TECHNOLOGY CONTEXT, LEADER PERSONALITY AND FIRM PERFORMANCE AMONG STATE CORPORATIONS IN KENYA

BY

NANCY CHEPKURUI CHEPKWONY

Thesis Submitted to the School of Business Economics Department of Management Science and Entrepreneurship in Partial Fulfilment of the Requirement for the Award of Doctor of Philosophy Degree in Business Management

Moi University

2023

DECLARATION

Declaration by the Candidate

This research study is my original work and has not been presented for a degree in any other institution. No part of this research should be reproduced without prior permission from the author and/or the institution.

Sign:_____ Date:_____

Nancy Chepkurui Chepkwony

SBE/DPHIL/008/15

Declaration by the Supervisor

This thesis has been submitted to with our approval as the university supervisors.

Sign:_____ Date:_____

Dr. Ambrose Kemboi
Department of Management Science,
School of Business and Economics
Moi University

Sign:_____ Date:_____

Dr. Ronald Bonuke
Department of Marketing and Logistic,
School of Business and Economics
Moi University

DEDICATION

I wish to dedicate this work to my dear mother, husband and children for their encouragement, moral, spiritual, and financial support.

ACKNOWLEDGEMENT

I wish to acknowledge various people and institutions that made the completion of this research possible. First, I am greatly indebted to my research supervisors Dr. Ambrose Kemboi and Dr. Ronald Bonuke for their time and energy devoted to this work.

I am also indebted to my husband and children for their encouragement, moral, spiritual, and financial support that enabled me to complete this study. Many times, they have to put up without my presence and attention; this gave me the determination to complete this study.

It is not possible to thank everyone who assisted me various ways in the course of this study. May I register my appreciation to all those who helped me in one or another way for their important contributions.

Finally, honor and glory be to the almighty God who gave me good health, wisdom, knowledge, and hope in this study.

ABSTRACT

The performance of state corporations is indicated by such factors as their contributions to social welfare, job creation, general economic empowerment and improvement of lives of the poor. However, despite the interest in the sector and the subsidies that have flowed into some of the mission-oriented state corporations, it seems that most state corporations struggle with the challenge of remaining viable over the long-term. Some of this challenge is on how to manage customers and provide quality services. In addition, there are a number of challenges, which include the connectivity, and the ability of a large population to utilize these services and the capacity of the government departments to meet the demand and provide quality, timely services. Thus, the main aim of the study was to determine effect of technology context, leader personality on firm performance among state corporations in Kenya. The study specifically determined effect of technology relative advantage on firm performance, effect of technology compatibility on firm performance, effect of technology complexity on firm performance and effect of technology trialability on firm performance. Further, to determine the moderating effect of leader personality on the relationship between technology context (relative advantage compatibility, complexity and trialability) and firm performance among state corporations. The study was informed by stakeholder theory, upper-echelon theory, trait theory and diffusion-innovation theory for firm performance. This study used a positivism research philosophy. The research study employed explanatory research designs. The target respondents included top management from 187 state corporations. Simple random sampling was used to select 65 state corporations. Primary data was collected through questionnaires using a nominal scale. Cronbach alpha and factor analysis was used to test reliability and validity of research instrument, respectively. Descriptive and inferential statistical methods of Pearson correlation and Hierarchical regression models were used to analyze the data obtained and to test the hypotheses with the aid of SPSS version 23. The study indicated that technology relative advantage (β = 0.339, $p<0.05$), technology compatibility (β = 0.167, $p<0.05$) and technology complexity (β = 0.392, $p<0.05$), are key to enhancing firm performance. However, technology trialability had no influence on firm performance (β = -0.065, $p>0.05$). leadership personality; openness to experience (β = 0.47, $p<0.05$), neuroticism (β = -0.09, $p<0.05$) and extraversion (β = 0.27, $p<0.05$) significantly influenced firm performance. Further, leader openness to experience leader openness to experience moderates the relationship between technology relative advantage and firm performance (β =.68, $\rho<$ .05, $R^2\Delta$ =042), technology complexity and firm performance (β = 0.58, $\rho<$ .05, $R^2\Delta$ .023) technology trialability and firm performance (β =.32, $\rho<$ .05, $R^2\Delta$ = .024). leader neuroticism significantly moderates the relationship between technology relative advantage and firm performance (β = -0.22, $\rho<$ .05, $R^2\Delta$ = .012), technology compatibility and firm performance (β = 1.45, $\rho<$ .05, $R^2\Delta$= .017), technology complexity and firm performance (β = 0.60, $\rho<$ .05, $R^2\Delta$ =.034). leader extraversion significantly moderates the relationship between technology trialability and firm performance (β = 0.68, $p<0.05$, $R^2\Delta$ =.044). The study recommended that state corporations adopt technology that holds prominence over previous technologies and enhance overall employee productivity and firm performance. Besides, state corporations should ensure any technology adopted is compatible with the existing IT infrastructure. Finally, training should be enhanced for better utilization of online services.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

OPERATIONAL DEFINITION OF TERMS

E-service	It is primarily a service "whose delivery is mediated by information technology" (Rowley, 2016).
Firm performance	is outlined as the general customer assessments on the caliber and efficiency of e-service delivery in the online market (Lee and Lin, 2005).
Leadership	entails several capacities that are crucial in monitoring, supervision, influencing, controlling and guiding junior staff.
Personality traits	this according to Luthans (2005) is a person's versatile and structured set of characteristics that impact his or her beliefs and attitudes in diverse circumstances
Technological Compatibility	is outlined as the extent to which a concept was consistent with the potential adopter's known values, needs, and experiences (Sarkar, 2009).
Technological Complexity	relates to the ease with which companies can comprehend e-commerce technology (Vanderslice, 2000).
Technological context	Based on Huang *et al.,* (2008), technological context encompasses both internal and external factor affecting individual, institutional, and

	corporate adoption of new technologies (Huang *et al.*, 2008).
Technology complexity	refers to the environment in which a company conducts its operations.
Technology Relative advantage	is defined by Attaran (2017) as the extent to which a technology is deemed as superior to the concept that it replaces.
Technology Trialability	is the extent to which an invention can be tested on a small scale (Hsbollah and Idris 2009).

ABBREVIATION AND ACRONYMS

BI	Behavioral Intention
e-CRM	Electronic Customer Relationship Management
EDI	Electronic Data Interchange
ERP	Enterprise resource planning
GOC	Government Owned Corporation
IAAS	Infrastructure as a Service
ICT	Information Communication Technology
IS	Information System
MBTI	Meyer-Briggs Type Indicator
NEO	Neuroticism-Extraversion-Openness
PAAS	Platform as a Service
PeU	Perceived Ease of Use
PU	Perceived usefulness
RFID	Radio-frequency identification
RoK	Republic of Kenya
SAAS	Software as a Service
SMEs	Small and Medium Enterprises
SN	Subjective Norms
SOE	State Owned Enterprise
TAM	Technology Acceptance Model
TOE	Technology – organization – environment
TRI	Technology Readiness Index

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter deals with the Background of the study, the statement of the problem, and the objectives of the study, hypotheses, significance of the study and finally the scope of the study.

1.1 Background to the Study

Performance of state corporation important guaranteeing quality services to the citizen as well as signaling to the donors the effective and efficient use of funds devoted to state corporations' programs in addition to aiding watchdogs in monitoring and managing corporations (Phi *et al.,* 2021). Hermanto *et al.,* (2021) stated that an ineffective state corporation represents a main constraint on the development of economy. As such, performance measurement can be referred to as an instrument for governing state corporations and is therefore imperative for the achievement of sustainability development. Evaluating the performance of a commercial state corporation entails examining its progress towards achieving country's economic goals.

Therefore, State companies must improve their performance to stay up with the speed of change in technology, consumer demands, and worldwide competitiveness in today's extremely dynamic business climate. Organizations may benefit more than ever from technologies in this arduous undertaking, as it allows them to maximize their competitive advantage by improving their performance and efficiency (Fernandez-Temprano and Tejerina-Gaite, 2020). Firm performance can be achieved "if it can create more economic value than the marginal (breakeven) competitor"

(Alfadhli & AlAli, 2021), and firms are positioned to sustain such an advantage through adoption of technologies. Ryser *et al.,* (2020) states that ensuring long-term survival through continuous innovations is a critical concern for all administrators, but especially for those in state organizations.

The extent to which state corporation is successful in today's competitive business environment is greatly determined by the technology context to integrate and reconfigure technology adoption (Ombaka, 2014). The impact of new developments in the innovation sector with reference to public administration is up-and-coming. Mazikana (2019) mentions that the technology is instrumental in this new innovative era as the governments today internationally concentrate on creatively enacting e-service to its citizens. This occurrence has generated and shed light on numerous challenges pertaining to the use of technology toward improving firm performance. Based on Papadomichelaki, and Mentzas, (2012) it entails the citizen's relationship with the current e-government services.

The literature on use of technology adoption has identified a number of factors that influence successful adoption of technology that can contribute to firm performance (Arifin, 2015; Ali, *et al.,* 2022). This study employs the technology context combined with innovation diffusion theory, information system (IS) implementation texts, and upper echelon theory in highlighting relevant technology adopted characteristics that influences firm performance (Suh and Kim, 2015). The technological context incorporates the innovative technology's features and utility, such like relative advantage, complexity, trialability, and compatibility.

The innovation diffusion theory opines that diffusion is reliant on five broad attributes of innovation (Akinwale *et al.,* 2017; Alshamaila, *et al.,* 2013) These comprise of,

compatibility, relative advantage, observability, complexity, and trialability. As observed by Oliveira, *et al.,* 2014), of the aforementioned, complexity, relative advantage and compatibility emerge as invariably linked to adoption of information technology. Initial research on information technology adoption also provide evidence that these variables are also critical information technology adoption and it effect on firm performance (Al-Kalouti *et al.,* 2020).

Globally, the TOE model's technology context has been assessed in European, American, and Asian settings, including in both developed and developing countries (Sikandar et al., 2020). Empirical studies adopting the technology context in developed countries such as Germany, Japan, China among others have analyzed several information technology (IT) adoptions and dependably discovered support technology and organizational resources available (Piaralal et al., 2015; Martínez-Alonso et al., 2020). In Thailand, Mahakittikun, et al., (2020) indicated that the technology content, including relative advantage can predict firm performance. Similarly, in india, Dadhich & Hiran (2022) indicated that complexity in a system impacted on firm performance, when firms perceive that technology adopted is compatible with their existing payment system and their lifestyle, they will be likely to continue to use it, which will further benefit their firm's performance.

In Germany, Lacka *et al*., (2020) explained that innovation factors concern current and emerging technologies and could encompass existing processes, equipment, and technologies both within and beyond organizations. Sectors such as manufacturing in Malaysia (Salojärvi *et al.,* 2015), health care in China (Lin *et al.,* 2020), retail, wholesale, and financial services in Nigeria and Ghana have all used the technology context to demonstrate the adoption of information technology toward improving firm performance (Gyamfi-Yeboah *et al.,* 2021).

While the technology context does not represent an integrated conceptual framework or a comprehensive theory as initially described and subsequently amended in information technology adoption research, it serves as valuable analytical framework for studying the adoption and assimilation of varying sorts of information technology innovations. As noted by Lippert and Govindarajulu (2015), the conventional innovation diffusion research uncovers a huge spectrum of innovations in multiple settings and represents as a stable platform for studies on the adoption of information technology innovations.

The influence of technological factors on a company's assessment of technology adoption is evident in each analysis. With the rise of technology adoption trends in the twenty-first century, experts have begun to explore the role of personality in technology adoption. This exploration has revealed a significant correlation between the big five personality attributes and individuals' use of technology (Sikandar et al., 2020). Ali et al. (2020) further emphasized that an individual's personality traits play a pivotal role in shaping their internet usage and online selling behavior, often outweighing cognitive style. Recognizing the need for more targeted investigations, experts have encouraged studies to delve into the influence of personality on specific types of information system adoption.

In light of this, the current study adopts a novel approach by introducing leadership personality attributes as a moderator in the relationship between firm performance and the technology context. Previous research has extensively explored adoption and diffusion theories within the information system discipline. These studies have identified key determinants, such as relative advantage, ease of use, compatibility, enjoyment, network influence, perceived cost, and privacy concerns, that directly

impact an individual's decision to adopt technology. While most research has focused on these dimensions' effects on various innovations, limited attention has been given to the influence of personal traits on technology adoption, as noted by Nguyen et al. (2023).

Nonetheless, the significance of personal traits in adoption decisions is highlighted by Weimann & Hans-Bernd (1994), who suggest a correlation between such traits and technology adoption. Landers and Lounsbury (2016) demonstrated how individual characteristics shape the reception of new information and applications. Building upon this, Brancheau & Wetherbe (2010) argued that personal innovativeness and readiness to embrace new experiences positively influence an individual's adoption of emerging technologies. As such, this study recognizes the interplay between leadership personalities attributes, technological context, and firm performance, aiming to provide a comprehensive understanding of how personal traits moderate the effect of technology adoption on overall organizational outcomes, particularly in terms of firm performance and efficiency.

1.1.1 Technology Context and Performance Of State Corporations

In the context of Kenya, the terms "state corporation" and "parastatal" refer to government-owned entities established for various purposes, such as income redistribution, addressing market failures, and promoting development in marginalized areas. These entities operate as commercial government agencies, state-owned companies, or state-owned enterprises with legal standing that ranges from government employees to regular stockholders. State corporations play a significant role in the country's growth and development, and they are governed by the State Corporation Act, which outlines their formation, regulation, and oversight.

Kenya's government exercises control over state corporations to achieve both commercial and social objectives, including providing education and healthcare, advancing social and political goals, and contributing to economic growth. The country currently has 187 functional state corporations, each operating within a complex governance framework that includes the Constitution, Vision 2030, government policies, executive orders, and various governance acts. Compliance with these regulations and standards ensures effective corporate governance and communication of expectations to stakeholders and the public.

Within the operationalization and concept of technology in the context of Kenya, state corporations are increasingly recognizing the pivotal role of technology in enhancing their operations and service delivery. Osir,. (2016) indicated implementation of new technologies in State Corporation in Kenyan such as e-procurement as not been adequately successful due to technology context and this has hampered performance. Mugwe, (2023) revealed that ICT infrastructure was essential in enhancing the adoption of electronic procurement in state corporations. It was revealed that through the ICT software infrastructure such as the operating systems, it becomes viable to integrate procurement functions in the systems. ICT hardware on the other hand promotes the use of procurement systems thus enabling embrace of electronic procurement. As technology becomes an integral part of organizational processes, it influences how these entities assess their needs and adopt technological advancements. This dynamic interaction between technological context and the operational landscape of state corporations forms a crucial aspect of this study.

This review aims to explore the relationship between technological context, leader personality traits, and firm performance within the context of state corporations in

Kenya. The study seeks to provide insights into how technological factors and leader personality attributes can influence the overall performance of these government-owned entities. Recognizing the importance of state corporations as key players in public firm performance, the research focuses on understanding the impact of technology-related variables on public service delivery within these entities. By examining the interplay between technological context, leader personality, and firm performance, the study aims to contribute to a comprehensive understanding of the factors shaping the success and effectiveness of state corporations in Kenya.

1.2 Statement of the Problem

The significance of State Corporations' performance is indisputable, as their contributions encompass social welfare, job creation, economic empowerment, and upliftment of marginalized segments of society (Njiru, 2008). However, despite industry interest and substantial subsidies, a prevailing challenge emerges in maintaining the long-term viability of a majority of state corporations. Notable instances, such as the closure of Uchumi in late 2014 and the subsequent initiation of privatization efforts, underscore the pressing need to comprehensively address the factors influencing their sustained performance (CBK, 2017). In 2017, the inadequate performance of state corporations led to a significant financial outlay from the central government to parastatals, equivalent to 1 percent of the GDP (CBK, 2017). Additional direct and indirect subsidies, totaling Ksh7.2 billion and Ksh14.2 billion respectively in 2017-2018, further highlight the limitations of existing measures.

Government interventions, including financing through the Central Bank and provision of incentives to personnel based on achievement, have been employed to enhance the performance of state corporations (CBK, 2017). However, these

measures have yielded mixed results, prompting a quest for more effective strategies. Privatization has emerged as an alternative solution to address performance gaps, as witnessed in other governments' experiences, including Kenya (Kamunga, 2000). Commercial state corporations, in their pursuit of sustained operations without external funding or subsidies, face an array of challenges. These challenges encompass transforming organizations through innovation, enhancing staff performance, ensuring customer satisfaction and loyalty, and ultimately achieving enhanced overall performance (Jeske et al., 2015). Notably, technology deficiency stands out as a prominent obstacle in addressing these impediments.

Furthermore, the COVID-19 pandemic has precipitated the implementation of e-citizenship initiatives by the Kenyan government, revolutionizing interactions between citizens, employees, businesses, and government agencies (Crevani et al., 2021). While significant strides have been made in digital engagement, persistent issues around accessibility and equitable service delivery remain. Government agencies must grapple with increasing demands while upholding quality and promptness of services. These multifaceted challenges demand comprehensive solutions to foster effective public service delivery, elevate government agency productivity, prioritize economic sectors, and uplift the well-being of marginalized populations.

Despite these challenges, research on performance, particularly within the technology context, has predominantly focused on business corporate settings across various regions, such as Europe, the Asia-Pacific, the United States, and New Zealand (Pee, 2018; Qalati et al., 2020; Habiboğlu et al., 2020; Al-Furaih & Al-Awidi, 2020; Hassan et al., 2014). A notable gap exists in understanding these dynamics in the East African context, specifically in Kenya. Additionally, the pivotal role of leadership in driving

change and innovation within institutions is acknowledged (Crevani et al., 2021). However, the intricate interplay between leader personality, technology context, and firm performance remains inadequately explored. Although existing studies have delved into the relationship between leader personality and factors such as innovation and firm performance, limited research exists on the moderating effect of leader personality on the correlation between technology context and firm performance (Khalfan et al., 2022; Mai et al., 2022; Elenkov et al., 2005; Jung et al., 2003; Jung et al., 2008). It is not clear, for example whether the effect of technology context on firm performance is direct or indirect, effecting through leader personality. Some researchers, for example have suggested that leader personality moderate the leadership-innovation relationship (Khalfan et al., 2022). This research aims to bridge these gaps and provide insights into the complex dynamics of technology context, leader personality, and firm performance in the context of Kenyan state corporations.

1.3 General Objectives of the Study

The main aim of the study was to determine effect of technology context, leader personality on firm performance among state corporations in Kenya.

1.3.1 Specific objectives

The study sought to achieve the following specific objectives:

(i). To determine the effect of technology relative advantage on firm performance

(ii). To establish the effect of technology compatibility on firm performance

(iii). To examine the effect of technology complexity on firm performance

(iv). To examine the effect of technology trialability on firm performance

(v). To assess the effect of:

a) Openness to experience on firm performance

b) Neuroticism on firm performance

c) Extraversion on firm performance

(vi). To determine the moderating effect of openness to experience on the relationship between:

a) technology relative advantage and firm performance

b) technology compatibility and firm performance

c) technology complexity and level of firm performance

d) technology trialability and level of firm performance

(vii). To determine the moderating effect of Neuroticism on the relationship between:

a) technology relative advantage and firm performance

b) technology compatibility and firm performance

c) technology complexity and level of firm performance

d) technology trialability and level of firm performance

(viii). To determine the moderating effect of Extraversion on the relationship between:

a) technology relative advantage and firm performance

b) technology compatibility and firm performance

c) technology complexity and level of firm performance

d) technology trialability and level of firm performance

1.4 Research Hypotheses

To measure the above objectives, it was hypothesized that;

$H_{01:}$ There is no significant direct effect of technology relative advantage on firm performance

$H_{02:}$ There is no significant direct effect of technology compatibility on firm performance.

