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COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES

SCHOOL OF COMPUTING AND INFORMATICS

Analysis of Critical Factors that will Influence Sustainability of Teleworking Post Covid-19 in Kenya: A Case study of Tier-I Commercial Banks.

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A Project Report Submitted in Partial Fulfilment of Requirements for the Master of Science Degree in Information Technology Management of the University of Nairobi.

Declaration

I declare that this research project is my original work and has not been presented by any other student or submitted for the award of a degree to any other University.

Signed:

Date: 23rd August 2021

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This research project has been submitted for examination towards fulfilment for the award of Master of Science in Information technology Management with my Approval as the University supervisor

Date: **26**th **August 2021**

Prof Daniel Orwa Ochieng

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First and foremost, I thank GOD Almighty for the successful completion of this project. It's through his grace that I have managed to get this far.

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Abstract

The insurgence of Covid-19 pandemic not only brought unprecedented implications in the health and social circles of our society, but also led to great economic turbulence globally. This is because the pandemic which started as a health crisis, later metamorphosized into a social economic crisis. One remarkable development witnessed due to the pandemic's insurgence was accelerated adoption of teleworking phenomenon. Despite teleworking having existed since 1970's, its implementation before Covid-19 has always been a voluntary practice from a policy viewpoint. This research project pursued to identify major teleworking challenges encountered by organizations, highlight key aspects that influenced adoption of the phenomenon, and establish critical factors that will influence organizations' decisions to permeate teleworking practice post the Covid-19 pandemic. Four mainstream models of technology adoption were reviewed to establish one which best suited this study - based on its objectives and deliverables. The study adopted TOE framework as its guiding model. To achieve its objectives, the study adopted the research 'Onion' design approach. It used case study research strategy, coupled with exploratory survey. Time horizons adopted by the study was cross-sectional. The study employed simple random sampling technique to select majority of subjects used. Purposive sampling technique was used to select senior management staff respondents from both ICT and human resource departments. Primary data was collected using structured questionnaires. A pilot study was done before the questionnaire was administered to give room for refinement of the tool based on suggestions and deficiencies identified for improvements. An approval was sought from the organization before participants could be used in the data collection. A commitment of anonymity and confidentiality was made to participants through a cover letter. To further validate the data collected through the questionnaire, interviews were administered on senior management. Top management staff were interviewed to get their views based on the data obtained through the questionnaire. Analysis of data collected during the survey was done using Statistical package for Social Sciences (SPSS) version 20.0. Regression tests were undertaken to examine the relationship between independent and dependent variables used in this study. Coefficient of determination analysis was done to determine the overall extend of relationship between the dependent and independent variables used in the study. The study established that teleworking adoption was influenced by technological, organizational, and employees' household environmental factors. Availability of effective collaboration tools, secure access to enterprise systems by teleworking employees, job characteristics, top leadership support, conduciveness of employees' household environments and working hours were identified as

critical aspects which had highest significant effect on teleworking adoption. Top teleworking challenges were identified as lack of sufficient preparedness on policies documentations pertaining invoking BCP processes whenever employees could not access corporate offices, inadequate teleworking tools, data leakage fears, and effective tools to measure teleworking employees' performance. From employees' household perspective, key challenges were lack of quality and reliable internet connectivity and power. Culmination of the study was development of a model for teleworking adoption.

Keywords: Teleworking, Covid-19 Pandemic, Sustainability, TOE.

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List of Abbreviations

Covid-19 Corona Virus Disease 2019

WHO World Health Organization

ICT Information Communication Technology

IT Information Technology

GDP Gross Domestic Product

ILO International Labor Organization

CDC Centre for Disease Control

BCP Business Continuity Planning

HbTW Home-Based Teleworking

TAM Technology Acceptance Model

PU Perceived Usefulness

PEOU Perceived Ease of Use

UTAUT Unified Theory of Acceptance and Use of Technology

MM Motivational Model

TPB Theory of Planned Behavior

SCT Social Cognitive Theory

PE Performance Expectancy

EE Effort Expectancy

FC Facilitating Conditions

SI Social Influence

PI Pandemic Insurgence

DOI Diffusion of Innovation

TOE Technology, Organization and Environment

Definition of Terms

Teleworking: This is a concept enabled through internet connectivity whereby an employee can execute job functions from a remote location, without having to visit their conventional office premises.

Covid-19: A global pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and which was first identified in December 2019 in Wuhan, China.

Pandemic: Refers to an infectious disease that spread across a vast region, affecting a substantial number of people. Covid-19 was declared a global pandemic by World Health Organization on March 11th, 2020.

Adoption: For purposes of this research, adoption means organization's decision to accept, utilize, implement, and use teleworking within an organization.

Sustainability: In the context of this research, sustainability is the ability of organizations to constantly adopt and practice teleworking, both in the short-term and long term.

TOE: Technology adoption framework that describing what influences adoption and implementation of innovations process in organizations

CHAPTER ONE: INTRODUCTION

1.1 Background

Teleworking has been existing since 1970's. It enables workers perform their office duties from remote locations e.g., homes. Initial focus for teleworking was to help responding to environmental concerns and traffic congestion in the USA (Niles et al., 1976). Following the uncertainties presented by Covid-19 pandemic, many organizations implemented policies guiding their employees on teleworking adoption (Patricia, 2020). Previously, whereas teleworking has been in existence for decades, its adoption has mainly been from a voluntary perspective.

However, the advent of this pandemic led to a scenario whereby almost 80 percent of employees across virtually all business units were required to adopt teleworking, posing a great concern to companies on how the World Health Organization protocols would be effected (Belzunegui-Eraso and Erro-Garces', 2020). According to Central Banks supervision annual report 2020, the country had a total of 41 commercial banks by December 2020 – with a footprint of approximately1500 branches across the country (CBK Report, 2020). Amid crisis and disruptions brought by this pandemic, the banking sector remained highly resilient by leveraging on ICT infrastructure capabilities and capitalizing on digital transformation initiatives. This effectively saw the industry succeed in keeping country's economic lights on by offering the direly needed financial services to all other essential services sectors.

One of the remarkable developments precipitated by the pandemic's insurgence was an accelerated adoption of teleworking phenomenon across organizations due the movement restrictions and lockdowns enforced by World Health Organization and governments across the world. These mandatory policy directives enforced not only did they ensure adoption of teleworking by employees, but also triggered a review of teleworking entrenchment and sustainability strategies post the pandemic (Patricia, 2020). The sudden implementation of Covid-19 containment measures therefore acted as a catalyst for teleworking adoption (Belzunegui-Eraso and Erro-Garces', 2020). This research project's focus is to explore teleworking challenges encountered by organizations during the pandemic, and factors that will influence its sustainability post Covid-19 pandemic. It will establish key aspects that will guide organizations' considerations in their decisions to sustain teleworking concept post the current Covid-19 pandemic.

1.2 Problem Statement

Covid-19 pandemic brought a situation that had not been precedented globally (KDV Prasad et al., 2020). Due to its highly disruptive nature, the pandemic impacted and disorientated working operations across organizations, triggering an urgent review of working environment. This led to insurgence in teleworking practice adoption.

One of the key industries the pandemic's insurgence brought into a sharp focus is the banking industry. In the backdrop of this pandemic, the sector was tested to its limits, and had to demonstrate highest levels of resilience, ensuring that it cushioned all other sectors and livelihoods from adverse social-economic effects brought by the pandemic, amidst the movement restrictions and lockdowns enforced by governments. Here in Kenya, the first Covid-19 case was reported on March 14th, 2020. To mitigate its impact, banks leveraged on digital transformations initiatives occasioned by information technology innovations to ensure the economy remained resilient by offering financial services to all other essential services sectors and customers, while enhancing customer experience through omnichannels outlets. Through utilization and leveraging on developments in the Information communication technology, the banking sector was able to withstand effects of the pandemic and cushion the economy and livelihoods from the unprecedented global crisis witnessed as a result of the pandemic. Without the commercial banks, most economies could have crumbled. However, this critical sector has ensured steady financial flow to all other sectors in the backdrop of the pandemic.

Following the pandemic's trigger on accelerated adoption of teleworking phenomenon, many organizations have struggled to cope with the surge of teleworking adoption brought about by World Heath Organization and various government agencies protocols for social distancing. Although it is always preferable to establish clear teleworking policies and training in advance, in times of crisis or other rapidly changing circumstances, this magnitude of preparation was not feasible in the case of Covid-19 (Barbara et al., 2020).

This research project aims at identifying major teleworking challenges encountered by organizations, highlight key aspects that influenced adoption of the phenomenon, and establish critical aspects that will influence organizations' decisions to permeate teleworking practice post the Covid-19 pandemic.

1.3 Objectives of The Study

To evaluate teleworking in Covid-19 context and establish critical factors that will influence its sustainability post Covid-19 pandemic.

Specific objectives.

- 1) Establish main teleworking challenges encountered during Covid-19 pandemic.
- 2) Identify critical factors influencing adoption teleworking during Covid-19.
- 3) Develop a teleworking model to guide organizations in teleworking adoption and sustainability post the Covid-19 pandemic.

Mapping of Project Objectives to Deliverables

The table below highlights deliverables expected from the research objectives.

Table 1.1: Project Deliverables Mapping

Research Objective	Research Questions	How Objective will	Deliverable	
		be Met		
To establish main	What are key teleworking	Review of relevant	List of challenges	
teleworking challenges	challenges encountered	literature.	encountered.	
encountered during Covid-19	during Covid-19?	Survey on selected IT		
pandemic.		staff in banking sector	Survey Results	
To identify critical factors	What are individual,	Review of relevant	List of factors that	
influencing and facilitating	organizational, and	literature.	facilitated teleworking	
adoption teleworking during	infrastructural factors that			
Covid-19.	influence adoption of			
	teleworking during Covid-			
	19?			
Develop a teleworking model	What should guide	Review of relevant	Report on Findings	
to guide organizations in	organizations' choices	literature.		
teleworking adoption post the	towards adoption and		Teleworking Model	
Covid-19 pandemic.	sustainability teleworking	Statistical Analysis of		
	post Covid-19?	survey data using SPSS		

1.4 Value of The Study

This research will largely contribute to scientific knowledge on teleworking in pandemic insurgence situations, where little research existed before the Covid-19 pandemic. The study will give organizations the opportunity to understand key aspects that will influence adoption of teleworking effectively. The research project outcome will be a model highlighting key aspects that will guide organizations' decisions of permeating teleworking post Covid 19.

1.5 Assumptions of the Study

The research assumes that teleworking conditions will remain constant during the period of this study. This will ensure that no developments (both internal and external to the organization) that might trigger a major shift in teleworking patterns, adversely impacting the research outcome.

Another limitation to this research project is that though its scope is tier-I commercial banks, data will only be collected from a single banking entity and the results be used to generalize teleworking across the banking industry. How the outcome will accurately represent the larger industry may be subject to some variances based on the ecosystems of specific organizations.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

Covid-19 outbreak brought extensive changes in the working environment. It led to a sudden paradigm shift in the adoption of teleworking phenomenon across the world. This is because governments across the world adopted numerous public health protocols and regulations aimed at preventing its spread, including social distancing. Covid-19 pandemic led to drastic changes in the working environment globally. Key among these changes has been the rampant implementation and adoption of teleworking policies (Belzunegui-Eraso and Erro-Garces', 2020). Largely, these protocols triggered remote working to avoid employees converging at workplaces, in contravention of the laid down protocols.

2.1 A Review to Teleworking

Teleworking enables professionals to work beyond the conventional office setting – in an arrangement whereby employees do not commute to their conventional premises of work (Belzunegui-Eraso and Erro-Garces', 2020). The proliferation of internet connectivity and telecommunication are technological advances attributed to the steadily rising uptake of teleworking.

2.2 Working from Home in Covid-19 Context

The Covid-19 pandemic largely led to promotion of teleworking, as many enterprises scaled up investment on infrastructure that support teleworking in an unprecedented manner. On April 6th, 2020, the first Covid-19 pandemic containment measures were announced by the Kenya government. This included social distancing directives, state curfew implementation, and travel restrictions enforced by the government within the republic of Kenya territory.

The pandemic crisis therefore largely presented organizations with opportunities to demonstrate how they could leverage on ICT professionals to ensure business continuity using teleworking technology.

