Box 136 - 90100

MACHAKOS

Date 14th June 2022

Dear Sir/Madam,

**RE: DATA COLLECTION**

I am a post graduate student at the South Eastern Kenya University pursuing a Masters Degree in Business Administration (Strategic Management option). As partial fulfillment of the requirement for this course, I am conducting a research on ***Wireless Network Uptake and Organizational Performance in Undevolved Government Ministries in Machakos Town.***

I will greatly appreciate if you kindly assist me in filling the provided questionnaire. I wish to assure you that the information collected will be treated with utmost confidence and will solely be used for academic purposes only.

I look forward to your prompt response. Thank you in advance.

Yours sincerely,

**Cecilia Nundu Katumo**

**D61/MAC/20745/2016**

## Appendix ii: Questionnaire

This questionnaire is solely for academic purposes only. Any information provided will be treated with great confidence. The questions are seeking your opinion on the effects of wireless networks uptake on organizational performance in the Undevolved Government Ministries in Machakos town. Kindly answer as appropriate. Thank you.

**SECTION I: PERSONAL INFORMATION**

1. Name of your office/department? ……
2. Gender?
   - Male [ ]
   - Female [ ]
3. For how long have you worked in this office/department?
   - Below 5 years [ ]
   - 5 - 15 years [ ]
   - 16 - 25 years [ ]
   - Above 25 years [ ]
4. Highest Level of education
   - Secondary Level [ ]
   - College Level [ ]
   - Undergraduate Level [ ]
   - Post Graduate Level [ ]
5. From the following categories, where are you placed in your organization?

   Top Level Management [ ] Middle Level Management [ ]

   Lower Level Management [ ] Other Employees [ ]

**SECTION II:**

**PART A: ACCESSIBILITY OF WIRELESS NETWORKS**

6. To what extent do you agree with the following statement regarding your organization:-

   My organization has access to wireless networks/internet?

   Agree [ ]

   Disagree [ ]

7. How do you access the wireless networks/internet available in your organization/office? (Tick any one or more).

   Office Computer [ ]

   Tablet/Laptop [ ]

   Own mobile phone [ ]

8. How is the speed of the internet?

   Fast [ ]

   Slow [ ]

9. Kindly indicate the extent to which you agree with the following statement where 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree

| **Statement** | **Strongly Agree (5)** | **Agree (4)** | **Neutral (3)** | **Disagree (2)** | **Strongly Disagree (1)** |
|---|---|---|---|---|---|
| The entire office is wholly covered by a wireless network | | | | | |
| Only a section of the office is covered by the wireless network | | | | | |
| There is no wireless network available at all in the office | | | | | |

**PART B: RATE OF USAGE OF WIRELESS NETWORKS**

10. On average, how many hours in a day do you make use of wireless networks in your office?

    0 hours (none) [ ]

    1-2 [ ]

    3-4 [ ]

    Above 4 hours [ ]

11. Kindly indicate the extent to which you agree with the following statements where 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree

| **Statement** | **Strongly Agree (5)** | **Agree (4)** | **Neutral (3)** | **Disagree (2)** | **Strongly Disagree (1)** |
|---|---|---|---|---|---|
| Available wireless network in the office is freely available without restriction | | | | | |
| Staff are able to access wireless networks even through their mobile electronic devices | | | | | |
| During working time there is no restriction from the management on the frequency of usage on wireless networks | | | | | |
| Wireless networks ease communication from one computing electronic device to another | | | | | |
| The cost of maintaining wireless networks in the office is quite manageable | | | | | |

12. Indicate the extent to which you agree with the following statement where 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree

| **Statement** | **Strongly Agree (5)** | **Agree (4)** | **Neutral (3)** | **Disagree (2)** | **Strongly Disagree (1)** |
|---|---|---|---|---|---|
| Official communication in the office is majorly done via email | | | | | |
| Staff are allowed to work away from the office using wireless networks | | | | | |
| Wireless networks have made work life a lot easier | | | | | |
| Employees cannot currently do without wireless networks | | | | | |

**PART C: INFLUENCE OF EMPLOYEE WIRELESS NETWORKS SKILLS ON ORGANIZATIONAL PERFORMANCE**

13. How frequent does your organization offer training to its employees on the use of wireless networks?

    Once every three months [ ]
    Twice a year [ ]
    Once a year [ ]
    Not at all [ ]

14. If your answer in 12 above is either (a), (b), or (c), please state the type of training that your organization offers.