$H_{03:}$ There is no significant direct effect of technology complexity on firm performance

$H_{04:}$ There is no significant direct effect of technology trialability on firm performance

$H_{05:}$ There is no significant direct effect of:

a) openness to experience on firm performance

b) Neuroticism on firm performance

c) Extraversion on firm performance

$H_{06:}$ There is no moderating effect of openness to experience on the relationship between:

a) Technology relative advantage and firm performance.

b) Technology compatibility and firm performance.

c) Technology complexity and firm performance.

d) Technology trialability and firm performance.

$H_{07:}$ There is no moderating effect of Neuroticism on the relationship between:

a) Technology relative advantage and firm performance.

b) Technology compatibility and firm performance.

c) Technology complexity and firm performance.

d) Technology trialability and firm performance.

$H_{08:}$ There is no moderating effect of extraversion on the relationship between:

a) Technology relative advantage and firm performance.

b) Technology compatibility and firm performance.

c) Technology complexity and firm performance.

d) Technology trialability and firm performance.

1.5 Significance of the Study

This research provides understanding to government and policy makers of state corporations in Kenya the supportive, influencing and accelerating the adoption of firm performance. The results of the study are likely to encourage the government and responsible authorities to take necessary action to address challenges facing the firm performance in Kenya especially technological challenges, organizational challenges and environmental challenges. They would be able to structure, implement strategies aimed at improving their performance, and avoid obvious drawback thus enhancing competitiveness and the image of the state corporations. Knowledge gained in this study would be used to increase awareness of state corporations on importance of technology context, leader personality for enhanced level of e service quality adoption.

The findings of this study would add to the effort of government regulators in coming up with regulations that govern the operations firm performance in Kenyan state corporations. The results of the review would be valuable and significant to the government since it would shed some light on the numerous policies that negatively affect the running of state organizations in Kenya in addition to tackling the issues in line with the study recommendations. The regulatory authorities as well as other legislators would be able to refer to this review and highlight areas requiring policy improvement in order to improve reputation among the state corporation's performance.

The report would be useful to investors who increasingly rely on services offered by Kenyan state organizations. Managers of various state corporations in emerging

countries worldwide will recognize the significance of the study's final suggestions in terms of approaches that may be used to boost firm performance in state corporations. The study would be of great importance to the researcher as he/she would gain theoretical and practical experience on technology context, firm performance, leader personality in Kenya. To the scholars this study would provide area for further research which can be used to add value in this area of study or for development of theory or practice. it also contributes to the existing literature in the provision of new addition knowledge gap to previous studies done in the more developed economies in western and Asian country's context to the developing economy context.

1.6 Scope of the Study

The study focused on the effect of technology context, leader personality on firm performance among state corporations in Kenya. The study concentrated on the technology context, technology compatibility, technology trialability and technology complexity and leader personality among top management in Kenyan state corporations. The study targeted top management of the 187 state corporations in Nairobi County. Questionnaires were used to collect primary data. Study was conducted in from April 2021 - October 2021.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents literature review on the Concept of e service quality, Concept of technology context, Concept of leader personality, Theoretical Review, Empirical Review, Summary of Literature and the Conceptual framework.

2.1 The Concept of Firm Performance

The idea of firm financial performance comprises measuring the monetary outcomes of a firm's policies and activities. These results are reflected in the company's profits through new ventures, employed resources, and increased value, among other factors. As per Jae-Joon and Inhawn (2017), the comparative performance of various enterprises is commonly a cause of concern for both academics and government agencies. The basic objective for this method of study is to look for components that have the capacity to provide firms with competitiveness and thereby drive firm profitability .Despite the interest and relevance the concept demands, clarifying and evaluating performance for a specific firm has often piqued academics' interest in recent years.

Performance levels differ as much across competitive contexts as it does among industries. Kohlscheen and Takáts (2020) notes that the contradicting trends between corporations and performance agents can therefore be better comprehended by looking at individual entities rather than the industry as the principal unit of study. Firm performance, according to Tan (2018), is comprised of three distinct firm output elements: (a) product-market output (sales, market share), (b) financial output (return on assets, profits, and return on investment), and (c) shareholder return economic

value added, total shareholder return. Strategic planners, finance, structural development, legal, and operations professionals are among those involved in structural performance. The greatest financial performance of a state firm is supposed to reflect its overall health and existence. The optimal financial output gives light on management's efficiency and performance in employing firm resources, hence benefiting the nation's overall economic growth. Performance has an impact on a company's health and ultimate sustainability. Alfadhli & AlAli, (2021) contend that the bank management's efficiency and success in employing resources is largely expressed by optimum performance, hence increasing the country's overall economy. In this study, corporate performance is assessed using non-financial indicators like customer satisfaction.

The recently developed measurements, which are primarily non-financial, are strategic in nature and give management more meaningful, precise, and helpful data. As per Bogievi, *et al.,* (2016), the main rationale utilizing non-financial performance indicators are that they are more reliable predictors of future financial performance as opposed to accounting measures and that they are useful in assessing and promoting firm's performance. This change is a reaction to the strong allegations of focusing too much attention and concern on financial metrics. For instance, critics claimed that emphasizing financial data would promote a shallow mindset (Eltinay & Masri, 2014). In line with Werner, *et al.,* (2021), nonfinancial performance indicators are more superior to financial indicators when it comes to assisting companies to executing and handling new initiatives.

Furthermore, rather than being objective, the performance metric used in this study is subjective. When a performance indicator for a company is considered "subjective," it

indicates that it is based on a scale that ranges from "much worse" to "much better," "very poor" to "very good," or "much lower" to "much higher" in comparison to the closest rivals over time. These can be compared to "objective" measures, such as a precise percentage figure for sales growth or profitability. It is essential to emphasize that research conducted to date has drawbacks owing to its reliance on subjective measurements (Xie, et al., 2023; Vij & Bedi, 2016). Nevertheless, Tran and Järvinen, (2022) claims that research on market orientation and its alleged connection to organizational performance has frequently used subjective performance metrics. The use of subjective metrics has various justifications. First, managers could be reluctant to provide actual performance data if they view it as highly classified or commercially sensitive (Gengeswari *et al.,* 2013).

Second, performance indicators like profitability might not be a good predictor of a company's actual financial health. Last but not least, numerous investigations have noted a substantial link between objective and subjective measures (Vij & Bedi, 2016). The most commonly employed method for obtaining information about customers as a gauge of customer satisfaction is responses on questionnaires administered or customer feedback cards (Šlogar, et al., 2023). According to Vitale, Get al., (2023), Making a distinction between financial and non-financial performance is another method to describe corporate performance

Traditional accounting KPIs—Key Performance Indicators—such as ROA, ROS, EBIT, EVA, or sales growth are frequently used to evaluate financial performance (Lucianetti *et al.,* 2019).These metrics have the merit of being readily accessible as they are produced by all profit-making organizations for annual financial reporting (Chenhall & Langfield-Smith, 2007).However, adjustments to the balance sheet and

the use of accounting techniques may also result in values that only allow a limited amount of comparison between the financial health of organizations. Operational Key Success Indicators (KPIs) such as market share, innovation rate, or customer satisfactions are famous examples of how non-financial performance can be measured (Norman, 2017). An overview of regularly used performance measurements is given by Kabajeh, Al Nuaimat, and Dahmash (2012). Additionally, several researchers operationalize performance using self-reported metrics (Pennacchi & Santos, 2018). Others integrate both the self-reported measurements and the accounted financial KPIs in their analyses (Sihag, & Rijsdijk, 2019).

Non-financial performance can be measured in a variety of ways, according to Mühlbacher *et al.,* (2016); nevertheless, it is difficult to evaluate non-financial performance in isolation from corporate strategy. Government and academic analyses frequently focus on performance gaps in enterprises (Verreynne and Meyer 2008). The emphasis on assessing differences in firm performance has traditionally been at the industry level, thus indicating that the structural characteristics of an industry assure significant uniformity among firms within that industry and, as a result, determine firm performance to a substantial degree (Frazier and Howell 2003). The foundation of performance measurement should incorporate non-financial metrics including quality, delivery time, adaptability, and innovation, according to ground-breaking (Khan *et al.*, 2011).

2.2 The Concept of Technology Context

The application of the Technology-Organization-Environment Framework (TOE framework), as introduced by Wang et al. (2023), served as the foundational structure for the technological exploration in this study. Emphasizing the organizational

perspective, the TOE framework, as delineated by Piaralal et al. (2015), provides a comprehensive lens through which to examine the interplay of technology within an enterprise. Within this construct, the technology context encapsulates a reservoir of available technologies at a company's disposal, encompassing both current operational tools and emerging innovations within the market, as highlighted by Chittipaka et al. (2023). The technology context is characterized by four key dimensions: Technology Relative Advantage, Technology Trialability, Technological Complexity, and Technological Compatibility, delineated by Chen et al. (2023).

The assessment of technology finds its anchor in the notion of technological context, signifying the extent to which the distinctive attributes of a technology are acknowledged and integrated. A fundamental facet within this sphere is the concept of Relative Advantage, a pivotal element within the diffusion theory of innovation. This facet encapsulates the degree to which an innovation is perceived to surpass its predecessor, elucidated by Tajudeen et al. (2018). Further delving into technological context, Complexity emerges as a salient parameter, characterizing the perceived intricacy of an innovation, and its potential difficulty in comprehension and usage. As Complexity heightens, the acceptance of the innovation diminishes, reflecting a negative relationship, akin to findings in Bauer et al. (2005). Insights from prior research, such as AlBar and Hoque (2019) and Trawnih et al. (2021), reinforce Complexity's role as a pivotal driver influencing technology adoption.

Top Management Support is an essential component within the technological landscape, epitomizing the level of managerial cognizance and endorsement of newly deployed technologies, as articulated by Maroufkhani et al. (2022). The TOE framework employs three fundamental perspectives to comprehensively dissect the

factors influencing the integration of innovative technologies within organizations. These perspectives encompass the Characteristics and Usefulness of the innovation itself, the Internal Company Dynamics encompassing factors like experiences and values, and the Relative Advantage entailing aspects of security and cost-saving. Furthermore, the lens extends to Technology Complexity, encompassing field-related intricacies, and Technology Trialability, accounting for experimental and integration facets.

As asserted by Aligarh et al. (2023), the TOE framework has previously proven effective in unraveling the technological context. Various domains, including Information Systems, E-commerce, Web Services (Lippert and Govindarajulu, 2015), and E-CRM, have been subjected to the TOE research methodology, as evidenced by Lian, Yen, and Wang (2014). This extensive body of literature substantiates the efficacy of the technological framework, affirming its relevance as the central research model for this study. Embracing the focal point of advanced technology adoption from an enterprise perspective, the technological context was judiciously selected as the cornerstone of investigation.

2.2.1 Technology Relative Aadvantage

The degree to which a technology is thought to be superior to the idea it replaces is known as its relative advantage (Park *et al.*, 2022). According to Rogers' argument, technology that has a distinct advantage over the prior method will be more readily embraced and put into practice. Based on recent studies, an innovation won't be embraced if a potential user sees no comparable benefit from using it (Kim *et al*, 2011). Technology that supports internet-related businesses is described as having technological relative advantage. The percentage of relative advantage can be

measured in economic terms, social-prestige factors, convenience, and satisfaction. It does decide by the innovation's "objective" advantage, but by the individual's consideration as advantages. The greater the perceived relative advantage of an innovation, the higher its rate of adoption of the innovation (Bandara & Amarasena, 2018).

2.2.2 Technological Compatibility

The degree to which an innovation was viewed as consistent with the current values, needs, and experiences of the potential adopter is known as technological compatibility (Sarkar, 2009). Generally speaking, businesses employ technologies that are compatible with their internal experiences and values, that is, technologies that are available in the future and within the firm's parameters (Vanderslice, 2000). The degree of compatibility directly affects how quickly innovations are adopted, hence the stronger the compatibility, the smoother the adoption. The adoption of IoT is strongly influenced by the compatibility of sensors, networks, and applications from various suppliers (Haddud *et al.*, 2017; Ng & Wakenshaw, 2017).

2.2.3 Technological Complexity

In line with Vanderslice (2000), the ease with which businesses can understand e-commerce systems is referred to as technological complexity (Vanderslice, 2000). In general, the adoption process moves more swiftly and promptly the easier the technology and its application are to comprehend, and vice versa (Almoawi & Rosli, 2011). It relates to the perceived level of difficulty with IoT adoption and integration in the setting of this study. IoT device diversity adds another degree of complexity to product design and selection (Zhong *et al.*, 2017). IoT adoption is hindered by these

complications as well as the lack of qualified staff to handle a multivendor environment (Haddud *et al.*, 2017; Lin, Lee, & Lin, 2016; Wang & Wang, 2016).

2.2.4 Technological Trialability

Trialability is the extent to which a new idea can be tested out on a small scale. Ideas that can be tested before being completely implemented are more likely to be adopted since new innovations involve spending time, energy, and resources. Trialability, a factor of adoption that the diffusion of innovation (DOI) theory describes as the extent to which an innovation may be experimented with on a limited basis (Rogers 2003), has been operationalized in previous studies as a belief that shapes adoption attitudes (for example, Ndubisi and Sinti 2006), adoption intent (for example, Karahannna *et al.,* 1999, Tan and Teo 2000), and adoption decisions (for example, Karahannna et (for example Tan and Teo 2000). Although higher levels of impact are suggested in circumstances of high risk and uncertainty (for example, Moore and Benbasat 1991, Tan and Teo 2000, Ndubisi and Sinti 2006, Doolin and Troshani 2007, Hsbollah and Idris 2009), it has not yet had a significant impact on e-commerce adoption especially in contrast to other factors of DOI such as relative advantage, compatibility, and complexity (Teo *et al.*, 1995)

2.3 The Concept of Leader Personality

Leadership is the process by which a person impacts the beliefs, attitudes, and behavior of others. Leaders provide direction for the group, aid in seeing the future, help employees better understand their potential, as well as inspire and motivate society. In order to ensure that the team's objectives are met, leadership involves the process of directing and giving meaning to collective work (Caulier-Grice *et al.*, 2012).

Psychology and organizational behavior literature suggests that assessing the Big Five personality traits—openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism—can best explain a leader's personality and success. These traits are sometimes abbreviated as OCEAN for mnemonic simplicity (Leutner, Ahmetoglu, Akhtar& Chamorro-Premuzic, 2014). Based on Barrick and Mount (1991), personality is a collection of imperceptible traits and routines that are hidden under a generally consistent range of actions taken in response to varied environmental factors. According to extensive validation provided by Chamorro-Premuzic and Furnham's (2010) criterion-related research, it is a reliable predictor of employee job performance.

Researchers who study leadership have long been interested in whether or not personalities have a role in forming leaders. Despite the fact that there are several other ways to leadership, including it symbolic approach and the instrumental approach (Andersen, 2000), the personality approach to leadership and the relationship between personality and leadership are likely the most popular (Haynes, Hitt & Campbell, 2015). The empirical relationships between personality, leadership, and organizational effectiveness through the leadership value chain were supported by Hogan and Bensen (2009). Additionally, the personality-performance relationship is predominant at all levels of power and decision-making (Barrick, Stewart, &Piotrowski, 2002). Negative side of personality, such as aggressiveness and narcissism, can be detrimental for the organization and can result in destructive work attitudes (Klotz & Neubaum, 2016; Miller, 2014). For instance, greed on the part of leaders and entrepreneurs diminishes employee’s performance and organization’s productivity (Haynes *et al.*, 2015).

However, DeNisi (2015) suggests that possession of negative personality aspects does not necessarily result in deeds of malpractices. In the domain of psychology, there is a widespread consensus to gauge personality traits through the spectrum of ‘Big five model’ (Alkahtani, Abu-Jarad, Sulaiman & Nikbin, 2011; Barrick, Stewart, &Piotrowski, 2002; DiNisi, 2015). Whether it be individual, interpersonal, or institutional dimensions, the personality model has strong predictive potential. There is a ton of literature over the last three decades that convincingly supports the resilience of the five-factor model. The five main categories of surgency, agreeableness, dependability, culture, and emotional stability were first established by Tupes and Christal in 1961.

The 'Big Five elements' are, however, based on Norman's 1963 classification of personality traits. Lussier (2000) lines out the five factors in Big Five Model as (a) Surgency, (b)Agreeableness, (c) Adjustment, (d)Conscientiousness, and (e)Openness to Experience. However, Pierce & Gardner (2000) had classified this “Five” Personality Theory as: (a) Extroversion, (b) Adjustment, (c) Agreeableness, (d) Conscientiousness, and (e) Inquisitiveness. Five general aspects that characterize personality are undermined, nonetheless, by Goldberg's Five Personality Inventory (FFPI). The purpose of this study is to investigate these dimensions. Extroversion, agreeableness, conscientiousness, emotional stability, and openness to new experiences are some of their names. Extraversion (also referred to as Surgency) encompasses a number of distinct attributes, including talkativeness, energetic, and assertiveness. According to Daft *et al.,* (2005), the dominance trait is also a part of the extroversion dimension. Extroverts frequently have a high level of self-assurance. They are aggressive and competitive; they also look for positions of authority. They enjoy having authority over or being responsible for others.

Tension, moodiness, and anxiety are characteristics of emotional stability, often known as neuroticism. According to DiNisi (2015), this dimension measures how secure, peaceful, and well-adjusted a person is. A leader that has emotional stability can handle pressure well, take criticism positively, and generally doesn't take failure and mistakes personally. On the other hand, emotionally unstable leaders are more prone to experience tension, anxiety, or depression. They typically lack self-assurance and are prone to emotional outbursts when under pressure or receiving criticism.

The dimension of openness to experience, often known as intellect or culture, comprises having a diverse range of interests as well as being creative and perceptive. This dimension is described by Daft (2005) as the extent to which a person has a diverse variety of interests and is inventive, creative, and open to new ideas. These individuals display intellectual curiosity and frequently look for novel experiences through travel, the arts, entertainment, in-depth reading, or other pursuits. The International Personality Item Pool (IPIP), developed in 1996 by Lewis Goldberg, has scales designed to work as analogs to the Neuroticism-Extroversion-Openness Personal Inventory-Revised (NEO PI-R) and Neuroticism-Extroversion-Openness Five-Factor Inventory (NEO-FFI) scales 5. Permission is also not required to use the IPIP scales instrument because they are a part of the public domain (Srivastava, 2010).

The NEO PI-R, a 240-item inventory developed by Costa and McCrae measures the six facets of each dimension of the Big Five. Costa and McCrae also created a 60-item truncated version of NEO PI-R that only measures the five factors (McCrae & Costa, 1991). Thus, personality variables of big five model were operationized by NEO PI-R Personality Inventory Form S, which is a self-reporting form (Costa & McCrae,

1992). Each domain element has further six aspects and each aspect is evaluated with eight items.

The NEO model's relevance as moderator variables in the context of the effect of technology on firm performance can be justified based on its predictive potential and empirical validation. The Big Five traits have been extensively studied and are reliable predictors of various workplace outcomes, including employee job performance (Chamorro-Premuzic & Furnham, 2010). Furthermore, research has demonstrated the link between personality traits, leadership styles, and organizational effectiveness (Hogan & Bensen, 2009; Barrick et al., 2002). Neuroticism, as a dimension of the NEO model, influences emotional stability, which, in turn, impacts how leaders handle stress, criticism, and setbacks.

In the realm of technology's influence on firm performance, the NEO model's dimensions can play a moderating role. For instance, leaders high in Neuroticism may respond differently to the challenges and uncertainties posed by technological advancements, potentially influencing their decision-making and communication. Extraversion, another NEO dimension, could influence a leader's willingness to embrace and promote technological innovations within the organization. Openness, the third dimension of the NEO model, is particularly relevant in the context of technology adoption and adaptation. Openness to experience is associated with curiosity, creativity, and a willingness to explore new ideas and approaches (Daft et al., 2005). Leaders with high levels of openness may be more inclined to consider and implement novel technological solutions, contributing to improved firm performance.