2.4 Literature on Covid-19 and Teleworking

Worldometer (2020) Statistics highlighted that over 200 countries and territories had reported cases with millions of deaths worldwide. Covid-19's impact spanned far and wide across the globe, causing organizations to look into how they will deal with its effects. For the work that could be done at home, telework became a popular option for employers to consider.

Belzunegui-Eraso and Erro-Garces' (2020) carried out research analyzing teleworking popularity and growth in Spain in March 2020. In their research titled "Teleworking in the Context of the Covid-19 crisis", they aimed at analyzing working situation triggered by the pandemic, with a view of promoting future use of teleworking post the pandemic crisis. Respondents were requested to highlight key factors they considered critical in supporting effective teleworking. The study revealed that unlike previous occasions, Covid-19 made many companies massively implement teleworking. Therefore, the pandemic brought visibility of the teleworking to the fore across the globe. One of the findings for the study was that many businesses in United states did not have proper and adequate plans in place for handling pandemic situations. They lacked business continuity and contingency plans in place that would support mass teleworking in the eventuality of security or health crisis. The study recommended that organizations should consider redesigning processes to facilitate and ensure better relationship between management and workers undertaking teleworking. Teleworking strategy should go be beyond the reactive and occasionally triggered by natural disasters or catastrophes.

Another key study on this thematic area was done by academic researchers in University of Cape Town, South Africa. Chidi et al. (2020) carried out research on factors that facilitate or inhibit adoption of teleworking in South Africa organizations context. Entitled "Explaining Factors Affecting telework Adoption on South African Organizations Pre-Covid-19", the research was meant to identify factors that motivated organizations to adopt teleworking. It involved 104 valid responses. It was premised on the fact that Covid-19's resulting lockdowns not only forced organizations to adopt teleworking, but also brought sharp focus on organizations in re-examining entrenchment of its adoption post the pandemic crisis. The research categorized aspects that influence teleworking adoption under three perspectives, namely, Individual perspective of teleworker, Societal perspectives of telework. and organization perspective of telework.

Another important literature journal was carried out by two researchers from Victoria University of Wellington, New Zealand in 2010/2011. Entitled "Disrupted work: Home-based teleworking

(HbTW) in the aftermath of a natural disaster." by Donnelly and Proctor-Thomson (2015), the study aimed at establishing critical factors that shape experiences and outcomes of teleworking phenomenon following a natural disaster. It was carried out between September 2010 and February 2011 when the strongest earthquake affected the Christchurch, leaving 185 people dead and shutting down the CBD due to extensive infrastructural damages. It established that teleworking changed from voluntary and privilege to essential element of business continuity during times of natural disasters. The research also revealed that teleworking plays a key role in facilitating efficient return to normal operations in organizations by ensuring that employees are still able to execute their critical tasks during disaster periods, despite not being able to access their enterprise offices.

The other key academic journal reviewed was done in Portugal by four researchers. Entitled "Teleworking in Portuguese communities during the Covid-19 Pandemic" by Tavares et al. (2020), this research aimed at characterizing teleworking undertaken in Portuguese communities in reference to the emergent pandemic. The study involved a total of 359 individuals – following declaration of state of emergency by the president of the republic on March 18th, 2020. The research was premised on the fact that previous research on teleworking based on stable societies and environments, but little focus had been made on teleworking in times of pandemics and societal crisis, like the Covid-19 situation. The study established that the adoption of teleworking practice in the recent past was accelerated by high rate of internet penetration coupled with increased access to prerequisite technological tools by organizations and employees. One of key finding of this study was that organizations develop teleworking policies pertaining the external environment factors in the societies such organizations operate. Such policies should outline how to enhance individual's teleworking performance during pandemics.

2.5 Gaps on Previous Literatures

Researchers concluded that prior to December 2019, there were no specific research articles and reviews of reports available, relating to adoption of remote working during pandemics.

Therefore, further research was required to explore organizational, and individuals work experiences across diverse sectors during disaster events. More research was required to establish factors that shaped different experiences teleworking for the various workers (Donnelly and Proctor, 2015). The researchers recommended further studies to verify and support findings of

their research in relation to Covid-19. Such further research will facilitate more knowledge on how the pandemic impacted conventional working context and how organizations can diffuse teleworking post the pandemic (Tavares et al., 2020). Another gap identified was that further research needed to be carried out focusing on sustainability of teleworking in organizations post the Covid-19 pandemic.

2.6 Conceptual Framework for this Research.

Selecting an appropriate framework for any research is a critical and necessary process (Adom and Hussein, 2018). It serves as a guide to one's research and helps in identifying what aspects will be used to measure and examine during the study. It is through the conceptual framework that an elaboration will be done pertaining how this this research will explore the study problem, the specific direction the research will take and highlight the relationship between the different variables to be involved in the study (Adom and Hussein, 2018). The framework will present an integrated way on how to look at the problem under study. It will form the foundation onto which this study will be build, and which will inform the research design (Adom and Hussein, 2018). Several information systems theories exist defining technology solutions adoption and acceptance models, both for individual employees and organizations. Each of the models have constructs on which they are anchored. From a technology point of view, user acceptance is the demonstratable willingness within an individual user or subset of users to use information technology services and the tasks such solution is designed to support.

This section of the research aims at highlighting the mainstream models used in technology adoption both at an individual and organizational levels. At the tail end, identification of the appropriate framework to be adopted by this research will be done.

2.6.1 Technology Acceptance Model [TAM].

The main author for the model was Davis (1989). The theory focuses on how users come to accept and use new technology within a job environment. It highlights that users are faced with several factors that influence their decisions pertaining usage of a new technology. The model is composed of two core constructs - Perceived usefulness (PU) and Perceived ease of use (PEOU), according to Davis (1989).

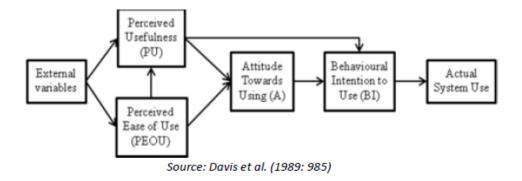
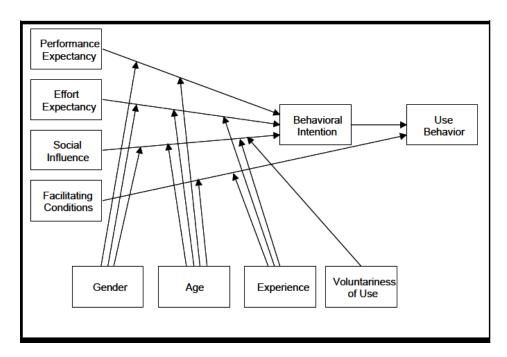


Fig 2.1 Technology Acceptance Model [TAM]

2.6.2 UTAUT [Unified Theory of Acceptance and Use of Technology] Model.

Its main author was Venkatesh (2003), and explains intentions by user to use information systems. The model is composed of four main constructs: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions.

The four constructs are moderated by gender, Age, experience and voluntariness of use - Williams et al. (2015).

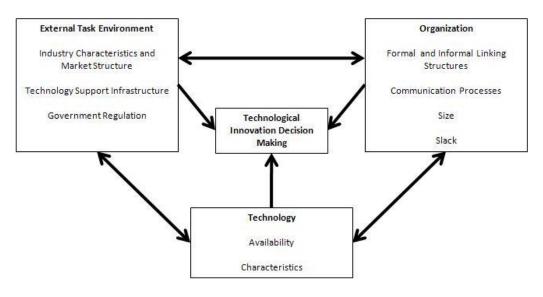


Source: Venkatesh et al. (2003)

Fig 2.2 Unified Theory of Acceptance and Use of Technology [UTAUT] Model

2.6.3 Technology Organization and Environment (TOE) Framework

Main authors for the framework were Tornatzky and Fleisher in 1990, and it focuses on what influences technology adoption decisions from a firm's perspective. It highlights three elements that influence technology adoption decisions in organizations – technological, Organizational and Environmental contexts (Barker, 2011). Government regulations largely impact innovation either positively or negatively, depending on whether they impose new constraining or facilitating regulation(s) to the industry - (Barker, 2011).



Source: Tornatzky and Fleischer, 1990

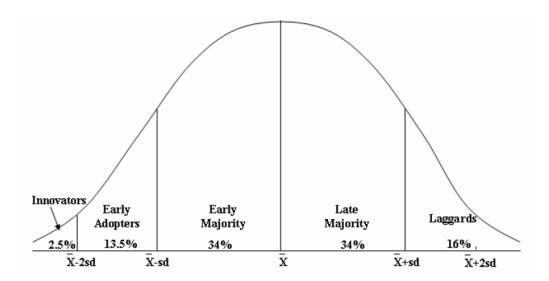
Fig 2.3 Technology-Organization-Environment [TOE] Framework

2.6.4 Diffusion of Innovation (DOI) Theory.

This framework was authored by Everett Rogers (2003). It is a theory that also largely focuses on technology and innovation adoption at an organizational level. According to the theory, diffusion of technology take place either among people or organizations. This means that adopters of innovation are either individuals or organizations. The theory advocates four main elements influence permeation of any new technology ideas. These are Innovation, communication channels, time and social system (Rogers, 2003).

Five constructs compose this theory. These are Relative Advantage, Compatibility, Complexity, Trialability and Observability.

The theory clusters organizations into adopter categories based on their speeds of adopting innovations. These categories are Innovators, Early Adopters, Early Majority, Late majority and Laggards.



Adopters Categorization, Source: Rogers (2003)

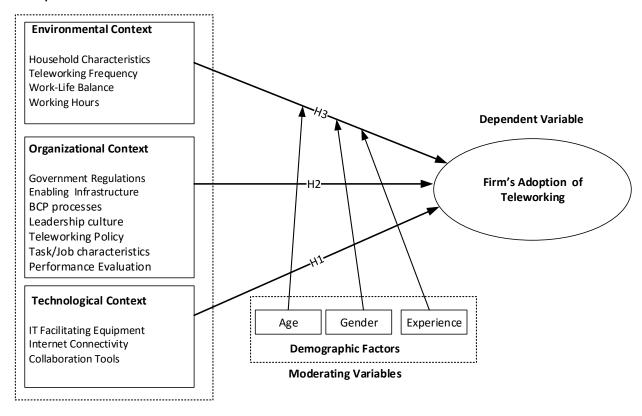
Fig 2.4 Diffusion of Innovation [DOI] Theory

2.6.7 Conceptual Framework This Research Will Adopt.

The adoption of teleworking post Covid-19 pandemic will largely be based and determined by organizational decisions rather than individuals. A good number of technology adoption theories discussed earlier in this section are appropriate and suitable in evaluating and testing acceptance of technologies at individual level.

While such models are useful and effective in analyzing why and what influences individuals in adopting technologies, they are not best suited for evaluating and guiding adoption of teleworking post the Covid-19 at an organizational level. The framework to be adopted by this research will largely have to factor both internal and external aspects to an organization. The framework used will therefore have to factor in the influence of Technology, the organization, and the external factors in order to holistically understand critical factors that will be influencing teleworking adoption in organizations post the current Covid-19 pandemic. This research project will therefore adopt the TOE Framework. Other than the three constructs for the TOE framework, a moderating variable will be used on this research. These are: Age, Gender and Experience. Below is an illustration of the framework that will be adopted by this research.

Independent Variables



Source: Researcher's Framework Design

Fig 2.5 Theoretical Framework Adopted For this Research

Hypothesis Development

Below are hypothesis for this study, each associated with the three TOE framework constructs.

H1: Existing and future technologies in an organization positively influence Teleworking adoption.

H2: Organizational aspects influence teleworking adoption either positively or negatively.

H3: Individual Employee Household characteristics positively or negatively Influence Teleworking practice.

Operationalization of Variables

The table below highlights variables that will be used in this project.