    Classroom-Based Training [ ]
    Interactive Training [ ]
    On-the-Job-Training [ ]

15. To what extent do you agree with the following statements regarding employee skills on wireless networks where 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree

| **Statement** | **Strongly Agree (5)** | **Agree (4)** | **Neutral (3)** | **Disagree (2)** | **Strongly Disagree (1)** |
|---|---|---|---|---|---|
| Staff need to be trained in order to make use of wireless networks | | | | | |
| Staff need experience on the use of wireless networks | | | | | |
| The management of any organization need to put in place proper guidelines on proper use of available wireless networks | | | | | |
| Sometimes staff use available wireless networks/internet for their own work/communication. | | | | | |

**PART D: INFLUENCE OF MANAGEMENT SUPPORT ON THE UPTAKE OF WIRELESS NETWORKS**

16. How has the management supported uptake of wireless network in your organization? (tick one or more as appropriate)

    a) The management ensures that there is a wireless network available at all times. [ ]

    b) The managements ensures it pays for the networks promptly to ensure consistent flow. [ ]

    c) The management ensures laid down policies regarding use of wireless networks are adhered to. [ ]

17. To what extent do you agree with the following statements regarding the influence of management support on the uptake of wireless networks where 1 = True, 2 = Not True, 3 = Don't know (please tick as appropriate)

| **Statement** | **True** | **Not True** | **Don't know** |
|---|---|---|---|
| The Management has put in place a policy regarding the use of wireless networks in the office | | | |
| Supervision mechanisms have been put in place by the Management to monitor staff as they make use of the available networks | | | |
| The Management takes disciplinary measures on employees found going against the wireless networks policy rules | | | |
| Employees are allowed to make decisions/suggestions/recommendations regarding the use of wireless networks in the organization | | | |
| As an employee I am satisfied with the overall performance of the wireless network put in place by the management. | | | |

**PART E: WIRELESS NETWORKS UPTAKE AND ORGANIZATIONAL PERFORMANCE**

18. How else has Wireless networks uptake influenced organizational performance? (Tick any one or more).

Set targets have been met [ ]
Customer complaints have reduced [ ]
Customer satisfaction [ ]
Timely completion of tasks [ ]

19. What would you recommend to improve wireless networks uptake and hence organizational performance? (Tick any one or more).
    a) The management should offer needed support and commitment to ensure improved wireless networks uptake hence organizational performance. [ ]
    b) The management should create awareness of and ensure enhanced ICT level skills among its staff. [ ]
    c) The management should have in place organizational policies relating to wireless networks and ensure that such policies are adhered to by its staff. [ ]
20. Following the uptake of wireless networks in your organization and in terms of percentage level, how would you rate your organizational performance in as far as your customers satisfaction is concerned?

| | | | |
|---|---|---|---|
| 0 | - | 25% | [ ] |
| 26 | - | 50% | [ ] |
| 51 | - | 75% | [ ] |
| 76 | - | 100% | [ ] |

**END OF QUESTIONNAIRE**

**THANK YOU FOR YOUR SUPPORT**

## Appendix iii: University Introductory Letter


**SOUTH EASTERN KENYA UNIVERSITY**

**OFFICE OF THE DIRECTOR**

**BOARD OF POST GRADUATE STUDIES**

P.O. BOX 170-90200
KITUI, KENYA
Email. info@seku.ac.ke

TEL. 020-4213859 (KITUI)
Email. directorbps@seku.ac.ke


Our Ref: D61/MAC/20745/2016

DATE: 9th June 2022

Katumo Cecilia Nundu
Re g. No. D61/MAC/20745/2016
Masters of Business Administration
ceciliakatumo@gmail.com

Dear Katumo

RE: PERMISSION TO PROCEED FOR DATA COLLECTION

This is to acknowledge receipt of your Master in Business Administration Proposal document entitled: *"'Wireless Network Uptake and Organizational Performance of Undevolved Government Ministries in Machakos Town, Kenya".*

Following a successful presentation of your Masters Proposal, the School of Business and Economics Board of Examination in conjunction with the Directorate, Board of Postgraduate Studies (BPS) have approved that you proceed on and carry out research data collection in accordance with your approved proposal.