By incorporating the NEO model as moderator variables in the relationship between technology and firm performance, this study acknowledges the intricate interplay

between leader personality traits and the technological landscape. The facets of Neuroticism, Extraversion, and Openness, as measured by the NEO PI-R Personality Inventory, can provide nuanced insights into how leaders' unique personalities shape their responses to technology-driven changes within organizations. This approach enhances the comprehensiveness of the study and allows for a more refined analysis of the complex dynamics at play."

2.4 Theoretical Framework

2.4.1 Stakeholder Theory

Stakeholder theory creates a tool for evaluating potential links, if any, between the use of stakeholder management and the accomplishment of different business performance objectives (Donaldson & Preston 1995). The idea that businesses that practice stakeholder management will, on average, have a reasonable level of success in terms of traditional performance metrics has been the main point of interest (profitability, stability, growth). The relationship between stakeholder strategies and widely desired goals like profitability is made by operational uses of stakeholder theory. Stakeholder management calls for simultaneous consideration of the legitimate interests of all relevant stakeholders, both in the formulation of organizational structures and general policies as well as in the making of specific decisions.

Stakeholder theory is used extensively in the information systems area to address a number of issues, encompassing IS/IT evaluation, design, implementation, and management of IS/IT investments. The advantage of utilizing IS/IT today goes beyond just improving the effectiveness of corporate operations and tasks. Instead, IS/IT also makes it possible to create goods, services, routes of distribution, and

connections with clients, vendors, and other stakeholders Remenyi (1999) argues against the idea that IT has any inherent value. Investment in IT has the potential to yield value. The aptitude and dedication of the key stakeholders in information systems determine whether the IT investment succeeds or fails beyond any other component. IT has no inherent benefits or value on its own; these merits can only be realized when it is combined with other resources, notably the main stakeholders. Ward & Peppard (2002) contends that in the end, any business that invests in IS/IT does so to generate value for its stakeholders, including its shareholders, clients, employees, and other parties having a stake in its success. The review outlines numerous instances of IS/IT projects that engage numerous stakeholder groups and have a significant impact. According to Farbey *et al.,* (1999), external stakeholders may be able to make or break many IS/IT ventures.

2.4.2 Diffusion-Innovation Theory

The diffusion of innovations theory aims to shed light on how, why, and how quickly innovative concepts and technologies spread. According to Rogers (2003), diffusion is the process through which an innovation is gradually communicated among the members of a social system. The diffusion of innovations theory has several different, cross-disciplinary antecedents. According to Rogers (2003), a new concept spreads due to four primary factors: the innovation itself, communication channels, time, and a social structure. This procedure is very dependent on human resources. To sustain itself, the innovation needs to be extensively used. There is a point where an innovation hits critical mass within the rate of adoption.

Numerous innovations' qualities have been studied. According to Greenhalgh *et al.,* (2004), meta-reviews have discovered a number of traits that are shared by the

majority of research and are consistent with Rogers' initial suggestions. An innovation's relative advantage, compatibility with the current system, complexity or learning curve, trialability or testability, potential for reinvention, and observed effects are all factors that prospective adopters take into account (Huang *et al.*, 2020). These characteristics interact and are assessed collectively. Adopters have characteristics that influence their propensity to embrace innovations, much like innovations do. According to Greenhalgh *et al.,* (2004), little consensus has been reached on the effects of a host of individual personality attributes on adoption. A potential adopter's likelihood to accept an invention is significantly influenced by their ability and motivation, which differ depending on the situation in contrast to personality qualities. The significance of an innovation can has an effect on motivation; innovations can have symbolic value that promotes or inhibits adoption.

Since they are both the entirety of their constituents' individual actions and their own system with a set of rules and procedures, organizations must deal with more challenging adoption circumstances (Greenhalgh *et al.,* 2004). Three organizational traits—tension for change, innovation-system compatibility, and evaluation of implications observability—complement the aforementioned individual traits very effectively. A tension for change can put strain on organizations. If the situation facing the organization is bleak, it will be inspired to adopt an innovation to turn things around. Innovations that match the organization's pre-existing system involve fewer coincidental adjustments, are simple to measure, and play out among its individual members, the top management team especially are more likely to be implemented (Dearing, & Cox, 2018). The organization is also under strain from the, or economy. Additionally, the company is under pressure from its external environment, which is commonly an industry, community, or the economy. Exworthy

et al., (2003) contends that an organization is more inclined to embrace an invention when it is penetrating the environment of the organization for any reason.

With regard to the role of a heterogeneous team of managers, the principles of homophily and its opposite, heterophily come into play. Using their definition, Rogers (2003) defines homophily as "the degree to which pairs of individuals who interact are similar in certain attributes, such as beliefs, education, social status, and the like". When given the choice, individuals usually choose to interact with someone similar to themselves. Conversely, since their similarities contribute to increased knowledge gain as well as attitude or behavior change, homophilous persons communicate better. Consequently, homophilous people seek to encourage diffusion among themselves (McPherson *et al.,* 2001). Nevertheless, in order to incorporate new ideas into a relationship, there must be some degree of heterophily; where two people have similarities, no diffusion happens because there is no new information to share. Accordingly, in an ideal setting, potential adopters would be homophilous in every manner apart from understanding the innovation.

Organizations frequently embrace innovations through 2 kinds of innovation decisions: collective innovation decisions and authority innovation decisions. Adoption by consensus results in a collective decision. The authority decision is made by a small group of people in positions of power within an organization (Rogers, 2003). These decision procedures, unlike the optional innovation decision process, occur only within an organization or hierarchical group. Since there have been numerous studies on the dissemination of innovations published, there have been few commonly accepted changes to the theory (Robert *et al.,* 2005).

Although each study uses the theory in distinct ways, the lack of cohesion has resulted in the theory becoming stagnant and difficult to employ with consistency new challenges. Since people and human networks are complex, it is challenging to quantify diffusion. It is difficult to pinpoint the precise factors that lead to innovation uptake. This is significant, especially in the adoption of new technology, because people advocating for adoption must be cognizant of the diverse forces influencing an individual's choice to adopt (Frei-Landau *et al.,* 2022). Diffusion theories could overlook important adoption determinants since they can never take into account all variables. Research findings have also been inconsistent as a result of this variety of variables.

Diffusion is difficult to quantify due to the complexity of humans and human networks. It is incredibly difficult to determine what exactly causes an idea to be adopted. This is especially crucial in the adoption of new technology, as those supporting adoption must be cognizant of the multiple forces operating on an individual and their decision to adopt. Diffusion theories can never account for all variables, and so may overlook important predictors of adoption. This range of variables has also resulted in uneven research outcomes.

2.4.3 Upper-Echelon Theory

According to the upper echelons theory, management background traits can predict organizational results, strategic decisions, and performance levels to some extent (Hambrick and Mason, 1984). Top management react on the basis of their individually tailored understandings of the corporate strategy situations they encounter, and these individually tailored understandings are a component of the

managers' personalities, values and experiences (Hambrick, 2007). This is the main idea and the central of the upper echelons' theory.

Researchers have devoted a significant amount of time and effort to investigating how managers' origins and psychological make-up influence the choices they make (Nielsen, 2010). The influence of a personality of the leader on a variety of outcomes of a firm, including a company's competitiveness, amount of innovativeness, strategic change, and ultimately performance, were the subject of early empirical research on top echelons (Nielsen, 2010). Strategic decisions may in part reflect the quirks of decision makers if they have a significant behavioral component.

It's common advice for businesses looking to draw in, keep, and profit from varied talent to start by diversifying their top management (Gelfand *et al.,* 2004). A heterogeneous top management team seems to be more likely to be attentive to the problems needing care for the loyalty and development of diverse personnel, hence doing so has been suggested to be helpful in addition to the signal it provides to varied employees about their advancement prospects. The upper echelon hypothesis relates to the idea that the traits of top leadership, or the upper echelon of an organization, can affect the choices made and procedures followed by an organization (Su, *et al.,* 2022).

The behavioural approach of the company, which contends that governance mechanisms do not always reflect rational motives but are significantly impacted by managers' inherent human limitations, is where the upper echelons perspective got its start (Nielsen, 2010). Nielsen (2010) adds that top executives' strategic decisions, which in turn affect business performance at all levels, are thought to be influenced by behavioral characteristics such constrained rationality, multiple and conflicting goals,

and different outcome expectations. According to the theory of "rational behavior," circumstances that are informationally complex and unpredictable cannot be known objectively; rather, they can only be understood (Hambrick, 2007).

Effects of a personality of the leader vary by industry (Irungu, 2007). However, some academics contend that a leader's personality has minimal bearing on the strategic choices they make. Both a leader's personality and that of the chief executive officer have an impact on the process of making strategic decisions. But the former affects various aspects of making strategic decisions, most significantly the larger framework of making strategic decisions.

2.4.4 Trait Theory

Allport (1937), who was well-known for the dispositional trait approach and who defined trait as a disposition to life experience, further refined the trait theory after it was first proposed by Carlyle (1841). Three personality spectrums were first described by Eysenck (1957, 1967) as neuroticism, introversion, extraversion and psychoticism. One of the main methods for studying personality of an individual is trait theory. In the context of this methodology, personality traits are characterized as recurring behavioral patterns, cognition, and emotion that appear in a variety of contexts. The most crucial aspects include influence on behavior, variation in expression levels between people, and relative stability across time. The leadership hypothesis that claimed that some people were born with unique features that made them outstanding leaders is where the trait approach got its start (Gottfredson & Reina, 2020).

Researchers struggled to pinpoint the specific characteristics of leaders throughout the 20th century since the idea contends that leaders and non-leaders can be distinguished

by a universal set of features (Bass, 1990; Jago, 1982). According to trait theories, leaders are born with specific qualities that set them apart from other people (Taylor, 2009). In contrast to other theories, trait theory places more emphasis on an individual's traits and attributes than on the behaviors that leaders exhibit (Gehring, 2007).

Early leadership study was founded on the psychological tenet of the day, which claimed that qualities are passed down through families (Gil, *et al.,* 2017). With the underlying belief that if other people could be found to possess similar attributes, then they, too, could have become good leaders, attention was paid to uncovering these traits, frequently through studying leadership effectiveness (Akinwale & Oluwafemi, 2022).

Behavioral theories of leadership are predicated on Cherry's (2010) assertion that exceptional leaders are created, not born. The behaviorism-based leadership theory places more emphasis on leaders' actions than on their internal or mental states. This notion holds that individuals can learn to lead through instruction and observation. The corporate environment affects a certain behavior's effectiveness (Omolayo, 2004). Fleishman and colleagues (1991) classified 65 different types of leader behavior in their narrative review of the team effectiveness literature, and subsequent studies have only served to emphasize how many different leader behavior typologies and theories there are (Avolio *et al.,* 2003; Pearce *et al.,* 2003).

Relationship-oriented leaders are compassionate and adept at identifying their followers' needs. They also demonstrate empathy for others and play on their supporters' emotions (. Effective interpersonal connections with followers and eventually increased levels of follower satisfaction should result from these leader

practices (Olutoye & Asikhia, 2022). Similar to this, change-oriented actions can likewise improve followers' perceptions and contentment. According to earlier studies, people who believe they are evolving, improving, and changing through time are happier at work (Hackman *et al.*, 1980). The degree of power, the organizational structure of the team, and the leader's focus on relationships are these scenarios that a leader could encounter.

2.5 Relative Advantage and Firm Performance

The term "relative advantage" refers to how much a new technology is thought to be superior to an established alternative (Rogers, 2003). One of the main factors influencing the adoption of technological innovation is the relative benefit of one technology over another (Sin *et al.,* 2016). The issue of relative advantage has been proven to have a favorable association with adoption of innovation (Tornatzky & Klein, 2012).

In a number of contexts, relative advantage has been demonstrated to be a significant influencer of technology acceptance. Carter and Campbell (2011) used DOI to find evidence that institutional-based trust, e-government information, and relative advantage all had a favorable influence on company performance. Emani *et al.*, (2012) discovered that relative advantage positively influenced patient perception of individual health record systems, while Chen and Zhang (2016) discovered that relative advantage and perceived benefits favorably impacted business performance in the healthcare industry. Al-Jabri and Sohail (2012) used the DOI theory to investigate the elements influencing the uptake of mobile banking. They discovered evidence that relative advantage has an effect on business performance.

According to Joo *et al.,* (2014), relative advantage has a favorable effect on business performance in the field of education and learning. Additionally, as was previously mentioned, Johnson *et al.,* (2018) discovered evidence to support the positive impact of relative advantage on people's intention to use mobile payment services, and Arvidsson (2014) discovered that relative advantage positively influenced the adoption of mobile banking services.

Adoption of the internet of things (IoT) is positively influenced by relative advantage (Balaji & Roy, 2016; Ma, Xu, Trigo, & Ramalho, 2017; Shin & Jin Park, 2017; Tu, 2018). Technology that improves an organization's operational effectiveness (e.g., cutting costs) and strategic effectiveness (e.g., increasing efficiencies, output, or sales) is more likely to be implemented (Oliveira *et al.,* 2014; Rymaszewska, Helo, & Gunasekaran, 2017; Tu, 2018).

The most powerful determinant of adoption in the literature analysis used in studies is the combination of DOI and TOE relative advantage (Alkhalil *et al.,* 2017; Ji & Liang, 2016; Shaltoni, 2017; Wang & Wang, 2016). Relative advantage has been the best predictor of the rate of adoption of an innovation (Kizgin *et al.,* 2020; Amaro and Duarte, 2015; Min *et al.,* 2018). Another study indicated that relative advantage has a positive influence on adoption of a product (Ozaki, 2011). Arts *et al.,* (2011) mentioned that consumers are found to actually adopt innovations with higher relative advantages.

According to Pee (2018), understanding the relative advantages of an organization's social media platforms helps to increase information sharing and overall organizational effectiveness. The degree of technological interaction between two or more parties is referred to as interaction. Social media is a cutting-edge technology

that offers opportunities to improve interactions between businesses and their customers (Braojos-Gomez *et al.,* 2015). Studies from the past have generally concentrated on the relative advantage, cost-effectiveness and compatibility as precursors to the adoption of technology (Olanrewaju *et al.,* 2020).

Others (Chorley *et al.,* 2015) came to the conclusion that advances in information systems that are thought to provide a relative advantage over existing methods seem to be more inclined to improve business performance. In a different study, Islam *et al.,* (2017) came to the conclusion that businesses that best utilize benefit of the relative advantages of internet technologies and demonstrate technology readiness seem to be more inclined to generate value using cutting-edge technologies, thereby improving their performance.

According to Tornatzky & Klein (2012), adoption of innovations and business performance have a strong association with relative advantage. Other research, including Wanyoike's (2013), have discovered a favorable relationship between a new technology's relative advantage and business outcomes. If the authors of the studies by IntharaksaIbem *et al.,* (2016), Watuleke (2017), and Malekia (2018) had explained the indirect implications of the relative advantage (important perceived benefits) towards firm performance, the studies would have been more intriguing.

According to Eisend *et al.,* (2016), performance of new technology depends on relative advantage of technological capabilities. Although technology capabilities often have a higher impact on the performance of new products than do competitive benefit, this effect is tempered by institutional background variables. With annual growth rates, stronger legal systems, and organizations that prioritize self-expression

over survival, the relative advantage reduces and even reverses. It also grows in societies where survival values are less important.

Sin *et al.,* (2016) showed that there is significant influence of relative advantage towards implementation of E-commerce among SMEs. The outcome of this study validates prior studies which discovered that relative advantage was a significant forecaster for implementation of E-commerce among SMEs (Shah Alam *et al.,* 2011; and Wanyoike *et al.,* 2012).

Park *et al.,* (2022) examines how relative advantage influence Intelligent information technology acceptance. Based on an analysis of survey data, it was first found that the acceptance rate of Intelligent information technology itself was generally very high. Second, in terms of Intelligent information technology acceptance, relative advantage was found to have significant effects on the Intelligent information technology acceptance.

2.6 Technology Compatibility and Firm Performance

The extent to which a technology interacts with established practices or value systems is referred to as compatibility (Rogers, 2003). The degree of compatibility influences how quickly innovations are adopted; the higher the compatibility, the quicker the adoption and how technology affect firm performance. The adoption of Internet of Things (IoT) is strongly influenced by the compatibility of sensors, networks, and applications from various suppliers (Haddud, DeSouza, Khare, & Lee, 2017). One problem mentioned in the literature is incompatibility problems, such as the inability of IoT devices to connect with one another, which impede IoT adoption and negatively affect firm performance (Stoes, Vank, Masner, & Pavlk, 2016). Positive

Adoption of innovation toward improved firm performance is often positively connected with compatibility (Rogers, 2003; Sinha & Mukherjee, 2016).

Technology must be compatible with the firm processes in order to have an impact on business performance. In several research, from mobile payment systems (Oliveira *et al.*, 2016) to healthcare, the idea of compatibility has emerged as a key predictor of firm performance (Abdekhoda *et al.*, 2016).

Rahayu and Day (2015) looked into the technological context to learn more about the variables that lead SMEs in developing nations to adopt e-commerce. Their findings revealed that complexity of SMEs e-commerce improves performance. Similarly, Zhang and Xiao (2017) to look into the major technological influences on how social media is incorporated into local government organizations enhanced in technology context in TOE framework. According to survey results, technology compatibility is one of the best indicators of a person's use of social media. Additionally, citizen readiness and perceived benefits of technology have a favorable impact on business performance.

According to Low, Chen, and Wu (2011), enterprise adoption is inversely connected to complexity on business performance. According to Sin Tan *et al.*, (2009), the primary variables impacting the utilization of ICT by SMEs in Malaysia include compatibility in the technological context. According to Zhu *et al.*, (2006b), compatibility is the main element impacting the post-adoption of digitalization in European organizations.

Salah *et al.*, (2021) look at how the compatibility affects the adoption of technology in customer relationship management in Palestinian SMEs. A questionnaire was created

to gather information from Palestine's 420 SMEs. The poll was completed and returned by 331 respondents in total. The measurement and structural models were evaluated using the Partial Least Square-Structural Equation Model (PLS-SEM) method. The results and conclusions of this study demonstrate that compatibility affects the adoption of technology in customer relationship management.

2.7 Technology Complexity and Firm Performance

Complexity is a measure of how difficult it is to comprehend and apply an innovation (Rogers, 2003). Innovation is less likely to be adopted and employed when customers think it to be confusing and difficult to use (Wang & Wang, 2016). For instance, complexity will rise as IoT device development advances and new functions are introduced (Bi, 2017). IoT device diversity adds another degree of complexity to product design and selection (Zhong, Xu, & Wang, 2017). IoT adoption is hindered by these complications and a lack of experienced staff to manage a multiple hardware ecosystem (Haddud *et al.*, 2017). Adoption of innovation is often inversely connected with complexity (Wang & Wang, 2016).

In order to assess the user's consumer perception of an intention to use IoT services offered by Taiwanese IoTs service providers, Hsu and Lin (2016b) used the value-based adoption model to look at the influences of benefits (perceived usefulness and perceived enjoyment) and sacrifices (perceived privacy risk and perceived fee). The study's conclusions demonstrated that behavioral intention is positively influenced by perceived utility and enjoyment through perception of worth. While IoT adoption is negatively impacted by perceived privacy.

The research findings of Wang *et al.,* (2010) demonstrated that the complexity for the manufacturing industry adopting RFID has respectively significant positive and

negative effects because there is no common standard developed yet and there are still problems in system implementation with the company's current internal information system.

Cheah *et al.*, (2021) evaluated how the relationship between project performance metrics and technology complexity is moderated by human, financial, network, and senior management resources. Their findings show that the link is inverted U-shaped and that project resources regulate it. They discovered that business projects with more top leadership, network, and human resources are better equipped to handle complicated technologies. However, lavish resource allocation to low-complexity technology lowers project financial results.

Using a sample of 389 manufacturers, Surana *et al.,* (2020) evaluated the impact of technology complexity on manufacturing performance and influences the location of suppliers. Their findings showed that high-complexity technology improves company performance while low-complexity technology had the opposite effect.