Table 2.1: Study Variables Operationalization

Framework's	Meaning	Metric	
Construct			
	IT Equipment: Availability of pre-requite equipment	Teleworking tools Available:	
Technology	to facilitate teleworking, E.g., laptops, Mi-Fi.	Strongly Agree, Agree, Disagree,	
		strongly disagree	
	Internet Facilities: Availability of high-speed internet	quality and reliability levels	
	connectivity.	Excellent, Good, Average, Poor	
	Collaboration Platform: Availability of effective and	Existence of Effective Collaboration	
	reliable collaboration tools to facilitate	tool(s).	
	communication and meetings between team members.	Strongly Agree, Agree, Disagree,	
		strongly disagree.	
	Systems/Applications Access: Access to	Ability to connect to corporate	
	organization's Application systems while teleworking	systems while teleworking.	
		Strongly Agree, Agree, Disagree,	
		strongly disagree.	
	Enabling Infrastructure: Availability of relevant	Level of Investment on	
Organization	infrastructure such as VPN, high bandwidth, and	Infrastructure.	
	secure connectivity	Very High, High, Low, Very Low	
	Business Continuity Processes: Ensuring that business	Availability of BCP processes in the	
	operations can continue remotely even when the	organization	
	physical offices are inaccessible.	Strongly Agree, Agree, Disagree,	
		strongly disagree.	
	Confidentiality: Need to ensure that security of	Organization's data security Level:	
	organization's data is not compromised during	Very High, High, Low, Very Low	
	teleworking		
	Organizational Culture: Availability of leadership	Level of business unit's leadership	
	culture that support new technologies/ innovations	culture.	
	adoption.	Very Strong, strong, weak, very	
		weak	

Organization	Emerging government regulations: whether	Security, pandemics, curfews, and
	government triggered issues impact teleworking	other government's regulations
		impact teleworking practice.
		Strongly Agree, Agree, Disagree,
		strongly disagree.
	Job Characteristics: Eligibility of job tasks to	Ability to perform majority of tasks
	teleworking	while teleworking.
		Strongly Agree, Agree, Disagree,
		strongly disagree.
	Employee Productivity: Impact of teleworking on	Teleworking ability to improve
	employees	productivity of employees.
		Strongly Agree, Agree, Disagree,
		strongly disagree.
	Policy on Teleworking: Policy frameworks governing	Awareness of availability of policies
	teleworking	governing teleworking.
		Fully Aware, Not Aware
	Performance Evaluation Framework	Existence of performance evaluation
		framework for employees practicing
		teleworking.
		Strongly Agree, Agree, Disagree,
		strongly disagree.
Environment		
	Family Aspects: Family setup and size and	Family Setup's Impact on
	implication on teleworking	teleworking productivity
		Very high, High, Low, Very low
	Balancing between Office and Household tasks:	Frequency of conflicts between
	Teleworking leads to challenges related to balancing	office and household chores.
	between teleworking and household chores.	Every time, Often, Rarely, Never
	Working Hours	Whether employee works for more
		hours in a day while teleworking.
		Strongly Agree, Agree,
		Disagree, strongly disagree.
	Teleworking Frequency: Rate of practicing	How often one practices
	teleworking and teleworking hours	teleworking:

		3 days/week, 1Wk/month, 2-		
		3wks/month, 4wks and above.		
Employees	Age	Employees Age influence on the		
Demographic		working model preference.		
Factors		Fully teleworking, partly		
[Moderating		teleworking/from Office, Fully		
Variables]		from Office, Not decided		
	Gender	Responsibilities attributed to		
		gender and their impact on		
		teleworking performance.		
		Very high, High, Low, Very low		
	Experience	Employee's proficiency levels on		
		enterprise applications		
		Excellent, Good, Average, Poor.		

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

The Research design aspect is critical in any study because it's the only way to facilitate a smooth sailing of various operations a study will entail. Any project's outcome success is determined by its design, which focuses on analyzing and exploring the relationship between independent and the dependent variables used. This chapter focuses on the steps to be adopted when undertaking the research. Core objective of good design will be to ensure it will result to a more reliable outcome that can be used to generalize the teleworking technologies adoption in organizations.

3.1 The Research Design for the Study

This design for this study will be guided by the Research "Onion" approach (Saunders et al., 2009)

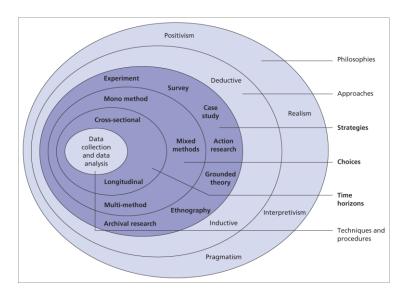


Fig 3.1 Onion Research Design Model

This research will adopt Quantitative research methodology, where a sample of the population will be used and data generated from the sample will be used to make generalization and inferences to the population. The study will use Epistemological research philosophy, purposing to establish the causal relationships between various variables that are key in determining adoption and sustainability of teleworking concept. As such, the research will purpose to study and establish the effects independent variables have on adoption of teleworking.

A Case study research strategy will be adopted by this study, coupled with exploratory survey. This is because the impact of Covid-19 on teleworking is an area that has not been well researched

before. This is based on literature review that formed basis of this research thesis. By adopting case study strategy, data on teleworking uptake will be collected from a representative sample, and outcome used to make generalized conclusion about the target population. The research will adopt a deductive research approach -whereby it will evaluate the casual relationships between variables, and the findings used to generalize the teleworking concept for the population under study. In this approach, the research will use small data sample to investigate and establish patterns that will subsequently be used to make generalized conclusion about the population the sample represents. It will purpose to establish the dependency between teleworking adoption and various independent variables highlighted earlier in the conceptual framework section.

A descriptive research design will be adopted, through which a cross-sectional survey will be carried out so as to allow for description of each of the constructs identified and effectively establish relationships between dependent and independent variables. Hypotheses will be developed, which will then be used to formulate the research questions for testing at the tail end of this research. Some moderating variables will as well be used, influencing relationship between the independent and dependent variables. The design of the questionnaire research tool will involve identifying potential moderating variables to be used. The following is a schedule of variables that will compose this research.

Table 3.1: Research Variables

Dependent Variable	Independent Variables
Firm's Adoption of Teleworking	Environmental Factors
	Organizational Factors
	Technological Factors
	Moderating Variables: Gender, Age and Experience

Time horizons for the research will be cross-sectional. It will narrow down to the adoption of teleworking technologies during the times when Covid-19 restrictions and protocols were effected across the country.

3.2 Sample Size Design and Considerations

The sample size designed should be able to accurately represent the target population. Representativeness of the sample is therefore of paramount importance. This research aims at tier-I commercial banks as the target population. However, the study will only use the accessible

population capable of realistically selecting research subjects. This will be Equity Bank (Kenya) ltd Information technology and Human Resource management staff.

Access aspect to the sample to be used in the research is critical and would therefore logistically not be practically possible to get access to the various banks in the industry. The research will keenly select a sample size that will ensure its reliability and validity. The sample will be a selection of respondents from the target population of 265 Information Technology employees, which will be chosen in a way to accurately represent the total population as much as possible. The sample size selection will be guided by critical aspect of target population size, time, and money resources constraints.

The study will use simple random sampling method in selecting majority of the subjects to be included in the sample – ICT officers and senior officers and middle level managers. According to Gay (2012), if a population size is about 500 plus/minus 100, then a 50% of it should be sampled for any successful representativeness of any research. Within each operational unit, stratified sampling will be used to select participants. This will ensure that based on the job characteristics of various units forming the larger ICT department. Stratified sampling will involve activity of strategically selecting participants from each subgroup (Gay, 2012).

Another critical research sample consideration will be ensuring variability of the data to be obtained from the respondents. To guarantee this, the research will use purposive sampling in selecting IT and HR senior management staff. Identification and selection of subjects will be based on their possession of characteristics being sought (Cohen, 2007). This therefore means that the researcher will deliberately identify the criteria for selecting the sample.

The following are key factors considered in determining the sample size to be used.

Population size: This study target ICT staff for the tier-I commercial banks in the country. However, it will collect data from one of the leading tier-I banks, with a population of 265 Information Technology employees.

Margin Error/Confidence Interval. This is the positive and negative deviation to be allowed on research results for the sample to be used in this research. This margin will guide the research on how much the survey results will be expected to reflect views of the target population - inference.

Level of Significance: This is a percentage that will represent how confident results of the research will capture true target population, depending on a selected random sample. It will help in

accounting for other possible sample results that this research would have gotten when making an estimate of a parameter using the data from only one sample. This research will target a confidence level of 90%

Standard Deviation: This will focus on estimating how much responses received on the research will vary from each other and from the mean number. This research will adopt a Standard deviation of 0.5. The research will use the below Cochran's formula;

Sample Size (n) =
$$(Z-Score)^2 * StdDev * (1- StdDev)^2$$

(Margin of Error)²

Fig 3.2: Sample Size Formular

Using the Cochran's formula above, this research will adopt the below sample size design computations.

Table 3.2: Sample Size Computations

Aspect	Value
Population Size	265
Confidence Level	90%
Standard Deviation	0.5
Margin of Error	5%
Sample Size	134

Therefore, a sample size of One hundred and thirty-four (134). This will comprise of three (3) ICT directors, five (5) senior HR managers, fifty-three (53) ICT middle level managers, and seventy-three (73) ICT officers and senior officers will participate in the study. Below is a distribution schedule of the sample.

Table 3.3 Research Sample Subjects Schedule

Categorization	Sample Size	Cumulative Total
ICT Directors	3	3
HR Senior Managers	5	8
ICT Middle Level Managers and PMO	53	61
Level1 Support: Service Desk	9	70
Level1 Support: Network Monitoring	16	86
Level1 Support: Core Banking Application	8	94
Quality Assurance	3	97
ICT Cyber Security	7	104
ICT Governance	2	106
Way 4	3	109
Networks	4	113
Technical Services	6	119
Database Administrators	2	121
Data Centre Facilities	3	124
ICT Service Delivery	3	127
Business Analysts	7	134

3.3 Data Collection Method to be Adopted and Administration.

This study will obtain and rely on primary data from the respondents to ensure validity and reliability. This section will elaborate on the data collection tool to be adopted in the study. The study will involve a larger population, and therefore careful selection of the data collection tools will be critical. The study will use Questionnaire as the data collection tool. Through this tool, several questions will be formulated and presented to the respondents for them to give their feedback. The research will adopt structured questionnaires, whereby respondents will be expected to choose among provided response options. This is because closed questions will prescribe to respondents the range of responses from which they may choose. The questionnaire design option will particularly be of essence and useful since it will offer opportunity to generate frequencies of responses for statistical treatment and analysis purposes (Cohen, 2007).

However, to invite and accommodate honest and personal comments from respondents pertaining their experiences particularly on challenges of teleworking, the questionnaire design will contain an open-ended question at its tail end. This question will give room for free responses from the participants – giving them opportunity to give information about their experiences on teleworking. This will ensure richness of information and depth of responses from participants (Cohen, 2007). This choice of data collection tool was based on the following considerations.

Low cost.

Will enable data collection in a relatively short period.

Consistency as questions will be presented with the same wording and in the same sequence to all respondents.

Data obtained will be standardized and easy to compare.

In order to give better clarity to participants on the nature of information being sought, the layout of the questionnaire will be in a manner that will eliminate clutteredness. It will be sectionalized to ensure questions about specific aspects defined in the conceptual framework are grouped together. The questionnaire will have sections I through VI. The data collection tool will comprise of questions under each construct/independent variable. The respondents will be expected to respond to each construct question using a four-point Likert scale. They will not be presented with the neutral option since they have all been exposed to the teleworking experience during this Covid-19 pandemic and are expected to have experiences on the same, which are to be expressed on this questionnaire.

Before administering the questionnaire on the participants, a pilot study will be done. The purpose will be to ensure review and refinement and guarantee that the final version contains information that is reflective of the study, as well as respondents' clarity. Babbie (2007) confirms that pretesting a questionnaire is important aspect of any data collection tool design. The questionnaire will be administered online through Google forms. This is a result of the Covid-19 pandemic health protocols, leading to many employees not operating from the designated physical working premises.

Based on the original responses from participants, possible reminders will be done during the data collection window, with an objective of increasing response rate for the questionnaire. To ensure credibility and authenticity of the study, an approval will be sought from the organization before

the subjects can be used in data collection. A commitment of anonymity and confidentiality will be made to the participants - through a cover letter, so as to increase truthfulness of responses from participants. The objective of the cover letter will be to ensure the purpose of this questionnaire is highlighted, convey the importance of the tool to the respondents, assure them of confidentiality and encourage their participation (Cohen, 2007). This will be after the prerequisite reviewed and approvals for the research instrument by the School of Computing and Informatics Faculty members - through the research project supervisor. Interviews will also be used to further validate the quantitative data collected through the questionnaire. Here, top/senior management staff will be interviewed to get their views based on the data obtained through the questionnaire.