During the research work, you will be closely supervised by Dr. Sedina Misango and Dr. Susan Wamitu. You should ensure that you liase with the supervisor at all times. In addition, you are required to fill in a Progress Report *(SEKU/ARSA/BPS/F-02)* which can be downloaded from the University Website.

The Board of Postgraduate Studies wishes you well and a successful research data collection exercise as a critical stage in your Master of Business Administration.

Prof. David M. Malonza
Director, Board of Postgraduate Studies

Copy to: Deputy Vice Chancellor, Academic, Research and Students Affairs (Note on File)
Dean, School of Business and Economics
Chairman, Department of Business and Entrepreneurship
Director, Kitui Campus
Dr. Sedina Misango
Dr. Susan Wamitu
BPS Office -To file

## Appendix iv: Nacosti Research Authorization

6/22/22, 1:02 PM Gmail - RESEARCH LICENSE GRANTED

Gmail

Cecilia Katumo <ceciliakatumo@gmail.com>

**RESEARCH LICENSE GRANTED**

1 message

**NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION** <nacostilicense@nacosti.go.ke>
Reply-To: nacostilicense@nacosti.go.ke
To: ceciliakatumo@gmail.com

Wed, Jun 22, 2022 at 12:23 PM

Hello Cecilia Nundu Katumo

Your Research License 860145 has been approved.

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Best regards NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

***This message was sent to ceciliakatumo@gmail.com***
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Nacosti

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## Appendix v: Nacosti Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **860145**

Date of Issue: **22/June/2022**

**RESEARCH LICENSE**

**This is to Certify that Ms.. Cecilia Nundu Katumo of South Eastern Kenya University, has been licensed to conduct research in Machakos on the topic: Wireless Network Uptake and Organizational Performance of Undevolved Government Ministries in Machakos Town, Kenya for the period ending : 22/June/2023.**

License No: **NACOSTI/P/22/18410**

**860145**

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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Mobile: 0713 788 787 / 0735 404 245
E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
Website: www.nacosti.go.ke

**Appendix vi: Research Authorization from the Machakos County Commissioner**

**OFFICE OF THE PRESIDENT**
**MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT**
**STATE DEPARTMENT FOR INTERIOR AND CITIZEN SERVICES**

**OFFICE OF THE COUNTY COMMISSIONER**
**P. O. Box 1-90100**
**MACHAKOS**

**Telephone: 21009 and 21983 – 90100**
**Email Address:** cc.machakos@interior.go.ke

**Fax No. 044-21999**
**When replying please quote:**
**Ref No: CC/ST/ADM 5/9/VOL.IV/85**

**Date: 23rd June, 2022**

All Deputy County Commissioners
MACHAKOS COUNTY

**RE: RESERARCH AUTHORIZATION – Ms. CECILIA NUNDU KATUMO**

The National Commission for Science, Technology and Innovation has authorized the above named student to carry out a research on the topic "*Wireless network Uptake Organizational Performance of Undevolved Government Ministries*" in Machakos County for the period ending 22nd June, 2023.

Please be notified and accord her the necessary assistance.

COUNTY COMMISSIONER
MACHAKOS

SOLOMON K RUTO
**For: COUNTY COMMISSIONER**
**MACHAKOS**

DEPUTY COUNTY COMMISSIONER
23 JUN 2022
Sign
P. O. Box 1 - 90100, MACHAKOS

Confirmed and certified
23/6/2022

**Appendix vii: List on Undevolved Government Ministries within Machakos Town**

**LIST OF UNDEVOLVED GOVERNMENT MINISTRIES WITHIN MACHAKOS TOWN**

| Ministry |
|---|
| 1. Culture and Social Heritage |
| 2. Interior and Coordination |
| 3. Lands and Physical Planning |
| 4. State Department for Correctional Services |
| 5. State Department for Devolution |
| 6. State Department for Labour |
| 7. State Law Office and Department of Justice |
| 8. Transport, Infrastructure, Housing , Urban Development & Public Works |

COUNTY COMMISSIONER MACHAKOS 17/5/2024

Source: Government offices of Machakos, 2022