2.8 Technology Trialability and Firm Performance

Trialability is a term used to define the extent in which a technology may be tried inside the acceptance context in order to determine how well it functions and how valuable it is (Rogers, 2003). Because innovation technology that can be rapidly trialed or experimented on for a limited time for free is more likely to be accepted faster, trialability is typically positively correlated with firm performance (Pashaeypoor, Ashktorab, Rassouli, and Alavi-Majd, 2016; Rogers, 2003). Before making a business case to senior management, firms may carry out short trials of breakthrough technologies to determine their viability and separate fact from fiction (Hsu & Yeh, 2016; Shin & Jin Park, 2017). The adopter's ability to access and

eliminate ambiguity improves with increased innovation testing (Chiyangwa & Alexander, 2016; Rogers, 2003). Alshamaila *et al.,* (2013) assed relationship between SMEs' adoption of new technologies and firm's performance and showed that trialability in the technology context have a significant impact, on firm performance.

Based on Rogers' Five Factors of Diffusion of Innovation Model, Mehdi et al (2013) explored and explain the many aspects of small and medium firms' acceptance of e-commerce using data collected from 200 managers and staff members in the manufacturing, agriculture and service sectors using questionnaires sent through email. The findings of this study suggest that trialability has an impact on the adoption of e-commerce. The degree of management confidence is impacted by trialability and observability elements, which in turn affects the adoption of e-commerce.

Trialability was proposed by Banerjee *et al.,* (2012) for trial interactions with managed risk, subsequently it was discovered that this procedure was required for the interpretation of the basic intent of adoption. Trialability was discovered to be key indicators of e-commerce uptake among SMEs in Chong's study on Australian SMEs conducted in 2004 utilizing perceived qualities of electronic commerce as one of the variables. In the context of the South East Asian region, Kendall *et al.,* (2001) performed a survey on Singapore's SMEs and discovered that adoption of electronic commerce was highly correlated with trialability. According Lertwongsatien *et al.,* (2004) SMEs in Thailand, trialability are important determinants of e-commerce adoption.

Folorunso *et al.,* (2010) employed DOI to investigate factors influencing social networking-related technology acceptance. They discovered data to suggest that

trialability had a beneficial influence on attitudes about utilizing technology. Trialability according to Wang (2014), have a beneficial impact on company performance. Additionally, a 2016 study by Abdekhoda *et al.*, combining TAM and DOI discovered that trialability were all relevant in predicting physician attitudes about electronic medical records.

Odumeru (2013) carried out a study on the uptake of digital money utilizing DOI as its theoretical underpinning. Trialability was found to be a major driver of performance. According to a study by Chung and Holdsworth (2012), trialability was a highly reliable indicator of company performance. Additionally, Slade *et al.*, (2014) proposed extending UTAUT to incorporate trialability, self-efficacy, innovativeness, perceived risk and trust based on studies in mobile banking, mobile payment, and mobile commerce.

2.9 Technology Context, Leader Personality and Firm Performance

Numerous correlations between personality, technology and firm performance have been found. In general, it seems that many facets of human-technology interaction are linked to the personality trait known as "extraversion-introversion" (Alalwan *et al.*, 2016). In relation to this idea, the use of the Internet by individuals has been especially looked into. For instance, Makanyeza (2017) demonstrated a relationship between the use of various internet services and the neuroticism and extraversion. Men's social media use was favorably correlated with extraversion, whereas their use of information services was adversely correlated with neuroticism. However, women use of social was negatively related with extraversion which positively associated with neuroticism. An analysis of the relationships between these personality factors and experiences of loneliness and Internet use supported the idea that personality (i.e.,

a propensity towards loneliness) predicts Internet use and disproved the assumption that using the Internet makes one feel lonely (Mohammadi, 2015).

Additionally, personality modifies the association between technology use and supportive social experiences, despite the fact that personality and technology use were only modestly associated (Swickert *et al.,* 2002). McElroy *et al.,* (2007) recently looked into how personality affected how much time people spent online. They used the Big Five model to assess personality using the updated NEO Personality Inventory, as well as the Meyer-Briggs Type Indicator to assess cognitive style (MBTI). Three tools were used to gauge internet usage. Their key discovery was that cognitive style was a poorer predictor of Internet use than the Big Five personality traits. Additionally, their findings demonstrated that extraversion and openness to experience predicted internet use, openness to experience predicted buying on the internet, while emotional stability or neuroticism predicted selling before accounting for technology fear and self-efficacy.

Neuroticism explained both Internet sales and purchases after accounting for computer anxiety and self-efficacy, whereas openness to new experiences influenced Internet use. Neuroticism and Internet use also had a close-to-significant relationship. Research avenues suggested by McElroy *et al.,* include the Big Five personality traits in models of technology acceptance and adoption (Alalwan *et al.,* 2016). There have been several attempts to look into how personality could affect the adoption of new inventions and technology.

Technology-specific personality factors from the Technology Readiness Index (TRI; Parasuraman 2000) were used in a study by Walczuch *et al.,* (2007) to examine the impact of personality traits on technology adoption. The findings showed that

personality traits played a role in the adoption of information technology, with the optimism component of the TRI having the greatest influence due to its favorable effects on PeU and PU. However, there were substantial relationships between the parameters of inventiveness, insecurity, and unpleasantness with PU, PEU, or both. Given these findings, it is remarkable that relatively few studies have looked at the connection between TAM characteristics and broader personality variables. The idea that personality doesn't affect designed in conjunction but is instead mediated by the beliefs in the model could be used as justification for not including personality in TAM research (i.e. PU, PeU and social norms).

According to Ajzen and Fishbein (1975, cited in Agarwal and Prasad 1999), personality was expressly characterized as a type of exogenous or external variable in the theory of reasoned action, which forms the basis of TAM. This makes this a plausible assumption (Agarwal and Prasad 1999, p. 366). The relationship between personal characteristics and intention is also mediated through the relationship between individual differences and personality, according to certain studies on the relationship between TAM components and personality factors (including personality). According to Agarwal and Prasad's hypothesis from 1999, PeU and PU served as a mediator between personality traits and behavioral intention. By testing models where individual variations have both indirect and direct impacts on behavioral intention to switch from a system computer interface to a GUI-driven interface, they demonstrated that this is the case for demographic and situational personality traits. But they left out personality traits from their study.

The impacts of three particular personality qualities on the perceived relative benefit of a group support network were examined by Karahanna *et al.*, (2002). These

characteristics were fear of verbal and written communication, computer phobia, and individual creativity. They discovered that these characteristics significantly influence how the system's relative advantage is viewed. This result is consistent with that of (Sharma, 2017), and it shows that personality traits, as long as they are domain specific, may also be explained by the model with views mediating the influences of individual differences. However, because Karahanna *et al.,* did not specifically apply the TAM model, the result can only be partially interpreted as supporting the mediator function of PU.

Barkhi and Wallace (2007) study was unique of it nature of examining personality traits and Behavioral intention (BI), perceived usefulness (PU), perceived ease of use (PEU), and subjective norm (SN) of the TAM components in respect to online purchasing. The foundation of this study was Jung's theory of personality, as assessed by the MBTI. Their findings demonstrated that personality factors affect SN and PeU. (Xu *et al.,* 2016). Additionally, they discovered evidence supporting favorable relationships between the introversion and extraversion perceiving and judging, and sensing and intuitive dimensions and SN, SN, and PeU (Uruea *et al.,* 2018).

2.10 Conceptual Framework

The proposed conceptual model which diagrammatically present the interaction between technology context (independent variables), leader personality (moderating variable) and firm performance (dependent variable) are presented in figure 2.1 below.

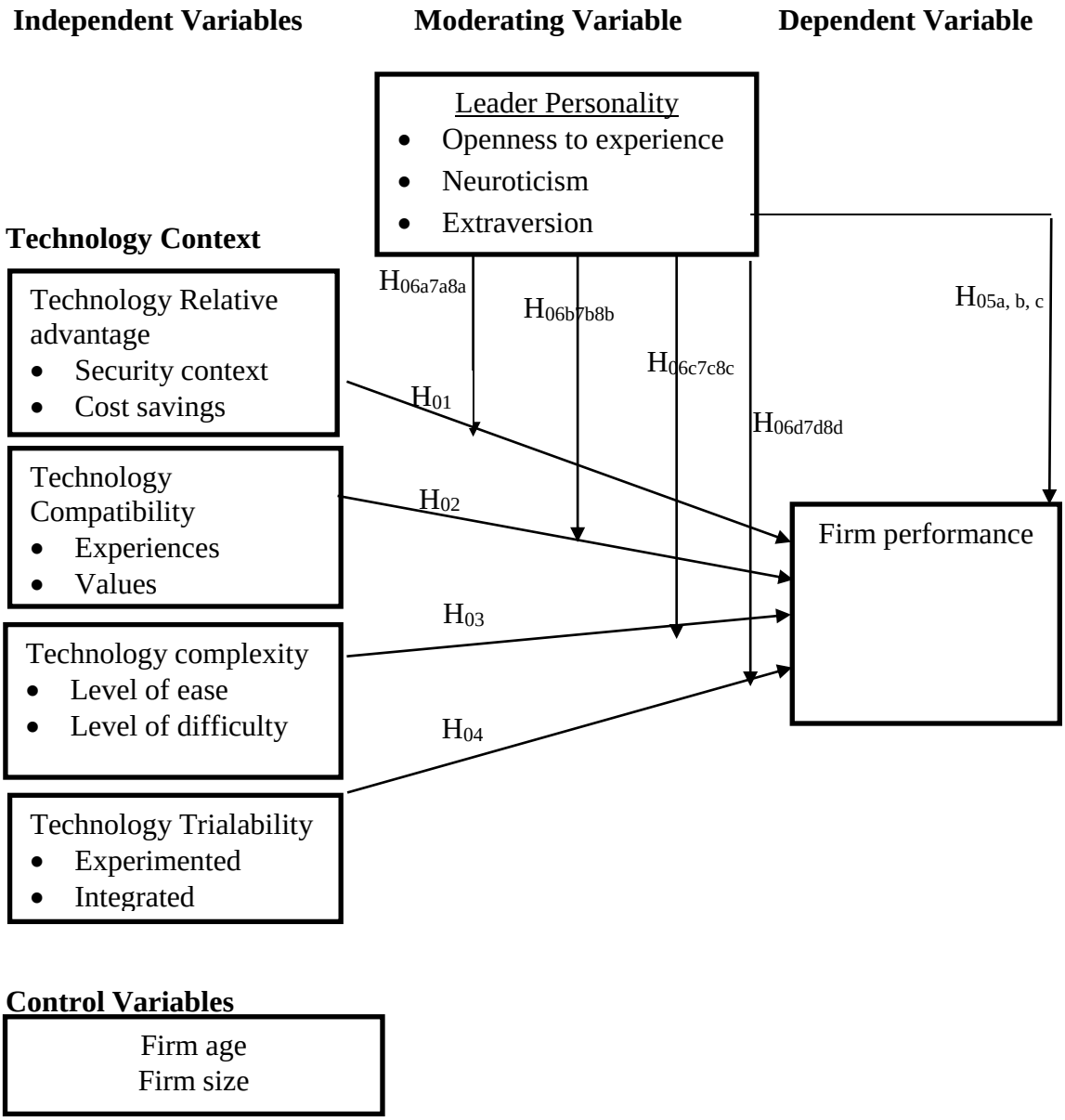

Figure 2.1: Conceptual Framework
Source; Author (2022)

2.11 Research Gaps

Table 2.1: Knowledge gaps

Author	Topic	Methodology	Findings	Knowledge gaps	Current study
Noorshella, C. N., Abdullah, A. M., & Nursalihah, A. R. (2015).	Examining the Key Factors Affecting firm performance of Small Online Apparel Businesses in Malaysia	their review used a cross-sectional approach, and data from 765 customers who made online clothing purchases were collected at the moment.	Findings of this study indicate that "product information quality," "website design," "security and privacy," and "expected consumer service" are the key determinants of eSQ among small online clothing enterprises in Malaysia.	The study assed other factors rather than technological context factors. In addition, the study was conducted in Small Online Apparel Businesses in Malaysia where its results could not have been generalized in public sector.	The current study will assess all aspect of technology context in relation to firm performance
Park, Jong-Hyun; Kim, Moon-Koo; Paik, Jong-Hyun (2015)	The Factors of Technology, Organization and Environment Influencing the Adoption and Usage of Big Data in Korean Firms	Data were collected from owners/managers/executives of 269 SMEs, through survey questionnaire. Structure Equation Modeling (SEM), with smartPLS, was used for the data analysis analytic hierarchy process (AHP) method using the data collected from the expert survey in Korea	The perception of benefits from big data and technological capability are identified as the critical determinants of the big data adoption. The compatibility with existing system, data quality and integration, and security and privacy are ranked highly in technology context	The AHP approach was used in this study's design. Given that businesses' levels of purchase behavior are woefully inadequate at the early stages of system development and market introduction, this approach may be considered crucial.	This study will use process macro hayes model
Hart O. Awa, Ojiabo Ukoha & Bartholomew C. Emecheta | Shaofeng Liu (Reviewing Editor) (2016)).	Employing T-O-E theoretical framework to investigate ERP solution integration	The review gathered surevey data from administrators of SMEs from six fast service businesses running strongly in Port Harcourt, Nigeria. The sampling techniques used included purposive and snow ball sampling and the proposed framework was run through logistic regression, particularly the probability ratios Hosmer and Lemeshow's goodness of fit, and Nagelkerke R2 were used.	The T-O-E framework describes the T-O-E framework adoption, it is also influenced by technological aspects as opposed to institutional and environmental aspects	Future researchers should focus on the implementation and post-adoption phases as a result of the article's which was before phase focus in order to create a more comprehensive and integrated adoption lens.	The study will focus on post adoption of firm performance and will assess level of e-service in state corporation

Khatib et al (2019)	Factors of Firm performance among Malaysian Millennial Streaming Service Users	This study uses an firm performance measurement and a quantitative research methodology. Questionnaires were distributed and collected from 400 Malaysian millennials at local private colleges and universities, who are heavy users of streaming music. Data analysis was performed using descriptive analysis and partial least squares for structural modeling	The results of this study revealed that web design and customization variables were significantly associated with re-purchase intention. Reliability and responsiveness, expressed as performance, were significant to satisfaction, and the relationship between satisfaction and re-purchase intention was also established. Trust was not significantly influenced by their purchase intention	The study factored in all factors without specifying technological factors that can affect firm performance intention.	The study will go beyond intention to use firm performance to level of usage of firm performance
Chiravuri *et al.*, (2018)	identify and present a framework on the quality determinants of the e-services which are currently provided by the UAE's Ministry of Interior (MOI) to the public	The key data sources for this study will be dependent on surveys, which were used as a quantitative form of research (questionnaire)	The study found that environmental factors and technological factors affect firm performance	The study used multiple regression model only and did not consider any mediator or moderator	This study will use more advanced statistics (process macro-Hayes model) and will include a moderator
Mummalaneni, Venkatapparao & Meng, Juan & Elliott, Kevin. (2016).	Consumer Technology Readiness and Firm performance in E-Tailing: What is the Impact on Predicting Online Purchasing?	A convenience sample of 237 Chinese enrolled students in a significant regional university in China was used to gather the data. SEM was used to evaluate both the suggested structural and measurement models.	The findings suggest that, in the context of China's internet retail environment, customer technology readiness has a favorable impact on business performance in terms of perceptions of effectiveness, service availability, satisfaction, and confidentiality.	It would be helpful to carry out research evaluating technological readiness at periodically and asses the trends of change, if there is any, as technological readiness is a purchaser attribute that is changing constantly (especially with the advancement of Online shopping infrastructure and platforms like Alibaba in China).	The study will use all technology context variables rather than technology readiness
Gutierrez, Anabel & Boukrami, Elias & Lumsden, Ranald. (2015	Technological, organizational and environmental factors influencing managers' decision to adopt cloud computing in the UK	257 middle and senior level a variety of UK end-user organizations responded to a self-created questionnaire-based survey that was used to gather the data. Several data analysis techniques, such as principal component analysis and logistic regression,	The findings indicate that four of the eight parameters investigated significantly affect whether cloud-based computing services are adopted in the UK. These crucial elements consist of trading partner pressure, complexity, competitiveness, and technology	The study linked technology context with cloud computing services which is a sub variable in firm performance without looking on how specific dimensions of technology context affect firm performance	the current study will link technology context four dimensions with firm performance in state corporation

		were used to examine the resulting hypotheses. Regression	readiness.		
Malak (2016)	An Analysis of the Technological, Organizational, and Environmental Factors Influencing Cloud Adoption	There were 136 IT decision-makers from various US sectors who participated in the poll. With the exception of firm size, all independent factors and the dependent variable (desire to adopt) showed a substantial association according to the Pearson's coefficient analysis.	Support from top management, relative advantage, normative pressure and organizational preparation were the main predictors in the regression model, which was a predictor with statistical significance of the dependent variable and accounted for around 74% of its variance.	The investigation is oriented towards the exploration of what happens in the service sector. This means that the results can only be generalized for this sector,	

Source; author (2022)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The methodology section of the research describes the research philosophy, research design, target population, sample and sampling techniques, data collection instruments, data collection procedure, data processing, data analysis and data presentation.

3.1 Research Philosophy

Research philosophy refers to a set of beliefs or a plan that guides the development of knowledge about a phenomenon from assumptions, approaches to data collection methods, analysis and interpretation so as to be conscious of what is to be investigated (Creswell & Creswell, 2018; Saunders, Lewis & Thornhill, 2015). Dudovskiy (2018) posits that the adoption of any philosophy, whether positivist, interpretivist, pragmatist, or realist, depends on the ontological, epistemological, and axiological assumptions of the study. Maarouf (2019) further explains that the best determinant of research philosophy is the research problem. The two opposed conceptual traditions of positivism and anti-positivism are used in social scientific studies to demonstrate orthogonal or indirect links.

The anti-positivism perspective acknowledges the distinctions between individuals and objects of the natural sciences (deductivism) and therefore stresses the subjective meaning of social actions (inductivism), in contrast to positivist orthodoxy, which presumes that social phenomena are created with independent existence of the members of a society or confront us as facts about the world that we very seldom reach or influence (Giddens, 2009). This study employed a single methodology,

ontological realism, which is supported by the positivist paradigm and nomothetic techniques because it places a strong emphasis on empirical fact objectivity and cause and effect. The decision to label IS research as positivist rests with Žukauskas et al., (2018), who do so if there is proof of quantifiable measures of variables, formal assertions, the testing of hypotheses, and the inferences drawn. Similar to this, Mukherji and Albon (2009) assert that the employment of quantitative approaches is advantageous since a positive philosophy promotes a methodical, scientific approach to study.

This study used a positivism research philosophy. Positivism depends on quantifiable observations that lead to statistical analyses. It has been noted that 'as a philosophy, positivism is in accordance with the empiricist view that knowledge stems from human experience. It has an atomistic, ontological view of the world as comprising discrete, observable elements and events that interact in an observable, determined and regular manner' (Ollins, 2010).

Additionally, there are no accommodations for human interests within positivist investigations, and the investigator is separate from the study. According to Crowther and Lancaster (2008), positivist studies typically employ a deductive strategy, whereas an inductive research approach is typically connected with the philosophy of phenomenology. Additionally, positivism holds that researchers should focus on the facts, but phenomenology emphasizes the meaning and The study's theoretical underpinnings served as the basis for its hypotheses, and its logic and evidence were tested using quantitative techniques. In order to develop potential relationships on the performance of Kenyan state corporations, factual data were established for causal relationships of the technology context, leader personality, and firm performance.

Because events can be isolated and observations can be repeated, positivism contends that reality is stable and can be observed objectively. To find patterns and establish connections between the various components of the social environment, this involves manipulating reality by changing an independent variable (Wilfred, 2006).

3.2 Research Design

Research design functions as the framework that governs the entire research process, encompassing activities ranging from data collection and measurement to analysis and interpretation. It constitutes a distinct form of inquiry situated within quantitative, qualitative, or mixed methods approaches, providing specific guidance for the procedural aspects of research (Kothari, 2015; Cooper & Schindler, 2014). As highlighted by Creswell and Creswell (2018), the research design entails not only the selection among quantitative, qualitative, or mixed methods approaches, but also involves a determination of the specific type of study within these broader categories.