3.4 Data Analysis Methods

This section focuses on how data collected during the research will be interpreted and analyzed. According to (Mugenda and Mugenda, 2003), this process should involve cleanup, entry and coding of the data obtained during data collection and analyzing the same using statistical procedures. To facilitate quantitative analysis, the data obtained will be converted into numerical codes – forming the codebook for the data collected. It will capture the code assignment for each item in the questionnaire (Mugenda and Mugenda, 2003).

The motivation behind data analysis will be to accurately and reliably present data of the study. Upon obtaining the data, responses will be summarized in the form of mean results, standard deviations, percentages, and frequencies distributions indicating significance of similarities and distinction. The data collected through use of questionnaires will be analyzed quantitatively using the Statistical Package for Social Sciences (SPSS) V.20.0, which will then be used to generate frequencies and standard deviations. Also, Microsoft Excel will be used for presenting data in pivot tables and pie charts. The information collected will be evaluated using descriptive statistics. This will ensure that the data patterns are illustrated numerically and graphically. The descriptive statistics will enable representation of raw data obtained from the survey in a visual and more meaningful way to facilitate simpler interpretation.

For the quantitative data, descriptive statistics will enable meaningful description of distribution of data (Mugenda and Mugenda, 2003). Regression analysis will be done to determine the degree of the relationship between dependent and independent variables. This is because the data sample size is more than 30. Below is the regression model to be used.

$Y = \beta_0 + \beta_1 x_1 + \beta x_2 + \beta_3 x_3 + \varepsilon$

Where Y = Firm's Adoption of Teleworking

 $\beta_o = Constant$

 x_1 = Technological Context

 x_2 = Organizational Context

 x_3 = Environmental Context

 ε = Random Error

The analysis will be done at 5% significance level. To determine the significance of the coefficients, the F-test will be used. In this case, an F-Value greater than 0.05 will be considered insignificant, otherwise the value will be significant and considered to affect the adoption of teleworking. To determine the overall extent in which the dependent and independent variables are related, coefficient of determination analysis will be done.

3.5 Research Project Schedule

The research project is delivery is scheduled to run for a period of 35 (Thirty-Five) weeks, starting December 1st, 2020, to August 2nd, 2021. The breakdown below highlights the project tasks, and their projected delivery timelines.

		0	Task Mode ▼	Task Name ▼	Duration ▼	Start	Finish 🔻	Predecessors 🔻
	1		-5	△ Research Project Schedule Plan	175 days	Tue 12/1/20	Mon 8/2/21	
	2		-5	Research Project Proposal preparation and Milestone 1 Presentation	17 wks	Tue 12/1/20	Mon 3/29/21	
	3			Project Research tool Design	5 wks	Tue 3/30/21	Mon 5/3/21	2
	4		-5	Actual Survey	4 wks	Tue 5/4/21	Mon 5/31/21	3
	5		=3	Analysis of the survey Data and Milestone 2 Presentation	4 wks	Tue 6/1/21	Mon 6/28/21	4
CHART	6			Final Project Report Preparation and Milestone 3 Presentation	5 wks	Tue 6/29/21	Mon 8/2/21	5
GANTT C	7			Project Documentation	35 wks	Tue 12/1/20	Mon 8/2/21	
/5								

Figure 3.3: Research Project Schedule

CHAPTER FOUR: RESULTS AND DISCUSSION

4.0 Introduction

The study aimed at analyzing critical factors that will be influencing the sustainability of teleworking in the financial sector post the Covid-19 pandemic. It seeks to establish key aspects that will guide organizations' considerations in their decisions to sustain teleworking practice post the current pandemic. This section of the report primarily focuses on analysis, interpretation and highlight of the data findings. The study's primary data was collected using online Google forms questionnaires. The same set of questions was used for all the respondents. Below are the research objectives for this study.

- Establish main teleworking challenges encountered during Covid-19 pandemic.
- Identify critical factors influencing adoption teleworking during Covid-19.
- Develop a teleworking model to guide organizations in teleworking adoption and sustainability post the Covid-19 pandemic.

The questionnaire design was structured into four major sections.

Section I captures the personal background and demographic information for respondents. Section II of the questionnaire aimed at establishing and reviewing various technology aspects deployed or available to the organization, and how such technologies either influence or prohibit teleworking adoption. Section III focused on reviewing organizational aspects that either negatively or positively influence teleworking practice. Section IV of the questionnaire aimed at exploring environmental issues, specifically related to the employees' household ecosystem and their impact on teleworking.

To explore how some aspects of user demographics impact on teleworking, three moderating variables were used in the framework guiding this research – Age, gender and Experience. Through these variables, the study will establish how they influence employees' abilities to practice teleworking. This consequently will help organizations to make appropriate decisions on how to bridge any teleworking adoption gaps associated with the employees' household environment.

In addition, the questionnaire targeted to collect data from participants on challenges encountered while practicing teleworking during Covid-19 pandemic. A pilot questionnaire was sent to 15 respondents to evaluate the level of clarity of this data collection tool to the respondents, as well as data analysis effectiveness. The subsequent sections of this chapter highlight research findings.

4.1 Research Findings on Respondents

Response Rate

A response rate is the percentage of participants who responded to the data collection tool. A lower response rate would mean problems with representativeness of the sample and its ability to generalize the research findings (Mugenda and Mugenda, 2003). Response rate is therefore one that guides and captures representativeness of the sample respondents used in a study (Babbie, 2007). A higher response rate will therefore mean less chances of significant non-response bias, compared to a low response rate, hence implying a higher statistical power. This research targeted 134 ICT employees in the banking sector, and online questionnaires were relayed to the to the participants. From the study, 106 responded – translating to 79% response rate which can be considered very good for representative conclusion from the results of this research.

A response rate of 50% is considered sufficient and anything above this threshold increases the confidence of a study findings as being generalizable to the target population (Gay E, 2012). According to Mugenda and Mugenda (2003), a response rate of 50 percent is adequate; a 60 percent response rate is good, while that of 70 percent and above is considered very good. This study achieved a response rate of 79%, therefore considered a great success.

Table 4.1: Sample Response Rate

Sample Size	Response	Rate
134	106	79%

Source: Researcher Data (2021)

4.1.2 Demographic Characteristics of the Respondents

The respondents were asked to indicate their gender, age, education level, years worked in the organization, job position as well as household size. The findings on the above information pertaining the respondents are summarized below.

Age Distribution

The study findings established that 61.3% of the respondents fell under the age bracket of 31-40 years and 23.6% in the 21-30 years bracket. The age bracket of 41-50 years, 51-60 and 60 years and above constituted the minority – accounting for 14.2%, 0.9% and 0% respectively. This clearly demonstrates that majority of the workforce were prime candidates for teleworking.

Table 4.2 Age of Respondents

Category	Frequency	Percent	Cumulative Percent
Below 20	0	0	0
21-30	25	23.6	23.6
31-40	65	61.3	84.9
41-50	15	14.2	99.1
51-60	1	.9	100.0
61 and above	0	0	0
Total	106	100.0	100.0

Source: Researcher Data (2021)

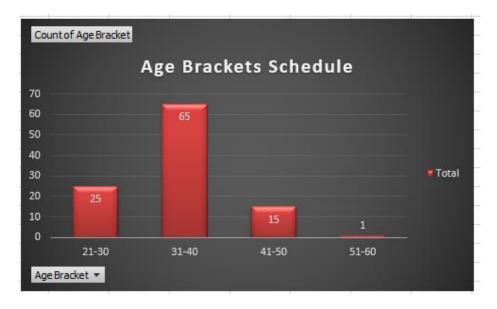


Figure 4.1: Respondents Age Distribution

Gender Distribution

The study collected responses from both male and female employees in the organization. This was across three cadres – Officers/senior Officers, middle level management and senior management, from both Information Technology and Human resources departments. The study findings established that 73.6% of the respondents were male, and 26.4% were female. This higher number

of percentage of men can be attributed to the fact that there are fewer female employees in the ICT sector, compared to their male counterparts.

Below is the gender composition of the respondents.

Table 4.3: Response on Gender Composition

Gender	Frequency	Percent	Cumulative Percent
Male	78	73.6	73.6
Female	28	26.4	100.0
Total	106	100.0	

Source: Researcher Data (2021)

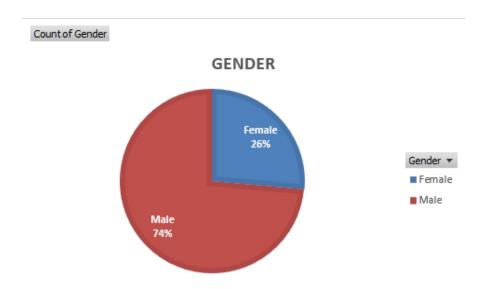


Figure 4.2: Respondents Gender Distribution

Educational Level

According to the study findings, 79.2% of the respondents held Bachelor's degree, with 16.0% holding Master's degree. Those with PhD qualifications were (0.9%) of the total population, Postgraduate degree holders (0.9%) and diploma holders being (2.8%) of the total population. The education levels distribution therefore indicates that the respondents involved in the study were highly skilled and therefore capable of practicing teleworking.

Table 4.4: Response on Educational Level

Category	Frequency	Percent	Cumulative Percent
PhD	1	.9	.9
Masters	17	16.0	17.0
Bachelor's degree	84	79.2	96.2
Post graduate diploma	1	.9	97.2
Diploma	3	2.8	100.0
Total	106	100.0	

Source: Researcher Data (2021)

The above data imply that majority of the respondents were highly educated, therefore giving assurance that they read the study questions and well understood its objective. Consequently, their responses can be regarded as suitable for inference to the target population.



Figure 4.3: Respondents Academic Levels

Respondents' Household Sizes

This information is key to this research -as it gives an indication of how employees were able to focus on teleworking while at their households. This is because the household size has a direct impact of level of balancing between teleworking and household chores. The study findings established that majority of respondents (56.6%) were living in households with 3-4 persons. The second highest number of households (25.5%) had 5 persons and above, while 17.9% of the respondents were living in households having 1-2 persons.

Table 4.5: Response on Household Sizes

Category	Frequency	Percent	Cumulative Percent
1-2 persons	19	17.9	17.9
3-4 persons	60	56.6	74.5
5 and above persons	27	25.5	100.0
Total	106	100.0	

Source: Researcher Data (2021)

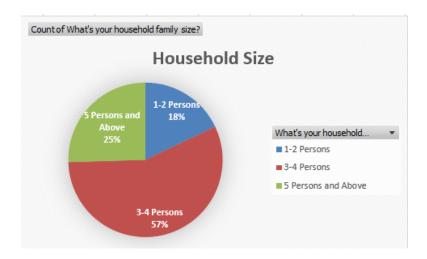


Figure 4.4: Respondents Household Sizes

4.1.3 Organizational Information.

Duration Of Service

Another key information this study was seeking is establishing how long the participants have been working with the organization. The importance of this information is that longer respondent's service in an organization translates to higher level of information richness of the individual pertaining the subject of study. According to the study, 34.9% of the respondents have been in the organization for a period of 6-10 years, 29.2% have worked in the organization for a period of between 1-5 years, while those who have been in the organization for period of over 11 years represent 28.3%. The least number of respondents (7.5%) have been in the organization for less than one year. From the study, it can be concluded that respondents who were part of this study have been in the organization for a relatively longer period and therefore are expected to be more

knowledgeable with the organization's systems and applications – therefore presenting good candidates for teleworking practice. The table below highlights this distribution.

Table 4.6: Response on Length of Service

Category	Frequency	Percent	Cumulative Percent
Less than one year	8	7.5	7.5
1-5 years	31	29.2	36.8
6-10 years	37	34.9	71.7
11 years and above	30	28.3	100.0
Total	106	100.0	

Source: Researcher Data (2021)

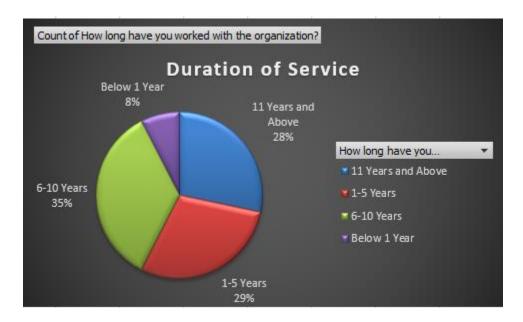


Figure 4.5 Respondents duration of service

Position Held in the Organization

The respondents were also requested to avail information on positions they currently hold in the organization. According to the research findings, more than 54% of the respondents were in officers/ senior officers' positions, 15.1% assistant managers, 15.1% managers. Senior managers accounted for 12.3% of the respondents and 0.9% each for general manager, Associate director, and director levels. The table below captures this schedule.