Within the realm of mixed methods research, three primary designs emerge: convergent parallel, explanatory sequential, and exploratory sequential. For the current investigation, the descriptive and explanatory research designs were strategically employed. The analytical or explanatory research pursuit is oriented towards identifying potential causal relationships among pertinent variables or factors tied to the research problem. This form of research is notably methodical, often leveraging experimental designs and statistical analyses to infer causality between exogenous and dependent variables (Cohen, Manion & Marison, 2011).

It is imperative that a comprehensive understanding of the observed phenomena is rigorously assessed and substantiated by empirical evidence (Hammersley, 2013). Positivist researchers, in particular, cultivate a robust comprehension of the subject

through empirical tests and methodological tools such as sampling, measurement techniques, questionnaires, and direct observations. The execution of a well-structured survey study, coupled with meticulous attention to sampling, instrumentation, and statistical analysis, culminates in quantitative findings that effectively address a myriad of open-ended research inquiries (Cohen, Manion & Morrison, 2011). This attests to the heightened validity and reliability of conclusions drawn by positivist researchers, which can be extrapolated to the broader population of interest (Johnson & Onwuegbuzie, 2004).

In this particular study, an explanatory research design was aptly adopted to ascertain the causal relationships between exogenous and endogenous variables, thus uncovering the intricate cause-and-effect dynamics at play.

3.3 Target Population

The target population of this study includes state corporation 187 state corporations in Kenya (RoK, 2018). The decision to use state corporations is justified by the fact that the government is working extremely hard to guarantee that it receives value for money and company performance difficulties are becoming a big worry. The target respondents included top management (manager, assistant manager and supervisor). Additionally, managers are knowledgeable key informants regarding firm performance since they are the individuals who in most cases are responsible for technology context (Reinartz *et al.,* 2003) and are able to compare their own units to direct competitors (Coltman *et al.,* 2011). The rationale of data collecting data from multiple respondents is advocated by various authors as a favorable practice in improving validity and reliability of the study results (Ketokivi and Schroeder, 2004; Balloun *et al.,* 2011; Wang and Feng, 2012).

3.3.1 Unit of Analysis

A Unit of Analysis refers to the specific element or entity that a researcher focuses on when conducting a study or analysis in the field of research methodology. It is the fundamental building block or subject of investigation in a research project (Hayes & Scharkow, 2013). In the study unit of analysis reflect 187 state corporations in Kenya, which include the commercial State Corporation, executive agencies, independent regulatory agencies, research institutions, public universities, tertiary education and training institutions. While unit of observations were the top management (manager, assistant manager and supervisor)

Table 3.1: State Corporations in Kenya

S/No.	Categories of State Corporations	Number of Entities
1	Commercial state corporations	34
2	Commercial state corporations with strategic function	21
3	Executive agencies	62
4	Independent regulatory agencies	25
5	Research institutions, public universities & tertiary education	45
Total inventory of State Corporations as of October 2018		**187**

Source: (RoK, 2018)

3.4 Sample and Sampling Technique

3.4.1 Sampling Frame

A sample frame is the source material or device from which a sample is drawn (Emmel, 2017). The list of state corporations formed the sampling frame, also known as the source list, from which the samples were drawn.

3.4.2 Sample Size and Sampling Technique

Sampling is the process of choosing a small number of items which are as possible representative in order to create a little cross-section of all the items making up the population in a field of interest. Such a survey is referred to as a sample survey

(Kothari, 2004). The portion of the population chosen for inquiry is referred to as a sample. It is a portion of the general public (Bryman & Bell, 2011). The number of objects to be chosen from the population as a sample is referred to as the sample size. The sample size needed to achieve a particular degree of precision increases with population heterogeneity. The sample size decreases as the population becomes less varied (more homogeneous) (Israel, 2013). This is thus since a small population receives proportionately more information from a given sample size than a big population does. The Yamane formula can be used to change the sample size (n) (1967). With this formula, sample size can be estimated at precision (e) levels of 3%, 5%, 7%, and 10%. With a 95% confidence level and a 50% degree of variability (p) (0.5).

$n = \frac{N}{1+Ne^2}$ n = sample size

N= target population (187)

e = margin error of 10%

In the proposed study, the sample size was calculated at precision level of 10% (e = 0.1). According to Singh and Masuku (2014) a precision level of 10% ensures that the obtained sample data is indicative of the true population parameter within a reasonably narrow range.

Sample size in this study is

$$n = \frac{187}{1 + (187 \times 0.1^2)}$$

$$n = \frac{187}{2.87}$$

$$n = 65$$

Therefore, the sample size was 65 state corporations.

In this study, a total sample of 65 state corporations was selected, and from this sample, 6 specific respondents were purposely chosen resulting in a total of 396 participants. The decision to gather data from multiple respondents is supported by findings from previous research conducted by Yi et al. (2004) and Van Bruggen et al. (2002), which demonstrate that obtaining input from various individuals can help reduce potential errors and lead to more robust response data compared to relying on information from a single source. Additionally, Day and Van den Bulte (2002) emphasize that organizational perceptions can be diverse, and depending solely on a single informant for research may introduce difficulties in accurately capturing the overall perspective of the organization.

Therefore Stratified sampling was used to classify the Managers, Assistant Managers and Supervisors into six groups. Saunders, Lewis, and Thornhill (2009) emphasize the importance of stratified sampling. This technique is particularly useful when the population exhibits heterogeneity, meaning that it can be divided into subgroups with varying characteristics. By utilizing stratified sampling, researchers can reduce the potential bias that may arise from sampling a homogeneous population. Kothari (2015) asserts that when a target population does not consist of a homogeneous cluster, stratified random sampling technique is then adopted to draw a representative sample.

Using the proportionate method, the calculated sample of 65 was proportionately apportioned to each stratum. The proportionate method is used to get equal representation (Kothari, 2015). Each stratum’s sample was computed by dividing the

stratum's population by the total population and multiplying the result with the sample to get a proportionate representative sample from each stratum as shown in Table 3.2.

Simple random sampling technique was used to pick the final sample from each stratum as per the apportionment, and the total sample of 65 state corporations was selected. This was done by using SPSS where the names of the medical doctors were keyed in SPSS and randomly selected. Emmel (2013) highlight that simple random sampling happens when the researcher selects elements of observation from a given set without any criteria. According to Matula et al., (2018) a simple random sampling design is good since it guarantees that each element in the population has an equal chance of being selected for a study. Thus, this method was preferred because it was good in attaining a high level of representativeness of the medical doctor's cadres from the population and reducing bias. Samwel (2017) and Kiawa (2019) in their studies used random sampling to pick their final respondents.

Table 3.2: Sample size

Categories of State Corporations	Number of Entities	Sample for entities	Sample for tm (6 per firm)
Commercial state corporations	34	12	72
Commercial state corporations with strategic function	21	7	42
Executive agencies	62	22	132
Independent regulatory agencies	25	9	54
Research institutions, public universities & tertiary education	45	16	96
Total inventory of State Corporations as of October Total	187	65	396

Source; (Author Computation, 2022).

3.5 Data Collection Instrument

Data collection instruments involve apparatus and procedures employed in measuring research variables (Cooper & Schndler, 2014). Creswell and Creswell (2018) aver that data collection tools are determined based on their predetermined nature, employment of closed-ended as opposed to open-ended questioning and their focus on numeric as opposed to nonnumeric data. Based on mixed research methods, this study used both closed-ended and open-ended data collection instruments. Structured or closed-ended questionnaires were employed in collecting quantitative data from top management.

A questionnaire is a tool with a set of identical questions that are designed in a predetermined order to extract information from the respondent while Likert scale is an interval scale applied in measuring the level of agreement or disagreement (Matula *et al.,* 2018). The self-administered closed-ended or structured questionnaire was in five-Point Likert Scale (strongly disagree, disagree, neutral, agree and strongly agree) with predetermined questions.

Questionnaires are popular tools in research surveys and are preferred because they are cheaper, easy to administer, time saving and free from researcher bias since responses are from the respondent's own-expressions (Kothari, 2015 & Cooper & Schindler, 2014). Likert scales are advantageous in measuring perception, attitude, values and behavior since they contain objects that are good in translating the qualitative responses into quantitative values (Upagade & Shende, 2013). In this study, the researcher and her assistant personally administered the questionnaires in a flexible manner where respondents who had time filled the questionnaires right away while for those who were engaged, a drop and pick later method was employed. The questionnaire comprised of four main sections related to dependent and independent

variables. Part A: Background Information, Part B: Technology Context. Part C: Leader Personality, Part D: Firm Performance.

3.6 Measurements of Variables

Dependent variable

Non-financial measures were adapted and modified from Larcker, Ittner, and Randall (2003). By implementing these measures, Sholihin, Pike, and Mangena (2010). Ittner, Larcker, and Randall (2003) characterize these strategic performance measures utilizing performance indicators for an organization's ultimate success: supplier alliances, operational efficiency, product and service quality and service innovations, number of employees, number of customers, community and environmental reputation.

Independent Variable

In this review, the independent variables are technology context dimensions. The components of technology context; which include relative advantage (5), complexity (5), compatibility (8), Trialability (5). The measurement tool is embraced from Feuerlicht and Goverdhan (2010) and Jain and Bhardwaj (2010). Complexity tool was adopted from Premkumar*et al.,* (1994), Gardner and Amoroso (2004) and Diane *et al.,* (2001). Compatibility tool was adapted from Wang *et al.,* (2010). The above measures adopted a five point likert scale (1=strongly disagree to 5= strongly agree) was used by the above scholars and was modified to suit the Kenyan state corporation context.

Moderating variable

According to Luarm and Lin (2005), it is prudent to adopt the items for study constructs from prior researches to ensure content validity of the scale used. Therefore 18 survey items for 3 constructs in the questionnaire (NEO-3 inventory scale) was adopted and modified from empirical studies to fit in the context of three personality traits. The constructs and their sources are shown in Table below:

Table 3.3: Constructs and their Sources

Constructs	Number of items	Sources
Extraversion trait	6	Dion, 2013.
Neuroticism trait	4	Dion, 2013.
Openness	8	Dion, 2013.

Source; (Author Computation, 2022).

Control Variable

Control variables are variables included in multivariate analyses to identify spurious associations. In assessing whether X is associated with Y, it is important to examine whether the covariation between them persists after the effects of other variables on this association are removed (McClendon 2002). The study used number of employees and number the firms has been in existence as firm size and firm age control variables.

3.7 Data Collection Procedure

The researcher sought approval from Moi University University management before embarking on data collection. Using the approval letter, a research permit was obtained from National Commission for Science, Technology & Innovation (NACOSTI). The researcher then recruited a research assistant based on experience and knowledge in the area under study. The research assistant was taken through the tool and the process to be followed. Data collection was conducted by a self-

completion questionnaire administered by the researcher with the help of research assistants. Each subject was given verbal instructions and asked to anonymously complete the questionnaire for immediate collection. The respondents were also being informed as to the purpose of the study to minimize any bias.

3.8 Pilot Testing

Pilot testing is an important component of the data collection process. A pilot test on a selected sample of respondents was conducted in order to ascertain the validity and reliability of the questionnaire before being administered to the target population. It is usually a small-scale trial run of all the procedures planned for use in the main study. In particular, pilot testing of an instrument administered for research purposes, say a questionnaire, is the standard in social sciences and were employed in the study. Once a questionnaire has been finalized, it should be tried out in the field (Balloun *et al.*, 2011).

One form of pilot testing is pre-testing, which may be repeated several times to refine the questions, the instrument or procedures (Wang and Feng, 2012). Benefits of pre-testing include an opportunity to test the hypothesis, allowance for checking statistical and analytical procedures, a chance to reduce problems and mistakes in the study and the reduction of costs incurred by inaccurate instruments (Isaac & Michael, 1995). According to Isaac & Michael, (1995) a sample of at least 10% of the population is usually acceptable in a pilot study. Therefore, to pre-test the research instrument a sample of 20 state corporations, who are part of the target population and not the sample size, were used.

Pilot testing provided an opportunity to detect and remedy any potential problems with the research instrument (questionnaire), including questions respondents do not

understand; ambiguous questions; questions that combine two or more issues in a single question (double-barreled questions); questions that make respondents uncomfortable. The validity and reliability of the measuring instrument was addressed including the design of questions, the structure of the questionnaire and the diligence of pilot testing. To increase validity and reliability, the researcher conducted a pilot study to pre-test the questionnaire at the state corporations within Eldoret town.

3.8.1 Validity

Validity is the ability of an instrument to measure what it is designed to measure. It is the correctness or credibility of a description, conclusion, explanation, interpretation, or other sorts of account (George & Mallery, 2003). According to Kumar (2005), there are two approaches to establishing the validity of a research instrument: logic and statistical evidence. Validity was established by a logical link between questions and the objectives (Hair, Black, Babin, & Anderson, 2010). To begin with, the phrasing of questions were kept in line with the concept of Zikmund (2010) to increase the validity of the study regarding face validity, content validity and construct validity. Face validity is a subjective means of determining whether the instrument is measuring what it is developed to measure while content validity refers to the representativeness of the items on an instrument as related to the entire domain. Construct validity is the ability of indicators and scales to measure accurately the concept under study (Hair, Black, Babin, & Anderson, 2010). Face and content validity was tested using the experts while construct validity were tested using factor analysis.

3.8.2 Reliability

Reliability is an assessment of the degree of consistency between multiple measurements of a variable (Hair, Black, Babin, & Anderson, 2010). Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials (Gerorge and Maller, 2003). Reliability relates to the consistency of the data collected and degree of accuracy in the measurements made using a research instrument. The greater the ability of the instrument to produce consistent results, again and again, or rather the repeatability of the measure, the greater is its reliability. An item analysis was conducted to determine internal consistency and reliability of each individual item as well as each sub-scale of the data collection instrument in accordance with Hair, Black, Babin, & Anderson, (2010). Cronbach's Alpha reliability coefficient, α, was used for the internal reliability test. The coefficient normally ranges between 0 and 1 although actually no lower limits exist. The closer α is to 1.0 the greater the internal consistency of the items in the scale. The size of α was determined by both the number of items in the scale and the mean inter-item correlations based upon the formula:

$$\alpha = rk/[1 + (k - 1)/r]$$

where;

k = is the number of items considered and r = is the mean of inter-item correlations.

George & Mallery (2003) provide the following commonly accepted rules of thumb: $\alpha \geq 0.9$ – Excellent; $0.9 > \alpha \geq 0.8$ – Good; $0.8 > \alpha \geq 0.7$ – Acceptable; $0.7 > \alpha \geq 0.6$ – Questionable; $0.6 > \alpha \geq 0.5$ – Poor and $0.5 > \alpha$ – Unacceptable. Therefore, ideally the Cronbach Alpha coefficient of a scale should be at least acceptable, that is, above 0.7.

3.9 Data Processing and Analysis

The study relied on quantitative data since investigative type of questions are used to collect data. There are three main objectives of analyzing data. These are getting a feel of the data, testing the goodness of data and testing the hypothesis developed for the research (Sekaran, 2006). The feel of the data gave preliminary ideas of how good the scales are, how well the coding and entering of data have been done. Quantitative data analysis on the other hand took a two-step analysis. The first step involves a series of statistical activities generated by SPSS to give the expected summary of variables being studied Secondly first order confirmatory factor analysis (CFA) was performed to examine the measurement model. The data for the study was analyzed using SPSS version 23 and Microsoft Excel. Descriptive and inferential analysis were performed as follows.

3.9.1 Descriptive Statistics Analysis

There are some important measures which help to know the data better. These measures give the idea of the overall distribution of the observation in the dataset and together they are being called as descriptive statistics (Kothari, 2004). Descriptive statistics such as the rate of response, the frequency distribution, the mean, and the standard deviation were used to analyze the data. The descriptive methods used included frequencies, mean, mode, median and standard deviations. To describe the rate of respondents, the study used the frequencies in the form of percentages while the description of the data collected from respondents the study used mean and standard deviations both of which are the measures of central tendency and variability respectively (Sekaran, and Bougie, 2013). The data was presented using tables and graphs.

3.9.2 Inferential Statistics Analysis

In inferential, Pearson correlation *r* analysis was used to establish the relationship between the independent variables and dependent variable. When *r* is close to +1-1), there is a strong positive (negative) relationship (Kothari & Garg, 2014). To measure the relationship between the independent variables and the dependent variable, the research used the model.

3.9.3 Model specification

The objective of the study is to test the effect of technology context on firm performance under the moderating role of leader personality traits. Multiple regression model for direct effects is given as;

$$\mathbf{Y} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(1)}$$

Where;

Y = firm performance;

β_0= constant term or intercept;

C= control variables in the model;

$\beta_1 \ldots\ldots \beta_4$ = the coefficients of the variables in the model;

x_1= Technology Relative advantage

x_2= Technology Compatibility;

x_3= Technology Complexity;

x_4= Technology Trialability

ε = error term in the model.

3.9.4 Testing for Moderation

According to Rose *et al.,* (2004), a moderator is a third variable that adjusts the strength of a causal relationship. Similarly, Baron and Kenny (1986) defined as a "variable that affects the direction and/or strength of the relationship between an independent and a dependent variable. To test for moderation effects the study used hierarchical multiple regression as modelled by Baron and Kenny (1986) following the procedure as outlined for moderation: first, control variables in the model was regressed against firm performance for potential direct effects; second stage entailed regressing control variables and technology context against firm performance. The moderating variable was introduced and regressed together with control variables, technology context against the dependent variable. Therefore, interaction term between predictor and moderating variables was obtained by multiplying the two variables that produced an interaction effect done at different stages for each individual interaction as specified in the hierarchical regression model below:

Moderation 1

The overall model specification for testing the moderation in the study was as follows.

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon_i \ldots\ldots (1\text{-} H_{01,2,3,4})$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 x_4 + \beta_4 Mi + \varepsilon \ldots\ldots (2\text{-}H_{04a})$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 x_4 + +\beta_4 Mi + \beta_5 Mii + \varepsilon \ldots\ldots (3\text{-}H_{04b})$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 x_4 ++ \beta_4 Mi + \beta_5 Mii + \beta_6 Miii + \varepsilon \ldots\ldots (4\text{-}H_{04c})$$

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta 3X4 + \beta_4 Mi + \beta 5Mii + \beta 6Miii + \beta_7 x_1 * Mi + \varepsilon_i \ldots\ldots (5\text{-}H_{05a,b,c})$$

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + + \beta_4 Mi + \beta_5 Mii + \beta 6Miii + \beta_7 x_1 * Mi + \beta_8 x_2 * Mii + \varepsilon_i \ldots\ldots (6\text{-}H_{06a,b,c})$$

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + +\beta_4 Mi + \beta_5 Mii + \beta_6 Miii + \beta_7 x_1 * Mi + \beta_8 x_2 * Mii + \beta_9 x_3 * Miii + \varepsilon_i$$

.....(7- $H0_{7a, b, c}$)

$\boldsymbol{Y}$ = Firm performance.

$\boldsymbol{\beta_0}$= constant term or intercept.

$\boldsymbol{\beta_1 \ldots\ldots \beta_4}$ = the coefficients of the variables in the model.

$\boldsymbol{X_1}$= Technology Relative Advantage

$\boldsymbol{X_2}$= Technology Compatibility

$\boldsymbol{X_3}$= Technology Complexity

$\boldsymbol{X_4}$= Technology Trialability

$\boldsymbol{\varepsilon}$ = error term in the model.

$Mi, Mii \ \& \ Miii =$ moderator i – iii $(leader\ traits - Mi = Openness\ to\ experience, Mii - Neuroticism\ and\ Miii = Extraversion)$

$\boldsymbol{\varepsilon}$ = error term in the model.