Table 4.7: Sample Response on Position Held

Category	Frequency	Percent	Cumulative Percent
Officer	32	30.2	30.2
Senior officer	26	24.5	54.7
Assistant manager	16	15.1	69.8
Manager	16	15.1	84.9
Senior manager	13	12.3	97.2
General manager	1	.9	98.1
Associate director	1	.9	99.1
Director	1	.9	100.0
Total	106	100.0	

Source: Researcher Data (2021)

Cumulatively, almost half of the respondents involved in the study are in middle level management and above, a clear indication that they are in a better position understanding the organization's systems/applications. They are also better placed to understand and answer the question presented in this study.

4.2 Descriptive Statistics

This section of the research will use descriptive statistics to summarize the datasets collected during the survey. It will provide information about variables in these datasets as well as highlight potential relationships between the variables involved. The study has three independent variables and one dependent variable. This section will therefore analyze descriptive statistics for the three independent variables: technological aspects, organizational aspects, and environmental aspects; and their relationship with the dependent variable "Firm's adoption of teleworking."

Normality Checks on the Data set

Before descriptive (regression) analysis was done, data transformation was carried out to establish whether the model well fitted the data set. This was achieved by testing the Assumption of normality to run multilinear regression model. The assumption for normality P-value and normality tests done confirmed that the data set observed normality, hence the model fitted the data set well.

Table 4.8: Assumption of Normality Test Results

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Technology_Context	.116	106	.001	.952	106	.001
Organizational_Context	.127	106	.000	.965	106	.006
Environmental_Context	.171	106	.000	.943	106	.000

a. Lilliefors Significance Correction

Box plots from the normality tests also affirmed that data set is symmetric.

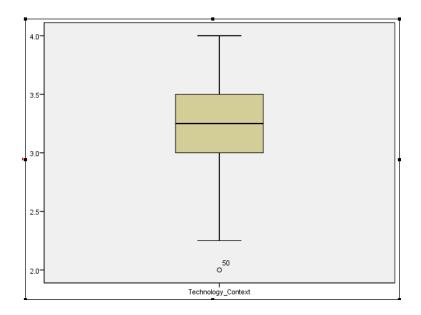


Fig 4.6:Data Set's Symmetric Test Result 1

4.2.1 Technological Aspects

The study sought to establish how technologies already deployed and those available to the organization influence teleworking adoption in organizations. The technology aspect was operationalized by; IT equipment, internet connectivity, collaboration and Secure systems/applications Access. From the study, it was established that the organization has an effective and reliable collaboration platform to facilitate communication among the employees practicing teleworking. For this item under the independent variable of technological aspects, it had the highest weighting (M=3.69).

However, on the item of quality and reliable internet connectivity had lowest weighting (M=2.75). Generally, responses from participants of this study were found to be consistent among the respondents, as demonstrated by lower standard deviation (<1.0). The table below depicts the above descriptive statistics findings pertaining technological aspects dependent variable.

Table 4.9: Technological Aspects Analysis

Descriptive Statistics

Construct Variables	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Collaboration Tools	106	3.6887	.48527	-1.079	.235	215	.465
Access to Systems &	106	3.3774	.66837	806	.235	400	165
Applications	106	3.3774	.00037	806	.233	.409	.465
IT Equipment	106	3.28	.598	466	.235	.934	.465
Internet Connectivity	106	2.75	.860	142	.235	681	.465

Source: Researcher Primary Data (2021)

The study revealed that a critical facilitator for successful teleworking practice is communication. While teleworking, employees require an effective virtual collaboration and communication tool(s) to facilitate engagements with various stakeholders within and outside the organization. Access to relevant enterprise systems and applications by teleworking employees is another important aspect that the study revealed should be facilitated for a smooth adoption of teleworking. This was echoed by senior management staff - ICT#001 asserted that collaboration was a key requirement when the Covid-19 lockdowns were announced. "At first WhatsApp was most common in peer-to-peer communication amongst employees – thought through informal groups. At the enterprise level, MS Teams, WebEx and Avaya Mobile App were key tools used for collaboration, which was critical during the lockdowns".

Another senior manager in the organization lamented "The rising of conferencing applications such as Zoom, MS Teams was a key trend that favored the teleworking practice. A lot of finetuning on such applications was witnessed due to the role they played towards facilitating teleworking that was practiced across the globe"- ICT#002

Similar feedback was shared by senior management staff OPS#001 who observed that "the organization's investment in technology both software and hardware years back has played a key role in the adoption of teleworking. Software mainly included collaboration tools such as MS Teams, which have come in handy during the Covid-19 pandemic situation"

4.2.2 Organizational Aspects

The questionnaire also included items that aimed at reviewing influence of organization-related aspects on teleworking. This organization aspect was operationalized by; Enabling infrastructure, BCP processes, leadership culture, Data confidentiality, teleworking policy, government regulation, tasks characteristics, productivity and performance evaluation. According to findings, the organization has business continuity processes and policies that favor teleworking. This was the same for the aspect that while teleworking employees are able to carry out majority of the tasks executed while working from the office. Both statements had the highest weighting (M=3.46). However, respondents disagreed on the item stipulating that security measures put in place by the organization impact on effectiveness of employees practicing teleworking. The item had the minimum weighting (M=3.02). The table below depicts the above descriptive statistics findings pertaining this dependent variable.

Table 4.10: Organization Aspects Analysis

Descriptive Statistics

Construct Variable	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Job Characteristics	106	3.4623	.57196	472	.235	736	.465
Leadership Culture	106	3.3774	.55981	163	.235	810	.465
Job Productivity	106	3.3679	.62222	449	.235	636	.465
Government Regulations	106	3.2264	.72089	837	.235	.952	.465
Performance Evaluation	106	3.0755	.64288	288	.235	.271	.465
Framework Security	106	3.0189	.80452	370	.235	552	.465

Source: Researcher Data (2021)

The study therefore established that key aspects which an organization should focus on for a successful facilitation of teleworking. Job characteristics for various tasks performed should be aligned to ensure that they can be executed while working remotely. The organization's leadership support is another key dependency of the successful adoption of teleworking practice. Below are other organization Aspects that were also subjected to respondents during the study. The respondents were expected to confirm their awareness of the existent of organization policy governing teleworking. Majority confirmed they were aware of existence of a policy framework governing teleworking. Top management confirmed that leadership played a key role towards the adoption of teleworking. "By the organization realizing that teleworking was an option and

passing this to the employees was by itself a key facilitation of teleworking from the leadership. Laxing on the rules that employees had to come to the office, and letting go the culture of working from the office was on its own major demonstration of role played by the leadership culture" pointed out ICT#001

Table 4.11: Organization Aspects – Teleworking Policy

Category		Frequency	Percent	Cumulative Percent
Valid	Fully aware	79	74.5	74.5
	Not aware	27	25.5	100.0
	Total	106	100.0	

Source: Researcher Data (2021)

Also, the participants were expected to respond on an item regarding organization's facilitation on prerequisite teleworking infrastructure to support teleworking adoption/practice. The table below illustrates the respondents' feedback.

Table 4.12: Organization Aspects – Infrastructure Facilitation

Category		Frequency	Percent	Cumulative Percent		
Very high	29	27.4	27.4			
High	69	65.1	92.5			
Low	8	7.5	100.0			
Total	106	100.0				

Source: Researcher Data (2021)

4.2.3 Environmental Aspects Relating to Employees' Households

The research also had items relating to employees' household environmental aspects that could have influence on teleworking practice. This aspect was operationalized by household characteristics, work-life balance/conflicts and working hours parameters while teleworking. The descriptive analysis findings established that majority of respondents agreed on the item that while teleworking, employees work for more hours compared to when working from the office. This was manifested by its maximum weighting (M=3.59). On the extreme end, respondents disagreed on the statement that employees experience household challenges related to family setup making it difficult to practice teleworking. The item had a lowest weighting (M=2.41). The above descriptive

statistics findings pertaining the environmental aspects dependent variable are captured in the table below.

Table 4.13a: Household Environmental Aspects Analysis

Construct Variable	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Working Hours	106	3.5943	.62911	-1.768	.235	3.962	.465
Household Environment Conduciveness	106	2.9151	.84084	229	.235	767	.465
Household Characteristics	106	2.4057	.81391	.203	.235	396	.465

Source: Researcher Data (2021)

The following are key highlights of study findings under this household environmental aspect:

While practicing teleworking, the study established that employees spent more of their time working compared to when working from the corporate offices. This means that for a successful teleworking adoption, organization should have some mechanisms for controlling the working timelines. Other two items under this household environmental aspect focused on establishing the frequency at which respondents practice teleworking as well as their preference model of working going into the future. The outcome of these are highlighted in the below tables.

Table 4.13b: Household Environmental Aspects - Teleworking Frequency

Category	Frequency	Percent	Cumulative Percent
3 days a week	15	14.2	14.2
1 week a month	13	12.3	26.4
2-3 weeks a month	23	21.7	48.1
4 weeks and above	55	51.9	100.0
Total	106	100.0	

Source: Researcher Data (2021)

Table 4.14: Household Environmental Aspects - Preference Future working Model.

	Category	Frequency	Percent	Cumulative Percent
Valid	Fully teleworking	40	37.7	37.7
	Partially teleworking and partially	65	61.3	99.1
	from Office			
	Fully from office	1	.9	100.0
	Total	106	100.0	

Source: Researcher Data (2021)

4.2.4 Teleworking Challenges and Experiences

As earlier highlighted in the design chapter of this report, the study also involved one open-ended item. The question sought to get respondents' feedback on their experiences while practicing teleworking. The study revealed that majority of the respondents faced challenges relating to power and internet connectivity. 62 out of the 106 respondents (58.49%) had challenges that touched on this issue. One of the respondents narrated "Poor Internet connectivity, some systems not fully available via VPN". Another expressed "internet fluctuation, network unavailability sometimes, delay in messages delivery on phone".

The study finding revealed that effective teleworking practice is highly dependent on external environmental aspects within the households. This brings challenge which is beyond the scope of organization and the employees practicing teleworking. The other challenge that respondents revealed was on working for long hours. The respondents expressed their concerns on having worked for more hours while teleworking. Below are sample responses on this issue. One of the respondents argued that "'No clear definition of working hours anymore". Another one responded, "Working extra hours without taking breaks" and another gave the feedback "Working hours go beyond the normal office hours". Four (4) participants reported not to have experienced any challenges during their teleworking practice. The study therefore established that for teleworking adoption to be successful, organizations and employees must come up with plans and strategies to address the working hours.

From top management perspective, challenges touching on lack of preparedness, tasks alignment, data leakage, employee isolations, employee performance tracking and lack of teleworking tools featured prominently. "Preparedness for invoking BCP processes whenever the corporate offices

were not accessible was demonstrated as a major challenge. Formulating and adopting BCP plans and relying on them without putting much thoughts about them was a challenge to the organization." – ICT#001.

4.3 Regression Analysis

As highlighted in the data analysis section of research design chapter, relationship analysis between the three independent variables and the teleworking adoption outcome variable will be done using regression coefficient. Regression analyses are used in research to establish whether independent variable(s) can predict the outcome of a dependent variable (Mugenda and Mugenda, 2003). Analysis was done at 5% significance level. To determine the significance of the coefficients, the F-test was used. In this case, an F-Value greater than 0.05 will be considered insignificant, otherwise the value will be significant and considered to affect the teleworking adoption. To determine the overall extent in which the dependent and independent variables are related, a coefficient of determination (R²) was used to determine how much variation in Y is explained by X. The significance of this regression computational analysis was to establish the linear equation that will relate the three independent variables (Technological Aspects, Organizational Aspects and Environmental Aspects) and their influence/impact on the dependent teleworking adoption variable – which are involved in this study. The resulting linear equation from linear regression analysis will help in predicting the impact of teleworking adoption dependent variable under study, whenever one or combination of the independent variables are fixed with a given value. The Statistical package for Social Sciences SPSS V20.0) was used to input and compute the linear regressions for the four variables involved in this study – with a coefficient determination being used to assess the degree at which variations in the outcome variable can be explained by any variation on the independent variables.