Before conducting any regression analysis, to investigate the basic assumptions of regression it is prudent to carry out diagnostic tests (Cohen, 2003). Data was tested for its fitness in the regression results using linear regression assumptions. The models used in this study was multiple regression equations, thus the assumptions below were made and the relevant tests to validate them adopted from); It is assumed that without testing assumptions of linear regression or violation of these assumptions, interpretation of the regression results is meaningful less which might lead to reporting of biased coefficient of estimate, r squared and biased standard error and wrong probability values (Chatterjee & Hadi, 2013). There are four assumptions of multiple regressions, linearity, homoscedasticity, normality, and collinearity (Osborne & Waters, 2002).

i. Test for Normality: The normal distribution of data is a requisite to dissection of most statistics, for instance, multilinear regression. Normality yields data that prescribes a single peaked bell shaped when dependent variable is plotted against the explanatory variable, this is of importance because the validity of any parametric tests require that the data is normally distributed for reliable and accurate results about the reality (Ghasemi & Zahediasl, 2012). The errors in predicting the dependent variable should be equidistant from the goodness of fit line. Contradiction of normality will bring forth results which cannot draw inferences. Common statistical techniques in testing normality include: normality methods, numerical methods, and visual methods (such as Q-Q, quantile-quantile plot, P-P, probability - probability plot and histograms), Visual inspection of the distribution cannot guarantee accuracy is more often unreliable. Numerical method is more organized and examines kurtosis and skewness coefficients of the distribution curves.

ii. In multivariate analysis, normality is regarded as an important assumption. Normality tests the assumption that distribution of data is normal in each variable and with linear assumptions (Hair *et al.,* 2010). There are two test of normality which include univariate level for testing normality of one variables and multivariate level which test the normality of more than two variables. Hair *et al.,* (2010) argues that if the variable/items satisfy multivariate normality, they must also satisfy univariate normality, but the opposite is not always true i.e., existence of univariate normality test does not guarantee the existence of multivariate normality. The null hypothesis (H0) state that variables are normally distributed. Similarly, the normality of distribution was also checked by use of Kolmogorov-Smirnov test. The Kolmogorov-Smirnov statistic should

be less than the critical values Dn = 0.092 is the maximum when using significant level of 5%. It is important for data to be normally distributed to enable generalization of results. Statistics estimating measures of shape such as skewedness and kurtosis was used to test for normality. Skewedness and kurtosis results ranging -2 to +2 indicated that a variable is normal (Williams *et al.,* 2013).

iii. Test for Linearity: this refers to extent to which change in predictor variables is related to change in the dependent variable. Pearson product moment correlation was used to check if linear statistical relationship exists between Nonmonetary benefits practices and employee output, Saunders (2012) posits that a n ideal correlation has a value of 1 with a strong positive correlation being between 0.9 and 1, high correlation value being between 0.5 and 0.7. Values 0 and 0.5 was indicative of a weak correlation. Value of 0 indicative of no correlation and value of -1 and 0 indicative of a negative correlation. When the variables X and Y are linearly related, fitness of linear regression was unnecessary since linearity between the predictor and exogenous is already assumed. One was to test linearity is using scatter plots (Appendix figure 4.3). According to Hair *et al.,* (2010) to test linearity the following hypothesis are tested null hypothesis (H0) there is linearity among variables in the model, while alternative hypothesis (H1) there no assumed linearity among variables in the model. ANOVA test of linearity will be applied to determine linearity. To test for linearity of the relationship between the variables, ANOVA test of linearity between each of the predictor variables and the dependent variable will be conducted using SPSS. For linearity to be considered as present, F statistic will be expected to be significant ($p<0.05$), that is less than 0.005.

iv. Test for Homoscedasticity: Heteroscedasticity is random dispersion or variability of point estimates of the dependent variable is across the values of independent variable that predicts it. Homoscedasticity is suggestive of equal levels of variability between dependent variables across a range of independent variables that are either categorical or continuous (Hair *et al.,* 2010). To test for homoscedasticity of variance, the levene test is conducted as per Nordstokke & Zumbo (2010) who opines that the probability values should be greater than 0.5 to meet the homoscedasticity assumption. In addition, the study assumed presence of homoscedasticity that is the variance of error terms being similar across the values of the independent variables. As observed by (Hayes & Scharkow, 2013), when this condition is not met (that is heteroscedasticity exists) the validity of inference is affected and the statistical power of hypothesis tests would be affected. Homoscedasticity was tested using Levine test within SPSS, with the focus being on the significance value of the statistic which was expected to be greater than 0.05 (non-significant) to avoid violation of the assumption, otherwise heteroscedasticity would have been implied.

v. Test for Multicollinearity: this is defined as high relationship between two or more independent variables (Midi *et al.,* 2011) when there is high Pearson correlation between two or several independent variables of more 0.8 then multicollinearity exist. According to Hair *et al.,* (2010) there is exist when Variance Inflation factor (VIF) is less than 10 while tolerance should be more than 0.2 for all variables. Therefore, in these study VIF and tolerance was used to check if non-monetary variables were highly correlated with each in regression model. Diagnosis will be done using Tolerance and VIF statistics.

Large VIF values and small tolerance values confirms the presence of Multicollinearity (Keith, 2006)

vi. Autocorrelation: Auto correlation occurs when the residuals are not independent from each other (Tabachnick & Fidell, 2001). The linear regression model was tested for autocorrelation using Durbin-Watson test. While Durbin Watson can assume values between 0 and 4, values around 2 indicate no autocorrelation. A conservative rule requires that values less than 1 and greater than 3 should raise an alarm. As a rule of thumb values of >1.5 and <2.5 show that there is no auto-correlation in the data (Field, 2009)

3.10 Ethical Consideration

Ethical considerations are the principles that a researcher should abide by when conducting research. The researcher obtained the introductory letter from the school of business as a bona fide student as well as a NACOSTI research permit which gives permission to collect data Therefore, it is important to consider it in any study because it involves data collection from people and about people in relation to moral choices affecting decisions, standards and behavior in conducting research (Punch, 2005). Through ethical considerations participant involved in the research are protected, trust is built with them, foster the quality and reliability of the research as well as safeguard the integrity of the researcher and the university. Some of the ethical concerns that should be considered when conducting the research include disclosing all the information to the respondents regarding the purpose of the study, being honest and sincere to the respondents as well as seeking consent to participate in the research from the respondents without compelling them at any point in time during the research process.

It was also the researcher's obligation to maintain confidentially of the respondents and that the resourceful information given was not used for any purpose other than for academics and at the same time not disclosing the identity of the respondents or participants in study more so for the reason that financial sector in Kenya is concentrated and that competition is indeed inevitable for firms operating in such a sector. Therefore, it is prudent for the researcher not to disclose the participants' information. As research involves a number of stages, researcher's objectivity is called for especially during data collection, analysis and report of findings (Zikmund*et al.,* 2010).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION OF FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter therefore presents the results and interpretations of various tests namely; response rate, data screening and cleaning, ANOVA test results, factor analysis, reliability test, descriptive results, correlation analysis, test of assumption of regression (normality, linearity, test of homogeneity of variances, multicollinearity and autocorrelation test) and finally test of hypotheses and the moderating effect. Moreover, the use of descriptive statistics in explaining the manifestations of the variables under study is explained. Mean scores have been used to show the extent of the manifestations of the variables across the responses.

4.2 Response Rate

Response rate of survey is significant concern in a study because it ensures the questionnaires collected are valid for data analysis (Hair *et al.*, 2010). Response rate defined by Hamilton (2009) as the percentage of respondents who participated in the survey from the sample size determined for the research. From table 4.1, out of total 396 distributed questionnaires to employees, 354 questionnaires were returned giving a response rate of 89.39%. However, after data screening and cleaning (checking for missing data and outliers) 20 questionnaires were found unusable (13 had missing values and 7 were outliers). Hence, the total response rate for usable questionnaires was 84.3%. According to Sekaran and Bougie (2010), response rate of 30% is acceptable for surveys. Hence the response rate of this study is adequate for further analysis.

Table 4.1: Response Rate of Questionnaires

Sample size	**Number**	**Percent**
Questionnaire Distributed	396	100.00
Questionnaire Returned	354	89.39
Questionnaire Not returned	42	10.6
Non usable questionnaire (missing data and outliers)	20	5.05
Usable questionnaire	**334**	**84.3**

Source; Field Data (2022)

4.3 Data Screening and Cleaning

The raw data was screened and cleaned before proceeding to analysis to ensure data accuracy and check for other potential problems according to guidelines provided by (Tabachnick & Fidell, 2013). On receipt of any completed questionnaires, they were prepared for screening and all the questionnaires were numbered to ensure they were accounted for. The questionnaires that were left blank were discarded. Moreover, data was converted into numeric codes and the researcher ensured these codes were exhaustive and mutually exclusive. A code book was then prepared in SPSS program to describe in specific detail the coding scheme to be followed. Use of code book was important because it helps to describe the code assignment for each response category of every item in the questionnaire (J. Hair *et al.*, 2010).

4.3.1 Missing Value and Treatment

Missing data (or missing values) is defined as the data value that is not stored for a variable in the observation of interest. The problem of missing data is relatively common in almost all research and can have a significant effect on the conclusions that can be drawn from the data (Graham, 2009). There are three typical mechanisms causing missing data: missing completely at random (MCAR); missing at random (MAR); and missing not at random (MNAR) (Dziura *et al.*, 2013). In this study, missing values were assessed using the MCAR technique.

Consequently, returned questionnaires were checked to ensure they had been properly filled. It is generally suggested that researchers may remove particular cases if they have more than 50 per cent of values missing (Hair, 2010). These cases can create substantial impacts on the rest of the observations (Tabachnick & Fidell, 2018). Therefore, the study omitted the 11 cases which had more than 50 per cent of missing values. After removing these cases, the study also treated the cases with less than 50 per cent of missing values. For the treatment of such missing values the study adopted Pallant (2011) method of replacing the mean by calculating the mean value for the variables and applying it to the missing value. The advantages include: that the option has fewer problems with convergence; the factor loading estimates are relatively free of bias; and the option is easy to implement by using any statistical program (Hair, 2010).

4.3.2 Outliers Detection and Treatment

Outliers are data that appear anomalous or outside the range of expected values. Outliers may indicate errors or data unrelated to the rest of the data set (Zhang, Meratnia & Havinga, 2010). In line with the recommendation of Tabachnick and Fidell (2018) this study used Mahalanobis D^2 measure to identify and deal with multivariate outliers. Additionally, handling multivariate outliers would take care of univariate outliers. However, treating univariate outliers would not necessarily take care of multivariate outliers (Hair*et al.,* 2010). Based on formula adopted from SPSS Survival Manual (Molloy, Genot, Ciechomski, & Bryant, 2001), Mahalanobis outlier detection method was used to detect outlier and found all variables within the range with the score of 29.02 (see table Table 4.2) and indicated that data had no substantial multivariate outlier).

Table 4.2: Mahalanobis Residuals Statistics

	Min	Max	Mean	Std. Deviation	N
Predicted Value	2.06	5.04	3.97	0.41	334
Std. Predicted Value	-4.65	2.59	0.00	1.00	334
Standard Error of Predicted Value	0.02	0.10	0.04	0.01	334
Adjusted Predicted Value	2.06	5.04	3.97	0.41	334
Residual	-1.27	0.84	0.00	0.32	334
Std. Residual	-3.97	2.63	0.00	0.99	334
Stud. Residual	-4.03	2.66	0.00	1.00	334
Deleted Residual	-1.30	0.86	0.00	0.32	334
Stud. Deleted Residual	-4.12	2.69	0.00	1.01	334
Mahal. Distance	**0.39**	**29.02**	**5.98**	**5.01**	**334**
Cook's Distance	0.00	0.06	0.00	0.01	334
Centered Leverage Value	0.00	0.09	0.02	0.02	334

Source; Field Data (2022)

4.4 Corporation Attribute

The study deemed it important to highlight the corporation attributes since these attributes have a bearing on their overall performance. Their attributes focused on institution within state corporation, number of employees and corporation age. The findings are as presented in table 4.3. Based on the findings in the table, 20.4% noted that they work in commercial state corporations, 10.2% commercial state corporations with strategic function, 32.6% executive agencies, 13.2% independent regulatory agencies, while 23.7% research institutions, public universities and tertiary education. This implies that there was equal distribution of the data among all categories of state corporations

In terms of the number of employees, 39.2% of the respondents are in a corporation with 1 to 500 employees, 51.8% are in a corporation with 501 to 1000 employees, 5.4% are in a corporation 1001 to 1500 employees, 2.4% in a corporation with 1501 to 2000 employees and 1.2% over 2001 employees. Notably, most firms have over 500 employees suggesting that the corporations could be experiencing significant

growth in their assets and size. Thus, the corporations are able to give an account of their adoption of technology and how leadership personality influences the link between technology context and overall firm performance.

Finally, 10.8% of the employees noted that the corporation has existed for 1 to 10 years, 24% of them stated that the corporation had existed for 11 to 20 years, 10.2% for 21 to 30 years, 43.4% noted that the corporation has been in operation for 31 to 40 years while 11.7% for over 40 years. Overall, most of the corporations have operated for over 30 years. The implication is that the corporations have been in operation long enough to give an accurate insight into how leader personality influences the relationship between technology context and firm performance.

Table 4.3: Corporation Attribute

		Respondents' population	Percentage
Institution within state corporation	Commercial state corporations	68	20.4
	commercial state corporations with strategic function	34	10.2
	executive agencies	109	32.6
	independent regulatory agencies	44	13.2
	research institutions, public universities and tertiary education	79	23.7
	Total	**334**	**100**
Number of Employees	1-500	131	39.2
	501-1000	173	51.8
	1001-1500	18	5.4
	1501-2000	8	2.4
	above 2001	4	1.2
	Total	**334**	**100**
Corporation age	1-10 years	36	10.8
	11-20 years	80	24
	21-30 years	34	10.2
	31-40 years	145	43.4
	above 40 years	39	11.7
	Total	**334**	**100**

Source; Field Data (2022)

4.5 ANOVA Test Results

Cross tabulation of categorical data was employed to test this relationship and to compare results between demographic characteristics and study variables through SPSS (Moore, *et al.,* 2013). In line with this study one-way analysis of variance (ANOVA) was used to determine whether there were any statistical significant differences between the means of demographic characteristics (firms type and size) and study variables (technology context and leaders' personality) (Winter 2011). In

ANOVA case, the F statistic was administered to determine which of the demographic variables or research objectives vary most significantly when compared to study variables (Seltman, 2012).

Furthermore, t-test was applied to determine if there was a significant difference between the means of gender on study variables. T-test helps to compare the average values of the two data sets and determine if they came from the same population (Seltman,2012). For statistical significant, a P-value of equal or smaller than 0.05 also known as 95% confidence level was used.

In this study, the main idea was to compares means of technology context construct (Technology relative advantage, Technology compatibility, Technology complexity and Technology trialability) and leader personality (Leader Extraversion, Leader Neuroticism and Leader OTE) against corporation type, size and age in finding how far the mean different are, but how far apart they are relative to the variability of individual observations

4.5.1 Corporation Type and Technology Context

The study used ANOVA to show the statistical differences between corporation type and technology context. Table 4.4 shows that technology relative advantage was exhibited more from commercial state corporations than research institutions, public universities, and tertiary education. However, there was no significant difference between technology relative advantage and corporation type ($F= 0.72$, $\rho=0.58 >0.05$). Also, there is no significant difference between technology compatibility and corporation type ($F= 1.29$, $\rho=0.42>0.05$). It, therefore, means that there is no significant difference in the technology compatibility across the different state corporations. This implies that the implementation of technology relative advantage

and technology compatibility in state corporation does not vary with type of corporations.

In addition, there is a statistically significant difference between technology complexity and corporation type (F= 2.96, ρ=0.02<0.05). Further, on the same, there are higher levels of technology complexity among executive agencies (mean = 3.76) compared to independent regulatory agencies (Mean = 3.47). The implication is that corporations exploit the complexities of technologies to varying extents. This showed that technology complexity available in state corporations varies with type of the corporation.

Finally, technology trialability was higher in independent regulatory agencies (mean = 3.74) than commercial state corporations with strategic functions (mean = 3.45). Moreover, there was a statistically significant difference between technology trialability and corporation type (F= 2.47, $\rho < 0.05$). This implies that Technogym trialability in state corporation will vary with type of the corporations.

Table 4.4: Corporation Type and Technology Context

		Descriptive		ANOVA	
		Mean	**Std. Dev**	**F**	**Sig.**
Technology relative advantage	Commercial state corporations	3.87	0.59	0.72	0.58
	commercial state corporations with strategic function	4.00	0.69		
	executive agencies	3.86	0.61		
	independent regulatory agencies	3.95	0.86		
	research institutions, public universities and tertiary education	3.80	0.69		
	Total	**3.87**	**0.67**		
Technology compatibility	Commercial state corporations	3.59	0.60	1.29	0.27
	commercial state corporations with strategic function	3.71	0.58		
	executive agencies	3.63	0.67		
	independent regulatory agencies	3.86	0.77		
	research institutions, public universities and tertiary education	3.63	0.74		
	Total	**3.66**	**0.68**		
Technology complexity	Commercial state corporations	3.65	0.48	2.96	0.02
	commercial state corporations with strategic function	3.54	0.46		
	executive agencies	3.76	0.46		
	independent regulatory agencies	3.47	0.68		
	research institutions, public universities and tertiary education	3.62	0.56		
Technology trialability	Commercial state corporations	3.54	0.45	2.47	0.05
	commercial state corporations with strategic function	3.45	0.41		
	executive agencies	3.49	0.62		
	independent regulatory agencies	3.74	0.76		
	research institutions, public universities and tertiary education	3.68	0.67		
	Total	**3.57**	**0.61**		

Source; Field Data (2022)

4.5.2 Corporation Size and Technology Context

ANOVA was performed to establish if there is a significant difference between corporation size and technology context. Table 4.5 highlights the results. The independent between-groups ANOVA yielded a statistically significant difference between technology relative advantage and the corporation size, F = 6.65, p =.00. The

results suggest that technology relative advantage tended to decline with increased corporation size, albeit this was not the case for firms with over 2001 employees.

Moreover, there was a statistically significant difference between technology compatibility and corporation size, $F = 3.88$, $p = .00$. The implication is that the corporation size influences the technology compatibility. This infers that size of the corporation will determine availability of technology compatibility in state corporation

Further, there was no statistically significant difference between technology complexity and corporation size, $F = 1.51$, $p = 0.20$. this indicate that technology complexity in state corporations will likely not depend or vary with size of the corporation

Finally, the independent between-groups ANOVA yielded a statistically significant difference between technology trialability and corporation size, $F = 3.05$, $p = .02$. Thus, presence and implementation of technology trialability in state corporations will depend and vary with it size.

Table 4.5: Corporation Size and Technology Context

		Descriptive		ANOVA	
		Mean	**Std. Dev**	**F**	**Sig.**
Technology relative advantage	1-500	4.02	0.67	6.65	0.00
	501-1000	3.79	0.62		
	1001-1500	3.61	0.61		
	1501-2000	3.30	1.08		
	above 2001	4.80	0.00		
	Total	**3.87**	**0.67**		
Technology compatibility	1-500	3.73	0.66	3.88	0.00
	501-1000	3.62	0.69		
	1001-1500	3.66	0.51		
	1501-2000	3.10	0.83		
	above 2001	4.60	0.00		
	Total	**3.66**	**0.68**		
Technology complexity	1-500	3.64	0.55	1.51	0.20
	501-1000	3.67	0.49		
	1001-1500	3.63	0.39		
	1501-2000	3.20	1.00		
	above 2001	3.63	0.00		
	Total	**3.64**	**0.53**		
Technology trialability	1-500	3.68	0.60	3.05	0.02
	501-1000	3.47	0.62		
	1001-1500	3.76	0.41		
	1501-2000	3.55	0.58		
	above 2001	3.80	0.00		
	Total	**3.57**	**0.61**		

Source; Field Data (2022)

4.5.3 Corporation Age and Technology Context

ANOVA was performed to determine if there is a significant difference between corporation age and technology context. Table 4.6 highlights the findings. The results showed a significant difference between technology relative advantage and corporation age ($F= 15.31$, $\rho=0.00< 0.05$). The implication is that technology relative advantage varies with firm age. Also, there is a statistically significant difference between technology compatibility and corporation age ($F= 21.99$, $\rho=0.00<0.05$). Specifically, corporations that had operated for a period ranging from 11 to 30 years exhibited higher levels of technology compatibility. Similarly, there is a statistically significant difference between technology complexity and corporation age ($F= 6.19$,

ρ=0.00<0.05). It means that the manner in which firms handle technology complexity varies with age. Finally, there is a statistically significant difference between technology trialability and corporation age (F= 4.24, ρ=0.00<0.05). It implies that the degree to which the corporations' experiment on technologies varies with age.