Model Summary

Based on the regression analysis, Coefficient correlation (R) – which explains relationship between the variables indicated a positive relationship between dependent variable and the three independent variables in this study. The model has a Coefficient correlation (R) value of 0.579^a

The Coefficient of determination (R²) indicates the extend of variation on the Teleworking Adoption dependent variable is described by a change on one or any of the three independent

variables. The regression computational analysis indicated that the (R2) value for this model is 0.335, implying that 33.5% of the variance in the Teleworking adoption dependent variable could be attributed to changes on any of the three independent variables. This R squared statistic is used to confirms the model's goodness of fit. The table below represents model summary of the regression results.

Table 4.15a: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.579ª	.335	.316	.49434

In order to establish the significance of regression analysis for the model, ANOVA analysis were done. The table below summarized the ANOVA computations for the model.

Table 4.15b: ANOVA Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.584	3	4.195	17.165	.000 ^b
	Residual	24.926	102	.244		
	Total	37.509	105			

a. Dependent Variable: Teleworking-Adoption

b. Predictors: (Constant), Technological_Context, Environmental_Context, Organizational_Context

Based on the above ANOVA analysis, the significant value of the model was confirmed to be 0.000^b , a value which is less than the 0.05 risk level. This is an indication that the model is statistically significant and that teleworking adoption decisions are predicted by technological, organizational, and individual employee's household environmental factors. The results show that there is a positive relationship between technological, organizational and individual employee's household environmental factors, and teleworking adoption.

4.3.1 Regression Analysis Factoring the Moderating Variables

A regression analysis was done factoring the three moderating variables in addition to the main variables of the model. Evaluation of the model's fitness in statistically testing relationship between the teleworking adoption dependent variable and the Six (6) independent variables. Statistical analysis confirmed that with the introduction of the three moderating variables Coefficient

correlation (R) value changed to .612^a – meaning a positive and increased correlation between teleworking adoption and the independent variables. This change can therefore be attributed to the three moderating variables into the model. Similarly, the Coefficient of determination (R²) also showed that with the inclusion of the moderating variables in the model, there was a variance on teleworking adoption due to change in the independent variables from 3 to 6. The extend of the total variation on the dependent variable changed from .335 to .374, an indication that the moderating variables shifted the variance to 37.4%.

This is a clear demonstration that the three moderating variables used in the study have positive influence on teleworking adoption – in addition to the three main variables.

The results of regression analysis for the six (6) variables to the Model summary is captured below.

Table 4.16a: Regression Analysis - Moderating Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.612ª	.374	.336	.48694

a. Predictors: (Constant), Experience, Gender, Technological_Context, Environmental_Context, Organizational_Context, Age.

Table 4.16b: ANOVA Analysis - Moderating Variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.036	6	2.339	9.866	.000 ^b
	Residual	23.474	99	.237		
	Total	37.509	105			

a. Dependent Variable: Teleworking adoption

b. Predictors: (Constant), Experience, Gender, Technological_Context, Environmental_Context, Organizational_Context, Age

The above table shows an F-Statistic of 9.866, with a level of significance of 0.000b (Expressed in 3 decimal places), which is less than the analysis significance level of 0.05 for this study. This therefore implies that the model is statistically fit as an estimator of teleworking adoption in an organization.

4.3.2 Regression Coefficients

This analysis section aimed at establishing the contribution each of the three independent variables have on the dependent variable. The table below highlights results of the regression coefficients computations.

Table 4.17: Regression Coefficients Analysis

		Unstandardized C	oefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	.699	.466		1.499	.137
	Environmental_	.258	.058	.371	4.445	.000
	Context					
	Organizational_	.197	.083	.220	2.371	.020
	Context					
	Technological_	.235	.110	.191	2.143	.035
	Context					
	Moderating variables					
	Age	.152	.086	.163	1.757	.082
	Gender	137	.112	102	-1.228	.222
	Experience	.026	.059	.041	.445	.657

a. Dependent Variable: Teleworking_Adoption

Below is the regression model developed.

$Y=0.699+0.258X_1+0.197X_2+0.235X_3$.

Based on the above regression equation, it can be established that holding Environmental aspects for employees' households, Organization's aspects, and Technological aspects to a constant zero impact teleworking adoption at 0.699. However, a unit increase in the environmental context of the employee's household positively affect the level of teleworking adoption by factors of 0.235, a unit increase in the organizational context brings a positive change to teleworking adoption by factor of 0.197, while a unit increase in the technological context brings a positive change to teleworking adoption by a factor of 0.258. This therefore shows that there is a positive relationship between Environmental aspects, Organizational context, technological context, and teleworking adoption. From the descriptive analysis, it can be explained that the moderating variables do not

have significant impact to the teleworking adoption model for the organization. This is because they all have significance levels above the 0.05 level defined in this model – I.e., 0.082, 0.222 and 0.657 for Age, gender, and Experience variables respectively.

4.4 Hypothesis Testing

H1: Existing and future technologies in an organization positively influence teleworking adoption.

To test the H1, a simple regression analysis was done.

Table 4.18a: Model Summary and coefficients for H1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.307ª	.094	.085	.57162

a. Predictors: (Constant), Technological_Context

Table 4.18b: Model Summary and coefficients for H1

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	1.890	.428		4.419	.000
	Technological_Context	.378	.115	.307	3.286	.001

a. Dependent Variable: Teleworking_Adoption

Table 4.20b show that existing and future technologies in the organization had a statistically significant influence on teleworking adoption. It explained 30.7% of its variation (R^2 =.307). This implies that teleworking adoption has a weak relationship with existing and future technologies in an organization.

The unstandardized regression coefficient (β) value of the computed (composite index) scores of existing and future technologies in the organization was 0.378 with a t-test of 3.286 and significance level of p-value .001. therefore, this finding approves the H_1 that Existing and future technologies in an organization positively influence teleworking adoption.

H2: Organization factors aspects influence teleworking adoption either positively or negatively.

Table 4.19a: Model Summary and coefficients for H2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.398ª	.158	.150	.55103

a. Predictors: (Constant), Organizational_Context

Table 4.19b: Model Summary and coefficients for H2

		Unstandardized Coefficients Standardized Coefficients				
Mode	el	В	Std. Error	Beta	t	Sig.
1	(Constant)	2.082	.277		7.518	.000
	Organizational_Contex	t.356	.080	.398	4.420	.000

a. Dependent Variable: Teleworking_Adoption

From the findings with regard to H2, the study has established that Organization aspects as an individual variable contributes 39.8% (R2=0.398) of the total teleworking adoption activity. In addition, with a beta coefficient of 0.356, it implies that an additional effort on Organization aspects increases teleworking adoption by a factor of 0.356. Consequently, the findings rule on the hypothesis that Organization aspects influence teleworking adoption positively.

H3: Individual employee household characteristics positively or negatively influence teleworking practice.

Table 4.20a: Model Summary and coefficients for H3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.451ª	.204	.196	.53588

a. Predictors: (Constant), Employee Household Characteristics

Table 4.20b: Model Summary and coefficients for H3

			Unstan	dardized	Standardized Coefficient	S	
Mo	odel		В	Std. Error	Beta	t	Sig.
1	(Constant)		2.419	.175		13.785	.000
	Employee Characteristics	Household	d.314	.061	.451	5.159	.000

a. Dependent Variable: Teleworking_Adoption

Based on H3, the study was to establish whether Individual employee household characteristics positively or negatively influence teleworking practice. The findings demonstrated that Individual employee household characteristics explains 45.1% (R2=0.451) and that the unstandardized coefficient B=0.314 imply a positive and moderate relationship. With this finding, the study is informed that Individual employee household characteristics positively influence teleworking practice.

CHAPTER FIVE: CONCLUSSION AND RECOMMENDATIONS

5.0 Introduction

The study analyzed critical aspects to influence adoption of teleworking phenomenon post Covid-19 in Kenya. The study had three objectives; establishing main teleworking challenges encountered during Covid-19 pandemic, identifying critical factors that will be influencing sustainability of the phenomenon post Covid-19, and developing a teleworking model for guiding organizations in their decisions to adopt teleworking post Covid-19 pandemic. Online questionnaires were used as the data collection instruments. Statistical package for social sciences (SPSS) was used to analyze quantitative data collected. The results of this study indicated that technological, organizational and employees' household environmental characteristics positively influence teleworking in the organization used in this study. This is supported by Barker (2012), that the three aspects influence the level of any technological innovation.

5.1 Findings on the Study Objectives

Below is highlight of the findings of the study based on its objectives.

5.1.1 Establishing main teleworking challenges encountered during Covid-19 pandemic

The findings revealed that there were external household environmental aspects observed as major constraints to teleworking practice. The study sought to answer the research question "What are key teleworking challenges encountered during Covid-19 pandemic?". Key aspects were lack of quality and reliable data connectivity within the employees' households. For successful teleworking practice, data connectivity services need to be enhanced, and therefore paramount relevant responsible authorities and service providers have to increased footprint of broadband services within the households. This is in line with Prasad, et al. (2020) who in their research emphasized on need to address challenges employees face in their practiced for teleworking. Other key challenges this study established are disruptions employees get from household chores, loneliness and isolations and working for too many hours compared to when working from the office. This was echoed by senior management who reiterated that the isolation attributed to teleworking may work against the organizational culture – "Teleworking may lead to erosion of the culture which the organization had built over time by eliminating the social interaction since people will no longer be able to physically interact with each other" OPS#001.

Data security and leakage was also identified as another major challenge associated with the teleworking upsurge. Organizations are faced with data security challenges and increase on teleworking practice has only sophisticated the situation. One of senior management staff supported this concern. "With majority of staff working from home, fraudsters no longer need to visit the organization's premises to understand the data repository postures. Instead, they can easily collude with teleworking employees and access corporate's data. Sustaining data protection Act 2020 therefore will be a concern as data may be leaked without the organization's knowledge" lamented the ICT#002. This is in line with Ansong and Bonteng (2008) who in their research highlighted that data security being a topical issue, concerns have been raised as to how much and what type of jobs should be undertaken while teleworking.

Lack of preparedness was also another key challenge noted. By the time the pandemic struck, the organization was not ready to invoke BCP in case the staff were not able to congregate at offices. Previously, BCP had been effected as a regulatory requirement, with an alternate physical location where staff could work from in case the main physical premises was unavailable. Therefore, with the invasion of Covid-19, there were challenges formulating and adopting relevant BCP plans and relying on them without much refinement and simulations. "Preparedness for invoking BCP processes whenever the corporate offices were not accessible was demonstrated as a major challenge. Formulating and adopting BCP plans and relying on them without putting much thoughts about them was a challenge to the organization." – ICT#001.

5.1.2: Identification of critical factors influencing adoption of teleworking during Covid-19.

The study revealed that under the technological context, availability of effective and reliable virtual communication tools within the organization plays a key role towards a successful teleworking practice. This is supported by Chidi et al. (2020) who established that the type of communication and ability to effectively communicate with teleworking employees influence teleworking adoption in an organizational setup. Another finding of this study is ability of teleworking employees to access corporate systems and applications while teleworking. In order to effectively execute their duties, they require access to the relevant systems. Organizations should therefore facilitate this key prerequisite, as Belzunegui-Eraso and Erro-Garcés (2020) confirmed in their research that other than providing hardware tools for teleworking, organizations must also facilitate specific software such as remote applications.

Under the organizational context, the study established two key dependencies for effective teleworking adoption – job characteristics and organizational culture. Through this study, it was revealed that the nature and characteristics of jobs largely determine whether or not organization can adopt teleworking. This was mainly feedback from endpoints support, level1 monitoring and reporting, and data centre facilities teams. This was confirmed by findings of Patricia (2020) and Chidi et al. (2020), that the degree to which jobs are conducive for teleworking practice is key in the teleworking adoption. It's therefore paramount that organizations make necessary jobs design alignments to ensure that such jobs to ensure their suitability in a teleworking environment. This was supported by previous research by Prasad et al. (2020) – which established that employees' practice to teleworking may be hampered by the nature of jobs. Organizational leadership culture was also pointed out by this study as another key factor. This finding affirms Ansong and Bonteng (2008) study which asserts that the role of management is very critical and indispensable in teleworking adoption. The same finding is also affirmed by Barker (2011) – who emphasized that top management in organizations can foster innovation by creating the right organizational environment supportive of innovations and adaptations, such as teleworking adoption. The same finding was observed by Prasad et al. (2020) who revealed that it is through leadership that the right organizational climate is available for employees to practice teleworking. The other context which this study looked at was employees' household environmental aspect, and how it impacts teleworking practice. Previous studies confirmed that household characteristics influence teleworking adoption. This study sought to identify the key aspects that impact teleworking most under this context. Long working hours while teleworking was identified by the study as a major concern. The finding concurs with by Prasad et al. (2020) that the issue of working for extended hours is a major aspect that need to be reviewed by organizations for a successful teleworking adoption. Availability of mobile devices for the users also play a major role towards teleworking adoption. Prior to the pandemic, the organization had pre-mobile devices already provisioned for users. This made the transition to teleworking smooth when the Covid-19 struck.

5.1.3: Developing a teleworking model to guide organizations in teleworking adoption post the Covid-19 pandemic.

The study also aimed at developing a teleworking model for guiding organizations in their decisions on whether to adopt teleworking post Covid-19 pandemic. The study aimed to answer the research question "What should guide organizations' choices towards adoption and sustainability teleworking post Covid-19?". The study developed a regression model, highlighting

that holding Environmental aspects for employees' households, Organization's aspects, and Technological aspects to a constant zero impact teleworking adoption at 0.699. However, a unit increase in the environmental context of the employee's household positively affect the level of teleworking adoption by factors of 0.235, a unit increase in the organizational context brings a positive change to teleworking adoption by factor of 0.197, while a unit increase in the technological context brings a positive change to teleworking adoption by a factor of 0.258. This confirms existence of a positive relationship between Environmental aspects, Organizational context, technological context, and teleworking adoption. Below is the model for teleworking adoption developed by this study. The model therefore signifies that employee household environmental characteristics, organizational and technological aspects, all positively influence teleworking adoption. The figure below depicts this model.

Teleworking Model

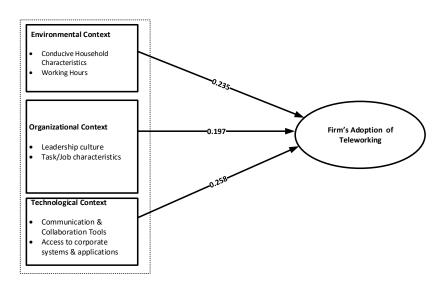


Fig 5.1: Teleworking Model Developed

5.2 Conclusion and Recommendations

A teleworking model for guiding teleworking adoption was a key outcome of this study. The developed model explains 33.5% of teleworking adoption. The study findings were that technological, organizational and employee household environmental aspects positively influence teleworking adoption in organizations. Under the organizational context, key aspects that influence organizations' decision on teleworking adoption are job characteristics and leadership culture. Other keys aspects to factor are; investment on prerequisite teleworking infrastructure resources –

E.g., licenses, ensuring availability of social support systems for teleworking employees, and rigorous sensitization from senior management.

On the technological front, the key aspects are availability of robust communication and collaboration tools, and access to corporate systems by teleworking employees. Other aspect under this pilar are; availability of virtual private network connection facility, Improved Multi Factor Authentication (MFA) and Virtual Desktop Infrastructure (VDI) solutions to ensure security, and availability of prerequisite teleworking tools.

From the employees' household environment perspective, conducive environment was pointed out as critical, as well as teleworking hours to ensure office tasks don't take up all the time for teleworking employees. Age, gender and experience demographic factors of individual employees were however found not statistically significant in this study.

The following are key recommendations, based on its findings.

Effective communication and collaboration form a critical dependency for successful teleworking. Organizations should therefore invest in relevant collaboration tools to ensure teleworking employees can communicate with their peers, team leads and other stakeholders.

Organization's leadership culture plays a pivotal role and is a critical factor to a successful teleworking adoption in organization. The right leadership culture should be cultivated to ensure that management offers the prerequisite motivation and support to their teleworking staff.

Organizations should consider enhancing their preparedness to disasters by improving and documenting their business continuity policies and procedures. This will ensure that the business continuity processed are continuously refined, tested, and documented - in readiness for their invoking whenever the corporate offices are not accessible due to any reason.

In readiness for teleworking adoption, organizations should purpose to redesign various tasks to ensure they suit remote execution. This will ensure that teleworking practice adoption is not inhibited by the job characteristics.

Data security is also a key concern that should worry any organization envisaging to adopt teleworking. This is because while teleworking, employees are able to access the corporate data from their devices and this may have implications to the data protection Act 2020. In

order avert possible data breaches while teleworking, organizations should consider investing in Virtual Desktop Infrastructure (VDI) in addition to the other remote access solutions. This will ensure controlled data access to the teleworking employees.

Review of employees' performance evaluation process should also be done to factor in and incorporate the recently heightened teleworking practice. This should ensure proper online performance review solutions with dashboards to enable managers monitor the performance of their direct reports/staff practicing teleworking.

Organizations should also formulate and entrench policy frameworks specifically geared towards guiding and governing teleworking adoption.

Broadband internet connectivity for teleworking employees from their households is also a critical determinant for successful teleworking adoption. Despite organizations having elaborate teleworking facilitation processes, the ability of employees having reliable and stable internet connectivity from their households is key. Community-based internet service providers and other relevant stakeholders – e.g., national and county governments should purpose to increase footprint of internet services at the households.

5.3 Implications of the Study

This study was cognizant that teleworking phenomenon has existed for the last four decades. However, the research focused on the Covid-19 triggered teleworking that saw massive and unprecedented surge in its adoption across the globe. It aimed at identifying key determinant aspects that will influence adoption of teleworking practice post Covid-19 in organizations. The outcome and recommendations of this study will act as baseline that will guide organizations in future while making decisions on teleworking adoption post the Covid-19 pandemic. It contributes to the research domain by establishing specific key aspects to influence teleworking experience in organizations.

Through its findings, the study identified critical issues that will be influencing organizations' decisions towards teleworking adoption. The study was able to establish key aspects that will be influencing teleworking adoption – under each of the pillars used in the conceptual framework adopted by this study (technological, organizational and employee household environmental contexts).

5.4 Limitations of the Study

The study sought to establish critical factors that will be influencing teleworking practice adoption post Covid-19 in Kenya's financial industry. In its execution, the study used one financial institution - Equity Bank Kenya as source of data used in the research. The research findings may therefore not accurately represent and make inferences to the tier-I commercial banks, due to diverse circumstances that are specific to individual financial institutions in the country.

However, the teleworking model developed by the study is significant statistically and can therefore be used by other institutions in the banking in the country to provide essential insights into teleworking adoption.

5.5 Future Research Recommendations

Following the finding of this research that employees' demographics aspects Gender, Age and Experience have no significant impact in teleworking adoption by organizations. This study recommends further studies done in future specifically focusing on the above three demographic aspects in relation to teleworking adoption for organizations. Another area of future research is in establishing the implications of scaled Covid-triggered teleworking to overall performance in the banking sector.

The study recommends further research on the impact of Age, gender, and experience demographic aspects in relation to teleworking adoption in organizations. This follows the findings of this study that three employees' demographic aspects have no significant influence on organizations' teleworking adoption. Another area where future research should explore is on the long-term implications of the heightened teleworking on organizations' performance. This is because this study was cross-sectional and could not explore the long-term effects of the teleworking practice and adoption triggered by the Covid-19 pandemic.

REFERENCES

This research paper used the Harvard Referencing convention for referencing citation.

Potter, E. E. (2003). *Telecommuting: The future of work, corporate culture, and American society*. Journal of Labor Research, *24*(1), 73-84.

DOI: 10.1007/s12122-003-1030-1.

Belzunegui-Eraso, A. and Erro-Garcés, A. (2020). *Teleworking in the Context of the Covid-19 Crisis*. Sustainability (Basel, Switzerland), 12(9), 3662.

Worldometer. (2020, October). Countries where COVID-19 has spread.

https://www.worldometers.info/coronavirus/#countries

Zhang, S. et. al. (2010). A work-life conflict perspective on telework. Transportation Research Part A 141 (2020) 51–68

Eurofound and the International Labour Office (2017). Working anytime, anywhere: The effects on the world of work, Publications Office of the European Union, Luxembourg, and the International Labour Office, Geneva.

http://eurofound.link/ef1658

Nilles, J.M. et al. (1976). "Telecommuting - An Alternative to Urban Transportation Congestion," in IEEE Transactions on Systems, Man, and Cybernetics, 6(2), pp. 77-84.

DOI: 10.1109/TSMC.1976.5409177.

Mokhtarian, P. L. (1991). *Defining Telecommuting*. Institute of Transportation Studies, UC Davis, Institute of Transportation Studies, Working Paper Series. 1305.

Jeyaraj, A. et al. (2006). A Review of the Predictors, Linkages, and Biases in IT Innovation Adoption Research. Journal of Information Technology, 21(1), 1–23.

https://doi.org/10.1057/palgrave.jit.2000056

McKeown, T. J. (2003). Case Studies and the Statistical Worldview: Review of King, Keohane, and Verba's Designing Social Inquiry: Scientific Inference in Qualitative Research.

International Organization, 53(1), pp 161 - 190.

DOI: 10.1162/002081899550841.

Sahin, I. (2006). Detailed review of Rogers' diffusion of innovations theory and educational technology-related studies based on Rogers' theory. The Turkish Online Journal of Educational Technology. 5. 14-23.

Baker, J. (2011). The Technology-Organization-Environment Framework. 10.1007/978-1-4419-6108-2_12.

Jeyaraj, A. et al. (2006) "A Review of the Predictors, Linkages, and Biases in IT Innovation Adoption Research," Journal of Information Technology, 21(1), 2006, pp. 1-23.

DOI: 10.1057/palgrave.jit.2000056

Pérez Pérez, M. et al. (2004), "A technology acceptance model of innovation adoption: the case of teleworking", European Journal of Innovation Management, 7(4), pp. 280-291.

https://doi.org/10.1108/14601060410565038

Prasad, K. et al. (2020). Organizational Climate, Opportunities, Challenges and Psychological Wellbeing of the Remote Working Employees during COVID-19 Pandemic: A General Linear Model Approach with Reference to Information Technology Industry in Hyderabad.

International Journal of Advanced Research in Engineering and Technology (IJARET), 11(4), 2020, pp. 372-389.

https://ssrn.com/abstract=3599799

Cowling, B. J. et al. (2020). Impact assessment of non-pharmaceutical interventions against coronavirus disease 2019 and influenza in Hong Kong: an observational study,

The Lancet Public Health, 5(5), 2020, pp 279-288,

https://doi.org/10.1016/S2468-2667(20)30090-6.

Saunders, M. et al. (2009). *Understanding research philosophies and approaches*. Research Methods for Business Students. 4. 106-135.

Venkatesh, V. et al. (2003). "User Acceptance of Information Technology: Toward a Unified View," MIS Quarterly, (27: 3).

Razif, M. et al. (2020). Investigating the role of Environmental Concern and the Unified Theory of Acceptance and Use of Technology on working from home technologies adoption during covid-19.

Entrepreneurship And Sustainability Issues ISSN 2345-0282

http://doi.org/10.9770/jesi.2020.8.1(53)

AJAYI, P. I. (2020). *Telecommuting During Covid-19 In Nigeria*. African Journal for the Psychological Studies of Social Issues, Vol 23 Issue 2 PP 1-9

Lai, PC. (2017) *The Literature Review of Technology Adoption Models and Theories for the Novelty Technology*. JISTEM - Journal of Information Systems and Technology Management Vol. 14, No. 1, Jan/Apr., 2017 pp. 21 - 38, Available at SSRN: https://ssrn.com/abstract=3005897

Noelle, D. and Sarah, P. T. (2015). *Disrupted work: Home-based teleworking (HbTW) in the aftermath of a natural disaster*. New Technology, Work and Employment. 30.

DOI: 10.1111/ntwe.12040.

Williams, M. D. et al. (2015). "Unified Theory of Acceptance and Use of Technology (UTAUT): a Literature review", Journal of Enterprise Information Management, Vol. 28 Iss 3 PP 443-488.

http://dx.doi.org/10.1108/JEIM-09-2014-0088

Tavares, F.O. et al. (2020). *Teleworking in Portuguese communities during the COVID-19 Pandemic*. Journal of Enterprising Communities People and Places in the Global Economy.