Table 4.6: Corporation Age and Technology Context

		Descriptive		ANOVA	
		Mean	**Std. Dev**	**F**	**Sig.**
Technology relative advantage	1-10 years	3.66	0.62	15.31	0.00
	11-20 years	4.26	0.63		
	21-30 years	4.16	0.52		
	31-40 years	3.65	0.59		
	above 40 years	3.86	0.75		
	Total	**3.87**	**0.67**		
Technology compatibility	1-10 years	3.56	0.66	21.99	0.00
	11-20 years	4.09	0.66		
	21-30 years	4.04	0.58		
	31-40 years	3.36	0.58		
	above 40 years	3.68	0.57		
	Total	**3.66**	**0.68**		
Technology complexity	1-10 years	3.46	0.54	6.19	0.00
	11-20 years	3.84	0.55		
	21-30 years	3.73	0.29		
	31-40 years	3.61	0.51		
	above 40 years	3.44	0.54		
	Total	**3.64**	**0.53**		
Technology trialability	1-10 years	3.56	0.43	4.24	0.00
	11-20 years	3.75	0.74		
	21-30 years	3.61	0.33		
	31-40 years	3.44	0.63		
	above 40 years	3.71	0.43		
	Total	**3.57**	**0.61**		

Source; Field Data (2022)

4.5.4 Corporation Type and Leader Personality

The study used ANOVA to show the statistical differences between corporation type and leader personality. From the findings in table 4.7, technology relative advantage was exhibited more from independent regulatory agencies (mean = 4.03) compared to research institutions, public universities and tertiary education (mean = 3.50). Overall,

there was a significant difference between leader personality and corporation type (F= 4.83, ρ=0.00 >0.05).

Also, there was a significant difference between leader neuroticism and corporation type (F= 2.52, ρ=0.04>0.05). Commercial state corporations tended to exhibit higher leader neuroticism levels than the other corporation types. In addition, there is a statistically significant difference between leader openness to experience and corporation type (F= 3.44, ρ=0.01<0.05). Further, on the same, there are higher levels of leader openness to experience among commercial state corporations (mean = 4.08) compared to independent regulatory agencies (mean = 3.75).

Table 4.7: Corporation Type and Leader Personality

		Descriptive		ANOVA	
		Mean	Std. Dev	F	Sig.
Leader Extraversion	Commercial state corporations	3.75	0.61	4.83	0.00
	commercial state corporations with strategic function	3.74	0.64		
	executive agencies	3.66	0.65		
	independent regulatory agencies	4.03	0.77		
	research institutions, public universities and tertiary education	3.50	0.62		
	Total	**3.70**	**0.67**		
Leader Neuroticism	Commercial state corporations	4.14	0.58	2.52	0.04
	commercial state corporations with strategic function	4.08	0.51		
	executive agencies	4.03	0.60		
	independent regulatory agencies	3.78	0.85		
	research institutions, public universities and tertiary education	4.00	0.47		
	Total	**4.02**	**0.60**		
Leader OTE	Commercial state corporations	4.11	0.42	3.44	0.01
	commercial state corporations with strategic function	4.08	0.42		
	executive agencies	4.00	0.50		
	independent regulatory agencies	3.75	0.84		
	research institutions, public universities and tertiary education	3.98	0.40		
	Total	**3.99**	**0.52**		

Source; Field Data (2022)

4.5.5 Corporation Size and Leader Personality

The study utilized ANOVA TO ascertain whether there exists a significant difference between corporation size and leader personality. The findings in table 4.8 showed a statistically significant difference between leader extraversion and the corporation size, F = 6.82, p =.00. However, there was no statistically significant difference between leader neuroticism and corporation size, F = 2.26, p =.06. The implication is that the corporation size did not influence leader neuroticism. Finally, there was no statistically significant difference between leader openness to experience and corporation size, F = 0.86, p =. 0.49.

Table 4.8: Corporation Size and Leader Personality

		Descriptive		ANOVA	
		Mean	**Std. Dev**	**F**	**Sig.**
Leader Extraversion	1-500	3.91	0.71	6.82	0.00
	501-1000	3.55	0.60		
	1001-1500	3.44	0.50		
	1501-2000	3.83	0.79		
	above 2001	4.00	0.00		
	Total	**3.70**	**0.67**		
Leader Neuroticism	1-500	4.07	0.62	2.26	0.06
	501-1000	3.99	0.57		
	1001-1500	4.11	0.64		
	1501-2000	3.84	0.94		
	above 2001	3.25	0.00		
	Total	**4.02**	**0.60**		
Leader OTE	1-500	4.02	0.60	0.86	0.49
	501-1000	4.00	0.45		
	1001-1500	3.88	0.54		
	1501-2000	3.91	0.70		
	above 2001	3.63	0.00		
	Total	**3.99**	**0.52**		

Source; Field Data (2022)

4.5.6 Corporation Age and Leader Personality

ANOVA was performed to determine if there is a significant difference between corporation age and leader personality. From the findings in table 4.9, there was a statistically significant difference between leader extraversion and corporation age

(F= 29.15, ρ=0.00>0.05). Besides, there was a statistically significant difference between leader neuroticism and corporation age (F= 5.67, ρ=0.00<0.05). Specifically, corporations that had operated for the period ranging from 11 to 30 years exhibited higher levels of leader neuroticism. Finally, there was a statistically significant difference between leader openness to experience and corporation age (F= 15.43, ρ=0.00<0.05). It, therefore, means that there is a significant difference in leaders' openness to experience across firms of varying ages.

Table 4.9: Corporation Age and Leader Personality

		Descriptive		ANOVA	
		Mean	Std. Deviation	F	Sig.
Leader Extraversion	1-10 years	3.54	0.55	29.15	0.00
	11-20 years	4.26	0.66		
	21-30 years	3.81	0.53		
	31-40 years	3.41	0.55		
	above 40 years	3.64	0.53		
	Total	3.70	0.67		
Leader Neuroticism	1s-10 years	3.88	0.70	5.67	0.00
	11-20 years	4.23	0.68		
	21-30 years	4.08	0.59		
	31-40 years	3.88	0.51		
	above 40 years	4.15	0.55		
	Total	4.02	0.60		
Leader OTE	1-10 years	3.61	0.76	15.43	0.00
	11-20 years	4.31	0.59		
	21-30 years	4.00	0.30		
	31-40 years	3.90	0.36		
	above 40 years	4.02	0.42		
	Total	3.99	0.52		

Source; Field Data (2022)

4.6 Factor Analysis of the Study Variables

According to Field (2013), Principal Components Analysis (PCA) is a variable-reduction technique that aims to reduce a larger set of variables into a smaller set of variables, called principal components, which account for most of the variance in the original variables. Principal component analysis is concerned with establishing which linear components exist within the data and how a particular variable might contribute

to that component. Principal Component Method was used to analyze the factors that loaded highly and therefore measured union organizing, collective bargaining, contract administration, union-management cooperation, employee performance and engagement. This was done so as to remove the factors that had weak or negative loading and to enhance reliability of data. In addition, the validity of the instrument was measured through Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity (Abd ElHafeez et al, 2022). The component factor analysis with varimax rotation was conducted in all variables to extract factors from each construct. According to Hair *et al.,* (2015) all items loading below 0.50 were deleted and those with more than 0.50 loading factor retained. The items were well loaded into their various underlying variable structure of dimensions. The findings were summarized and discussed under this section.

4.6.1 Factor Analysis for Technology Context

The factor analysis results for technology context are presented in Table 4.10. The factor loading scores showed that all the technology relative advantage items were above the minimum recommended value of 0.50 (Hair *et al.,* 2014). Further, the factor analysis results revealed an Eigenvalue of 2.57 above the accepted value of 1 (Yong & Pearce, 2013) and a cumulative extracted variance of 51.36%. Thus, the items were appropriate to explain the variable. Moreover, Bartlett's Test of Sphericity produced a significant Chi-Square (χ^2) of 366.88 (ρ<0.05) and Kaiser – Meyer - Olkin measure of sampling adequacy was 0.804 above the acceptable value of 0.000 (Field, 2005), showing that it was appropriate to subject data for factor analysis on this variable of technology relative advantage.

Further, the factor loadings scores showed that all technology compatibility items were above 0.5. Hence, they were retained for further analysis. Besides, the items on technology compatibility had an Eigen value of 2.64 which was above the accepted value of 1 with a cumulative variance of 52.76%. Additionally, the Kaiser-Meyer-Olkin Measure value (.754) was above .5 hence acceptable. Also, the Bartlett's Test was significant.

Regarding technology complexity, the factor loading scores showed that all the items were all above the minimum recommended value of 0.50. Besides, the factor analysis results for technology complexity revealed an Eigen value of 3.47 which is above the accepted value of 1 and a cumulative extracted variance of 43.38%. Thus, the items were appropriate to explain the variable. Sampling adequacy was tested using the Kaiser- Meyer- Olkin Measure (KMO measure) of sampling adequacy. As evidenced in Table 4.10, KMO was greater than 0.5, and Bartlett's Test was significant. The factor analysis results of technology trialability indicated that the KMO was 0.640 and Bartlett's Test of sphericity was significant ($p<.05$). Further, Further, the factor analysis results revealed an Eigen value of 2.417, which is above the accepted value of 1 and cumulative extracted Variance of 48.336%. In addition, all the statements on technology trialability were retained for further analysis (Yong & Pearce, 2013).

Table 4.10: Factor Analysis for Technology Context

Component	loadings	Extraction Sums of Squared Loadings Eigen value	% Of Variance	Cum %
Technology relative advantage (KMO=.804, BTS (χ^2 =366.88, p=000		**2.57**	**51.36**	**51.36**
The electronic portal reduces the time to accomplish tasks	0.73			
The electronic portal improves the quality of our work	0.61			
Using the electronic portal improves our job performance	0.71			
Using the electronic portal increases our productivity	0.74			
Using the electronic portal makes it easier to do our job	0.78			
Technology Compatibility (KMO=.754, BTS (χ^2 =453.424, p=000		**2.64**	**52.76**	**52.76**
The electronic portal is compatible with the existing IT	0.72			
The electronic portal is compatible with the overall operation of the parastatals	0.55			
The electronic portal fits the firm's need	0.82			
Using online service fits well with the way I like to control and manage my transactions.	0.78			
I use the online service because these are already a part of my daily life.	0.74			
Technology Complexity (KMO=.805, BTS (χ^2 =763.902, p=000))		**3.47**	**43.38**	**43.38**
I find ease in learning to use online services to accomplish desired tasks	dropped			
Interacting with online service does not require a lot of mental effort	0.70			
It is easy to use online service to accomplish my transactions	0.66			
Use of online service does not require any training	0.53			
It is easy to get social media to undertake desired tasks	0.74			
It is easy to develop/acquire skills using social media for business purposes.	0.70			
Social media is flexible to interact with	0.69			
Social media platforms are easy to use.	0.72			
Technology Trialability (KMO=.640, BTS (χ^2 =448.251, p=000))		**2.417**	**48.336**	**48.336**
I have tested the application of online service system before	0.51			
I agree with the experiment of online service technology usability	0.65			
It is easy to integrate social media with my existing business platform	0.78			
I am able to properly try out social media applications before use	0.80			
The cost of trying social media for business purpose is relatively low compared with other platforms	0.71			

Source; Field Data (2022)

4.6.2 Factor Analysis for Leader personality

The factor analysis results for leader personality are presented in Table 4.11. The results depicted that factor loading scores for leader extraversion were above the minimum recommended value of 0.50 (Hair *et al.*, 2014). Besides, the factor analysis

results revealed that the items on leader extraversion had an Eigen value of 2.99, which is above the accepted value of 1 (Yong & Pearce, 2013) and cumulative extracted variance of 49.91%. Thus, the items were appropriate to explain the variable. Moreover, the Kaiser-Meyer-Olkin Measure value (.820) was above .5 hence acceptable. Also, the Bartlett's Test was significant.

In addition, the findings depicted that factor loadings of leader neuroticism items were all above the minimum recommended value of 0.50. Further, the items on leader neuroticism had an Eigen value of 1.87, which is above the accepted value of 1and a cumulative extracted variance of 46.69%. Moreover, Bartlett's Test of Sphericity produced a significant Chi-Square (χ^2) of 559. (ρ<.05) and Kaiser – Meyer - Olkin measure of sampling adequacy was 0.820 above the acceptable value of .50 (Field, 2005), showing that it was appropriate to subject data for factor analysis on this variable. Finally, the factor loadings scores showed that all leader openness to experience items were above 0.5 hence they were retained for further analysis. Besides, the items on leader openness to experience had an Eigen value of 3.59 which was above the accepted value of 1 with a cumulative variance of 44.92%. Additionally, the Kaiser-Meyer-Olkin Measure value (.797) was above .5 hence acceptable. Also, the Bartlett's Test was significant.

Table 4.11: Factor Analysis for Leader personality

Component	loadings	Extraction Sums of Squared Loadings Eigne value	% Of Variance	Cumulative %
Leader Extraversion (KMO=.820, BTS (χ^2 =559.707, p=000		2.99	49.91	49.91
Our leader communicates to employees effectively and ensures that people understand their jobs	0.81			
Our leader has a strong networking ability	0.79			
Our leader demonstrates strong concern for the growth of people through delegation and mentoring	0.75			
Our leader is understanding and promotes teamwork	0.68			
Our leader entrusts employees with some degree of decision making	0.54			
Our leader builds employees respect and encourages them to focus on the welfare of the group	0.62			
Neuroticism (KMO=.820, BTS (χ^2 =559.707, p=000		1.87	46.69	46.69
Our leader likes determining standards for task performance	0.64			
Our leader treats employees fairly; considering personal feelings before acting	0.70			
Our leader is always calm when under pressure	0.66			
Our leader feels secure at work place under all circumstances	0.73			
Openness To New Experiences (KMO=0.797, BTS (χ^2 =866.765, p=000))		3.59	44.92	44.92
Our leader is confident in his/her abilities	0.57			
Our leader is predictable at all times	0.55			
Our leader is able to handle stress	0.52			
Our leader is interested in creativity and new ideas	0.73			
Our leader encourages employees to be innovative	0.75			
Our leader is visionary in nature	0.68			
Our leader appreciates others and their work	0.76			
Our leader is open-minded to new and different ways of working	0.75			

Source; Field Data (2022)

4.6.3 Firm Performance

Factor analysis for firm performance was conducted to ensure that all of the constructs used are valid and reliable before further analysis. The factor loading scores showed that all the firm performance items were above the minimum

recommended value of 0.50. The factor analysis results also revealed a cumulative extracted variance of 50.8%. Sampling adequacy was tested using the Kaiser- Meyer-Olkin Measure (KMO measure) of sampling adequacy. As evidenced in Table 4.12, KMO was greater than 0.5, and Bartlett's Test was significant.

Table 4.12: Factor Analysis for Firm Performance

	Loadings
Our operational performance (e.g., safety, on time delivery, cycle time) has improved	0.76
Our product and service innovations (e.g., new service products, service development cycle time) have improved	0.72
Our relationship with customers (e.g., customer satisfaction, customer loyalty) has improved	0.70
Our relationship with employees (e.g., employee's' turnover, employee's satisfaction) has improved	0.67
Our relationship with suppliers (e.g., input into product/service design, on time delivery) has improved	0.70
Our alliances with other organizations (e.g., joint ventures, joint marketing) has grown	0.75
Our community (e.g., public image, community involvement) has improved	0.75
Our environmental (e.g., environmental compliance/certifications) has improved	0.66
KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.88
Bartlett's Test of Sphericity	978.03
Df	28
Sig.	0.000
Extraction Sums of Squared Loadings	
Total	4.06
% of Variance	50.80
Cumulative %	50.80
Extraction Method: Principal Component Analysis.	

a 1 component extracted.

Source; Field Data (2022)

4.6.4 Reliability Analysis

The reliability of a measure indicates the extent to which it is without bias (error-free), hence ensuring stability and consistency of measurement. (Koonce & Kelly, 2014; Sekeran. 2003; Saunders *et al.*, 2009). To determine the internal consistency of the data collection tool, an assessment was undertaken using Cronbach's alpha value attributed to Cronbach (1951). The focus was on the variables measured using items

comprised of Likert type questions. (Rovai, Baker & Ponton, 2013). The conventionally accepted level of reliability measure is 0.70 (Rovai et al, 2013; Sekeran and Bougie, 2010).

From the results in Table 4.13, the Cronbach alpha for each variable based on the average of inter-item correlation was above .70 with the highest Cronbach alpha value observed in leader personality (.88), whereas the lowest value was .70 for leader neuroticism. Therefore, any Cronbach alpha value of more than .70 is a reliable measure for the construct under consideration. Thus, the results met the required threshold for further analysis as documented in the subsequent sections of this thesis document (Campbell, 2015).

Table 4.13: Reliability

	Reliability Statistics		
Variables	**Cronbach's Alpha**	**Cronbach's Alpha Based on Standardized Items**	**N of Items**
Technology context	0.86	0.86	22
Technology Relative Advantage	0.76	0.76	5
Technology Compatibility	0.77	0.77	5
Technology Complexity	0.80	0.81	7
Technology trialability	0.73	0.73	5
leader personality	0.88	0.89	18
Leader Extraversion	0.80	0.79	6
Neuroticism	0.70	0.70	4
Open to new experience	0.82	0.82	8
firm performance	0.86	0.86	8

Source; Field Data (2022)

4.7 Descriptive statistics

The following section presents the descriptive analyses for the study variables. Descriptive statistics only make statements about the set of data from which they were calculated (Seltman, 2012). In general, data was summarized, in order to find Standard Deviation, Mean, Skewness and Kurtosis. Mean was considered for making

comparisons between variables. Standard deviation (SD) was applied to summarizes how far away the data values were dispersed from the mean (Cooper *et al.,* 2006). At low standard deviation indicates that the values tend to be close to the mean of the set, while a high standard deviation indicates that the values are spread out over a wider range (Kopper 2002). SD was used to improve interpretation by removing the variance square and expressing the deviations in their original units

4.7.1 Technology Relative Advantage

Technology relative advantage is how technology is viewed as superior to the idea it replaces. These technologies are expected to facilitate internet-related businesses. The study deemed it important to ascertain the effect of technology relative advantage on firm performance. Table 4.14 presents the findings. Notably, the results indicated that the electronic portal in the state corporations reduces the time required to accomplish tasks (mean = 4.22, SD = 0.72). Therefore, the technology is prominent compared to the system it replaced within the state corporations. Other than that, the electronic portal improves the quality of employees' work (mean = 3.93, SD = 0.85) and their overall job performance (mean = 3.98, SD = 0.74). Further, the electronic journal increases employees' productivity (mean = 4.02, SD = 0.73) and makes it easier for them to do their job (mean = 3.87, SD = 0.67). In a nutshell, the findings on technology relative advantage summed up to a mean of 3.87, standard deviation of 0.67, skewness -0.51 and kurtosis 0.85. The implication is that the electronic journal offered a relative advantage compared to previous technologies utilized within the state corporations.