Julius, E. et al. (2020). Estimating the Economic Impact of COVID-19: A Case Study of Namibia.

Larson, B.Z. et al. (2020). A guide to managing your (newly) remote workers.

Taherdoost, H. (2016). Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. International Journal of Academic Research in Management. 5. 28-36. 10.2139/ssrn.3205040

http://dx.doi.org/10.2139/ssrn.3205040

Wikipedia contributors. (2020, November). Technology Acceptance Model. Wikipedia

https://en.wikipedia.org/wiki/Technology acceptance model

Wikipedia contributors. (2020, December). Theory of reasoned action. Wikipedia

https://en.wikipedia.org/wiki/Theory_of_reasoned_action

Adom, D. and Hussein, E. (2018). *THEORETICAL AND CONCEPTUAL FRAMEWORK: MANDATORY INGREDIENTS OF A QUALITY RESEARCH*. International Journal of Scientific Research. 7, 438-441.

Grant, C. and Osanloo, A. (2015). *Understanding, selecting, and integrating a theoretical framework in dissertation research:* Developing a 'blueprint' for your "house". Administrative Issues Journal.4.

10.5929/2014.4.2.9.

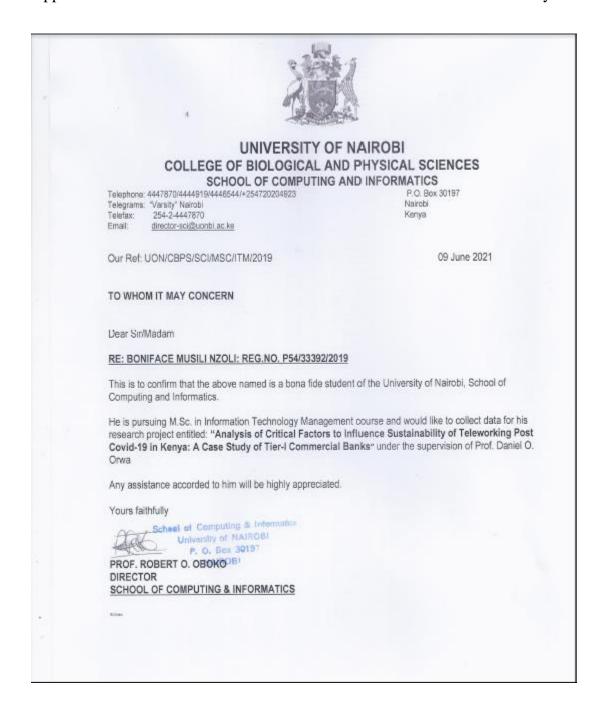
Mark, S. et al. (2009). *Understanding research philosophies and approaches*. Research Methods for Business Students. 4. 106-135.

Mugenda, O. M. and Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative Approaches*. Nairobi: African Centre for Technology Studies.

Ansong, E. and Boateng, R. (2008). *Organisational adoption of telecommuting*: Evidence from a developing country. E J Info Sys Dev Countries. 2018;84:e12008. https://doi.org/10.1002/isd2.12008

APPENDICES

Appendix I: Research Data Collection: Introduction Letter from University



Appendix II: Data Collection Approval Request Letter

The Associate Director Communication & PR, Equity Bank (Kenya) Ltd P.O Box 75104 – 00200, Nairobi Kenya,

Dear Sir/Madam,

RE: Request for Approval to Use EBL(K) for my MSc Research Project Case Study.

My name is Boniface Musili Nzoli, a student at the University of Nairobi, School of Computing and Informatics - pursuing a master's degree in Information Technology Management.

I am currently doing a thesis on Working from Home thematic Area, under the supervision of Prof Daniel Onva. The research topic is "Analysis of Critical Factors to Influence Sustainability of Teleworking Post Covid-19 in Kenya, a Case study of Tier-Lommercial banks.

Covid-19 pandemic has been highly disruptive in nature, leading to adverse impact on normal working operations across organizations. Its disorientation has since triggered an urgent review of working environment, leading to a rapid and accelerated adoption of teleworking practice.

Amid crisis and disruptions brought by the pandemic, the banking sector has remained highly resilient by leveraging on ICT infrastructure capabilities and capitalizing on digital transformation initiatives. This effectively saw the industry succeed in keeping country's economic lights on by offering the direly needed financial services to all other essential services sectors.

One of the remarkable developments precipitated by the pandemic's insurgence was accelerated adoption of teleworking phenomenon across organizations due the movement restrictions and lockdowns enforced by governments across the world.

This research project's focus is to explore teleworking challenges encountered during the pandemic, and factors that will influence its sustainability post Covid-19 pandemic. It will establish key aspects to guide organizations' considerations in their decisions to sustain teleworking concept post the current Covid-19 pandemic.

The outcome will be development of a model to guide commercial banks in teleworking adoption and its sustainability post the Covid-19 pandemic. This is because the pandemic not only forced organizations to adopt teleworking but brought sharp focus on re-examining entrenchment of its adoption post the pandemic.

The information provided by respondents during this research will be used for academic purposes only and will be treated with utmost confidentiality.

I hereby kindly seek your authorization to use Equity Bank Kenya in this research project.

Yours Falthfully, Boniface Nzoll. HUSAN ETTOURCE SERVICENT PIC DE 2001

Appendix III: Data Collection Authorization Letter



Our Ref: EBKL/HR/06/21pk/PF1014

17th June 2021

Boniface Musili Nzoli C/o Equity Bank (K) Limited Head Office-IT

Dear Boniface,

SUBJECT; RESEARCH PROJECT CASE STUDY- EB(K)L

Following your request to use Equity Bank (Kenya) limited as case study for your research project, we wish to inform you of the Bank's decision to grant the request under the following guidelines;

- · You will maintain confidentiality of the data gathered at all times.
- The questionnaires being used for information gathering will be shared with the undersigned before sending to the identified sample of Equity Staff
- You will send the questionnaires to the sample of employees and conclude the exercise within 30 days.
- The results of the findings will be shared with the Head of Communication.
- · The Final thesis will be shared with the Head of Communication before publication.

We wish you all the best in this endeavor.

Yours faithfully

EQUITY BANK (K) LIMITED

Gloria Byamugisha

Group Human Resources Director

Alex Muhia

Assaciate Director - Communication &

Public Relations

CC Personal File

Acknowledgement of Receipt of letter

I, the undersigned acknowledge having received and understood the contents of this letter and the contents have been explained to me. I accept to abide by the guidelines indicated above.

NAME IN FULL PARTE M. WOLL

SIGNATURE

...Date..

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Appendix IV: Cover Letter for the Data Collection

Analysis of Critical Factors that will Influence Sustainability of Teleworking Post Covid-19 in Kenya: A Case study of Tier-I Commercial Banks.

Dear Respondent,

My name is Boniface Musili Nzoli, a student at The University of Nairobi, School of Computing and Informatics, currently pursuing a master's degree in Information Technology Management. I'm undertaking a study titled, "Analysis of Critical Factors that will Influence Sustainability of Teleworking Post Covid-19 in Kenya: A Case study of Tier-I Commercial Banks".

The purpose of the questionnaire is to acquire information that will greatly help in meeting objective of this study. The bank was courteous to allow me administer this questionnaire, and hereby kindly request your participation in filling the questionnaire.

All information shared will be for academic research purposes only and treated with utmost confidentiality.

The exercise will take you an average of five minutes.

Thank you.

Appendix V: Data Collection Questionnaire

Section I: Personal Background Information

(Please Select where appropriate)

1. (Gender
0	Male Female
2. <i>A</i>	Age Bracket
О	Below 20
0	21-30
0	31-40
0	41-50
0	51-60

С	61 and Above
3. <i>A</i>	Academic Accreditation
0	PhD Master's Degree Bachelor's Degree Post Graduate Diploma Diploma O' Level
4. I	How long have you worked with the organization?
0	Below 1 Year 1-5 Years 6-10 Years 11 Years and Above Your position in the organization?
	Officer Senior Officer Assistant Manager Manager Senior Manager General Manager Associate Director Director What's your Household family size?
0	1-2 Persons3-4 Persons5 Persons and Above

Section II: Technologies in Use and Available to the Organization

Please indicate your level of agreement with the following statements regarding existing and future technologies in the organization.

	The Organization provides adequate prerequisite equipment to facilitate teleworking – E.g. ptops, Mi-Fi.
0 0	Strongly Agree Agree Disagree Strongly Disagree
	You have high quality and reliable internet connectivity facilitated by the organization to litate teleworking practice
	Strongly Agree Agree Disagree Strongly Disagree While teleworking, one can securely connect to the enterprise network and access all relevant tems and resources
00000	Strongly Agree Agree Disagree Strongly Disagree
	The organization provides effective and reliable collaboration platform(s) to facilitate your nmunication with various stakeholders during teleworking – E.g. Emails, Teams, Zoom.
00000	Strongly Agree Agree Disagree Strongly Disagree

Section III: Organization's Aspects that Influence Teleworking. To what extent do you agree with the following Statements?

	Emerging government regulations triggered by issues such as security operations, pandemics, fews, and natural disasters impact on teleworking practice.
0000	Strongly Agree Agree Disagree Strongly Disagree
	While teleworking, you are able to perform more than three quarters of tasks undertaken when trating from the office.
0	Strongly Agree Agree Disagree Strongly Disagree
	What's your level of understanding on existence of official policy governing teleworking ctice in the organization
© © 14.	Fully Aware Not Aware The leadership within your business unit aligns well with the organizational culture of viding a conducive environment for teleworking.
_	Strongly Agree Agree Disagree Strongly Disagree
15.	Teleworking has improved/increased your job productivity
0	Strongly Agree Agree Disagree

	Strongly Disagree The organization has effective performance evaluation and supervision framework for nitoring teleworking employees
0 0	Strongly Agree Agree Disagree Strongly Disagree
	Security measures put in place by the organization impact on your effectiveness during eworking
\sim	Strongly Agree Agree Disagree Strongly Disagree
	The organization has business continuity processes and policies ensuring you can access porate network from its diverse locations, other than designated office premises.
0 0	Strongly Agree Agree Disagree Strongly Disagree
	What's your level of satisfaction about the organization's facilitation towards deploying requisite technology infrastructure to effectively support your teleworking practice.
0000	Very High High Low Very Low

Section IV: Environmental Factors Relating to Employees' Households

What is the level of your agreement with the statements below pertaining household environmental aspects and their impact on teleworking?

20. You experience household challenges associated with family making it difficult to effectively practice teleworking

0 0	Strongly Agree Agree Disagree Strongly Disagree
21.	How frequently have you been practicing teleworking?
0	3 Days a Week 1 Week a Month 2-3 Weeks a Month 4 Weeks and Above
	Your Household setup allows for conducive teleworking environment - E.g. by having a icated teleworking room.
C 23.	Strongly Agree Agree Disagree Strongly Disagree Existence and frequency of challenges related to balancing between teleworking and your sehold chores.
0	Never Rarely Often Every time
	You work for more hours while teleworking compared to when working from the office ation
0 0	Strongly Agree Agree Disagree Strongly Disagree

Section V: Moderating Variables Please give your level of concurrence with the following Statements
25. Household gender-related responsibilities' level of impact on your teleworking practice. Very High High Low Very Low
26. How are your proficiency levels on teleworking technologies and experience with organization's enterprise systems/applications
Excellent
© Good
C Average
C Poor
27. Going forward, what would be your preference model of working.
Fully Teleworking
Partially teleworking and partially from Office
Fully From Office
Not Decided
Section VI: Challenges Associated with Teleworking
28. List teleworking challenges encountered during Covid-19 pandemic, based on your experience.

Thanks for your time and participation.

Interview Schedule

Section A: Technological Context

- 1. What are technology aspects and trends that have played key role towards successful teleworking practice in the organization since March 2020.
- 2. From a management perspective, what technological improvements would you recommend if the organization is to sustain current teleworking practice momentum post the Covid-19 pandemic?

Section B: Organizational Context

- 3. In your view, how has the organization facilitated successful adoption of heightened teleworking practice occasioned by Covid-19 pandemic?
- 4. What are the top three teleworking challenges that you may highlight from a top management perspective?
- 5. How do you see the future of teleworking in the organization post the current pandemic?

Section C: Closure

I am done with my questions. Do you have any questions to ask or issue I may not have asked but you would like to highlight?

Thanks for your time and participation.