Table 4.14: Technology Relative Advantage

	Mean	Std. Dev	Skewness	Kurtosis
The electronic portal reduces the time required to accomplish tasks	4.22	0.72	-1.42	4.34
The electronic portal improves the quality of our work	3.93	0.85	-0.68	0.08
Using the electronic portal improves our job performance	3.98	0.74	-0.68	1.21
Using the electronic portal increases our productivity	4.02	0.73	-0.46	0.14
Using the electronic portal makes it easier to do our job	4.05	0.71	-0.53	0.42
Technology Relative Advantage	**3.87**	**0.67**	**-0.51**	**0.85**

Source; Field Data (2022)

4.7.2 Technology Compatibility

Sarkar (2009) defines technology compatibility as the degree to which an innovation is viewed as consistent with the potential adopter's current values, needs and experiences. It is anticipated that firms would adopt technologies that are in line with certain internal experiences and values. The study sought to establish technology compatibility in the targeted stated corporations in Kenya. The findings in table 4.15 show that the electronic portal is compatible with the existing IT infrastructure (mean = 3.86, SD = 0.78). Specifically, the electronic portal is compatible with the overall operation of the parastatals (mean = 3.77, SD = 0.82).

Besides, the electronic portal fits the firms' need (mean = 3.58, SD = 0.92). Similarly, the use of online services fits well with the way employees like to control and manage their transactions (mean = 3.84, SD = 0.95). Further, employees have embraced the online service such that it is now a part of their day life (mean = 3.81, SD = 0.85). Generally, the items on technology compatibility had an overall mean of 3.66, a standard deviation of 0.68, skewness -0.25 and kurtosis 0.21. It means that the technology in the state corporations is compatible with their operations and fits well with the corporations' specific needs.

Table 4.15: Technology Compatibility

	Mean	Std. Deviation	Skewness	Kurtosis
The electronic portal is compatible with the existing IT infrastructure	3.86	0.78	-0.36	-0.17
The electronic portal is compatible with the overall operation of the parastatals	3.77	0.82	-0.42	0.09
The electronic portal fits the firm's need	3.58	0.92	-0.34	-0.63
Using online service fits well with the way I like to control and manage my transactions.	3.84	0.95	-0.64	-0.13
I use the online service because these are already a part of my daily life.	3.81	0.85	-0.51	-0.21
Technology compatibility	**3.66**	**0.68**	**-0.25**	**0.21**

Source; Field Data (2022)

4.7.3 Technology Complexity

The study contextualizes technology compatibility as the ease with which firms can understand technology and integrate it in their processes. From the finding in Table 4.16, the employees noted that interacting with online services does not require much mental effort (mean = 3.57, SD = 0.90). Also, it is easy to use online services to accomplish their transactions (mean = 3.72, SD = 0.90). Besides, employees find it easier to get social media to undertake desired tasks (mean = 3.72, SD = 0.85). The employees also found it easier to acquire skills using social media for business purposes (mean = 3.79, SD = 0.73). Moreover, they found social media flexible to interact with (mean = 3.95, SD = 0.73). Similarly, the employees termed social media platforms easy to use (mean = 3.88, SD = 0.67). However, the employees were not sure if online services required any training. Overall, technology complexity summed up to a mean of 3.64, a standard deviation of 0.53, skewness -1.05 and kurtosis 3.39. It means that the technology within the state parastatals is not complex and that employees can easily utilize it in the firms' operations.

Table 4.16: Technology Complexity

	Mean	Std. Dev	Skewness	Kurtosis
Interacting with online service does not require a lot of mental effort	3.57	0.90	-0.89	1.24
It is easy to use online service to accomplish my transactions	3.72	0.90	-1.10	1.25
Use of online service does not require any training	3.30	0.98	-0.82	-0.16
It is easy to get social media to undertake desired tasks	3.72	0.85	-1.16	1.88
It is easy to develop/acquire skills using social media for business purposes.	3.79	0.73	-1.23	1.96
Social media is flexible to interact with	3.95	0.73	-0.94	1.93
Social media platforms are easy to use.	3.88	0.67	-0.71	1.58
Technology complexity	**3.64**	**0.53**	**-1.05**	**3.39**

Source; Field Data (2022)

4.7.4 Technology Trialability

Trialability is the degree to which an innovation may be experimented with on a limited basis. Table 4.17 highlights the results on technology trialability in the state corporations in Kenya. Evidently, the employees have tested the application of the online service system before use (mean = 3.78, SD = 0.73). Also, the employees agreed with the experiment of online service technology usability (mean = 3.74, SD = 0.70). Further, it was easier for them to integrate social media with their existing business platform (mean = 3.62, SD = 0.80). However, the employees had doubts about their ability to try out social media applications before use properly (mean = 3.39, SD = 1.05). Similarly, they were not sure if the cost of trying social media for business purposes is relatively low compared with other platforms (mean = 3.06, SD = 1.02). In a nutshell, the results on technology trialability summed up to a mean of 3.57, standard deviation of 0.61, skewness 0.56 and kurtosis 0.49. The implication is that there were gaps in technology trialability in the state corporations. Thus, there might be difficulties trying certain forms of technologies within the corporations.

Table 4.17: Technology Trialability

	Mean	Std. Dev	Skewness	Kurtosis
I have tested the application of online service system before use	3.78	0.73	-1.10	1.76
I agree with the experiment of online service technology usability	3.74	0.70	-0.96	1.90
It is easy to integrate social media with my existing business platform	3.62	0.80	-0.34	0.41
I am able to properly try out social media applications before use	3.39	1.05	0.03	-1.11
The cost of trying social media for business purpose is relatively low compared with other platforms	3.06	1.02	0.27	-1.13
Technology trialability	**3.57**	**0.61**	**0.56**	**0.49**

Source; Field Data (2022)

4.7.5 Leader Extraversion

Leader extraversion encompasses the traits of assertiveness, boldness and dominance that can offer advantages such as a clear authority structure and direction within an organization. In this regard, the study examined leader extraversion in the state corporations in Kenya. From the findings in Table 4.18, the respondents noted that their leader communicates effectively and ensures that they understand their jobs (mean = 3.57, SD = 1.05). Besides, their leaders demonstrate strong concern for the growth of people through delegation and mentoring (mean = 3.73, SD = 0.96). As well, their leader is understanding and promotes teamwork (mean = 3.97, SD = 0.72). Other than that, their leader entrusts employees with some degree of decision making (mean = 4.00, SD = 0.65).

Further, their leader builds employees respect and encourages them to focus on the group's welfare (mean = 3.72, SD = 0.73). However, it was unclear if their leader had a strong networking ability. Overall, the findings on leader extraversion summed up to a mean of 3.70, a standard deviation of 0.67, skewness 0.38 and kurtosis -0.46. It means that the leaders communicate effectively with employees and demonstrate strong concern for employees' growth. Besides, the leaders understand, involve

employees to some degree in decision-making, and promote teamwork. There are, however, gaps in leaders networking ability.

Table 4.18: Leader Extraversion

	Mean	Std. Dev	Skewness	Kurtosis
Our leader communicates to employees effectively and ensures that people understand their jobs	3.57	1.05	-0.05	-1.18
Our leader has a strong networking ability	3.40	1.13	-0.09	-1.31
Our leader demonstrates strong concern for the growth of people through delegation and mentoring	3.73	0.96	-0.65	-0.10
Our leader is understanding and promotes teamwork	3.97	0.72	-0.63	1.24
Our leader entrusts employees with some degree of decision making	4.00	0.65	-0.92	3.45
Our leader builds employees respect and encourages them to focus on the welfare of the group	3.72	0.73	-0.17	0.07
Leader Extraversion	**3.70**	**0.67**	**0.38**	**-0.46**

Source; Field Data (2022)

4.7.6 Leader Neuroticism

Neurotic leaders are willing to go to greater lengths to succeed and are often motivated to work hard on behalf of the group. In that regard, the study sought to determine if there is leader neuroticism in the state corporations in Kenya and its potential influence on the corporation's performance. Table 4.19 highlights the findings. Notably, the employees confirmed that their leaders like determining standards for task performance (mean = 3.94, SD = 0.73). Also, the leaders treat them fairly, taking into account their personal feelings before acting (mean = 4.04, SD = 0.67). Moreover, their leader is always calm when under pressure (mean = 3.92, SD = 0.70). Further, their leader feels secure at workplace under all circumstances (mean = 3.89, SD = 0.76). Leader neuroticism summed up to a mean of 4.02, a standard deviation of 0.60, skewness of -0.32 and kurtosis of 0.47. The implication is that leaders determine the standards for task performance, treat employees fairly, consider

employees' feelings before acting and are always calm under pressure. Finally, the leaders feel secure at the workplace under all circumstances.

Table 4.19: Leader Neuroticism

	Mean	Std. Dev	Skewness	Kurtosis
Our leader likes determining standards for task performance	3.94	0.73	-0.52	0.64
Our leader treats employees fairly; considering personal feelings before acting	4.04	0.67	-0.77	1.97
Our leader is always calm when under pressure	3.92	0.70	-0.88	2.05
Our leader feels secure at work place under all circumstances	3.89	0.76	-1.05	2.40
Leader Neuroticism	4.02	0.60	-0.32	0.47

Source; Field Data (2022)

4.7.7 Leader Openness to Experience

Leaders possessing openness to experience have traits such as imagination, broad-mindedness and curiosity. They tend to seek new experiences and incorporate new ways of doing things at the organizational level. The study thus sought to determine leader openness to experience in the state corporations in Kenya. As shown in Table 4.20, the employees noted that their leader is confident in their abilities (mean = 4.04, SD = 0.71). Also, the leader is predictable at all times (mean = 3.84, SD = 0.76) and able to handle stress (mean = 3.98, SD = 0.64). Besides, their leader is interested in creativity and new ideas (mean = 4.14, SD = 0.71). Further, their leader encourages employees to be innovative (mean = 4.12, SD = 0.76). Moreover, their leader is visionary in nature (mean = 3.92, SD = 0.81) and appreciates others and their work (mean = 4.04, SD = 0.76). Additionally, their leader is open-minded to new and different working methods (mean = 4.02, SD = 0.70). Leader openness to experience summed up to a mean of 3.99, a standard deviation of 0.52, skewness of -1.04 and kurtosis of 3.61. The implication is that the leaders in state corporations are confident

in their ability, predictable, creative, innovative, visionary, open-minded and appreciative of others.

Table 4.20: Leader Openness to Experience

	Mean	Std. Dev	Skewness	Kurtosis
Our leader is confident in his/her abilities	4.04	0.71	-0.77	1.49
Our leader is predictable at all times	3.84	0.76	-1.52	3.56
Our leader is able to handle stress	3.98	0.64	-1.51	5.90
Our leader is interested in creativity and new ideas	4.14	0.71	-1.59	5.86
Our leader encourages employees to be innovative	4.12	0.76	-1.31	3.49
Our leader is visionary in nature	3.92	0.81	-0.66	0.89
Our leader appreciates others and their work	4.04	0.76	-0.68	0.73
Our leader is open-minded to new and different ways of working	4.02	0.70	-1.52	5.12
Leader OTE	**3.99**	**0.52**	**-1.04**	**3.61**

Source; Field Data (2022)

4.7.8 Firm Performance

The study sought to ascertain the firm performance of the state corporations in Kenya. As evidenced in Table 4.21, the employees noted that their operational performance (e.g., safety, on-time delivery, cycle time) had improved (mean = 4.05, SD = 0.70). Besides, the corporations' product and service innovations (e.g., new service products, service development cycle time) had improved (mean = 3.99, SD = 0.70). Moreover, the corporations' relationship with customers (e.g., customer satisfaction, customer loyalty) had improved (mean = 4.03, SD = 0.67). Further, their relationship with employees (e.g., employees' turnover, employees' satisfaction) had improved (mean = 4.04, SD = 0.73).

In addition, their relationship with suppliers (e.g., input into product/service design, on-time delivery) had improved (mean = 3.94, SD = 0.68). Also, the corporations' alliances with other organizations (e.g., joint ventures, joint marketing) had grown (mean = 3.99, SD = 0.71). As well, their community (e.g., public image, community

involvement) had improved (mean = 4.01, SD = 0.68). Besides, their environmental compliance/certifications had improved (mean = 3.99, SD = 0.71). Overall, the results on firm performance had a mean of 3.97, a standard deviation of 0.52, skewness -0.4 and kurtosis of 1.642.

Table 4.21: Firm Performance

	Mean	Std. Dev	Skewness	Kurtosis
Our operational performance (e.g., safety, on time delivery, cycle time) has improved	4.05	0.70	-1.19	3.302
Our product and service innovations (e.g., new service products, service development cycle time) have improved	3.99	0.70	-0.79	1.674
Our relationship with customers (e.g., customer satisfaction, customer loyalty) has improved	4.03	0.67	-0.88	2.656
Our relationship with employees (e.g., employees' turnover, employees' satisfaction) has improved	4.04	0.73	-1.22	3.592
Our relationship with suppliers (e.g., input into product/service design, on time delivery) has improved	3.94	0.68	-0.62	1.342
Our alliances with other organizations (e.g., joint ventures, joint marketing) has grown	3.99	0.71	-0.74	1.054
Our community (e.g., public image, community involvement) has improved	4.01	0.68	-0.54	0.828
Our environmental (e.g., environmental compliance/certifications) has improved	3.99	0.71	-0.95	1.698
Firm Performance	**3.9699**	**0.51871**	**-0.4**	**1.642**

Source; Field Data (2022)

4.8 Transformation

The study adopted an 'average score approach' to calculate respondents' total score (Osborne, 2013). This approach aggregates and calculates only those items answered by the respondents (e.g., if five items are used to measure a scale and one item is missing, the syntax calculates the average of the four items answered). Therefore, it provides an accurate total score for each construct by eliminating the missing responses. The syntax used was "MEAN#.X (a,b,c…)" where X is the minimum number of items with a valid score. In order to use this method, a majority of items

must be answered (Osborne, 2013). Table 4.22 shows the results on data transformation. From the findings, leader neuroticism had the highest mean (4.02) followed by leader openness to experience (3.99), firm performance (mean = 3.97), technology relative advantage (mean = 3.87), leader extraversion (mean = 3.70), technology compatibility (mean = 3.66) then technology complexity (mean = 3.64) and finally technology trialability (mean = 3.57). The standard deviations for the variables were less than 1 except technology complexity and leader openness to experience, indicating less variation in the responses.

Table 4.22: Transformation

	Mean	Std. Dev	Skewness	Kurtosis
Firm performance	3.97	0.52	-0.40	1.64
Technology relative advantage	3.87	0.67	-0.51	0.85
Technology compatibility	3.66	0.68	-0.25	0.21
Technology complexity	3.64	0.53	-1.05	3.39
Technology trialability	3.57	0.61	0.56	0.49
Leader extraversion	3.70	0.67	0.38	-0.46
Leader neuroticism	4.02	0.60	-0.32	0.47
Leader OTE	3.99	0.52	-1.04	3.61

Source; Field Data (2022)

4.9 Assumption of Regression model

Garson (2012), Osborne and Waters (2002) among many other scholars underscores the need to ensure that data meets the assumptions of the statistical procedures to be undertaken by the study. This is because tests of assumptions aid the examiner in authenticating the nature of the data and identifying the applicable model for the study that ensures unbiased, consistent, and efficient estimates. Greenland, Senn, Rothman *et al.,* (2016) observed that there had been a lot of misinterpretation of the use of statistical tests, training and development intervals, and statistical power, thus they recommend due care when making interpretations in social research. Therefore, diverse statistical assumptions were tested as outlined in the section below to establish

if the data met the normality, linearity, heteroscedasticity, multicollinearity and autocorrelation assumptions (Garson, 2012; Hayes, 2013; Osborne and Waters, 2002; Williams, Grajales, & Kurkiewicz, 2013). Without undertaking the tests, the meaningfulness of the interpretation of the regression coefficient in the diverse models would have been at risk. Because of these results, the tests of associations and prediction were subsequently performed.

4.9.1 Normality

Normality tests were undertaken to test whether the research data was normally distributed. If the assumption is violated, there is a possibility that the residuals in the model will give misleading T-tests, F-tests and Chi-square tests results. For this study, normality tests were performed by utilizing the commonly used methods, namely the Kolmogorov-Smirnov and Shapiro-Wilk tests (Garson 2012; Ghasemi & Zahediasi, 2012). Where the outcome of the normality tests is found to be significant (<0.05), it suggests that the data is not normally distributed. Thus, for data to be considered normal, the K-S and S-W tests should not be significant (>0.05) (Tabachnick & Fidel, 2013). Evidently, the results presented in Table 4.23 below confirmed that normality of the data was not a problem because tests of K-S and S-W of all the variables were not significant. Hence, the data distribution in the study was considered fit for multivariate analysis.

Table 4.23: Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	**Df**	**Sig.**	**Statistic**	**df**	**Sig.**
Unstandardized Residual	0.061	334	0.51	0.99	334	0.11
Standardized Residual	0.055	334	0.16	1.00	334	0.30
Studentized Residual	0.056	334	0.14	1.00	334	0.29

a Lilliefors Significance Correction

Source; Field Data (2022)

4.9.2 Linearity

Generally, the assumption of linearity defines the response variable as a function of the predictor variables, thus, multiple regression can estimate the relationship between the dependent and independent variables when they are linearly related (Osborne & Waters, 2002). Williams, et al, (2013), clarified that the response variable firm performance in the case of this study) is assumed to be a linear function of the regression coefficients, but not necessarily a linear function of the predictor variables. Test for linearity may be conducted using analysis of Variance (ANOVA) and other diverse tests in SPSS (Field, 2009; Garson 2012). When ANOVA is employed in testing the assumption of linearity, the rule of thumb is that if the ρ – value is less than 0.05, then the relationship between independent and dependent variables is said to be linear, so that those that deviate from linearity have a ρ – value greater than 0.05 (Hair *et al.,* 2010).

For the current study, the results of tests of linearity in table 4.24 show a linear relationship between technology relative advantage and firm performance (F = 350.59, p = .000). There is also a linear relationship between technology compatibility and firm performance (F = 353.74, ρ= .000). Furthermore, results indicate a linear relationship between technology complexity and firm performance (F = 396.14, ρ= .000). Similarly, technology trialability and firm performance are linearly related (F= 3.95, ρ= .05). Further, there is a linear relationship between leader extraversion and firm performance (F = 180.08, ρ= .000). There is also a linear relationship between leader neuroticism and firm performance (F = 4.32, ρ= .04). Additionally, there is a linear relationship between leader openness to experience and firm performance (F = 239.38, ρ= .000). In general, the results indicated a significant linear relationship

between all the predictor variables and the predicted variable (firm performance). This implied non-violation of the linearity assumption (Garson 2012).

Table 4.24: Linearity

		ANOVA Table		Measures of Association			
		F	Sig.	R	R Squared	Eta	Eta Squared
Firm Performance * technology relative advantage	Linearity	350.59	0.00	0.70	0.49	0.76	0.57
Firm Performance * technology compatibility	Linearity	353.74	0.00	0.64	0.41	0.80	0.64
Firm Performance * technology complexity	Linearity	396.14	0.00	0.70	0.49	0.80	0.63
Firm Performance * technology trialability	Linearity	3.95	0.05	0.10	0.01	0.48	0.23
Firm Performance * Leader Extraversion	Linearity	180.08	0.00	0.52	0.27	0.73	0.53
Firm Performance * Leader Neuroticism	Linearity	4.32	0.04	0.11	0.01	0.41	0.17
Firm Performance * Leader OTE	Linearity	239.38	0.00	0.59	0.35	0.74	0.54
Firm Performance * Corporate Age	Linearity	13.40	0.00	-0.18	0.03	0.44	0.19
Firm Performance * Corporate Size	Linearity	1.59	0.18	-0.09	0.01	0.14	0.02

Source; Field Data (2022)

4.9.3 Heteroscedasticity

Osborne and Waters (2002) state that heteroscedasticity can be identified by plotting standardized (or studentized) residuals against the predicted variable values. Homoscedasticity entails equality of Variance of errors across all levels of the predictor variables (Williams et al, 2013). In this study, heteroscedasticity was measured by Levene's test, which examines whether or not the Variance between independent and dependent variables are equal. Suppose Levene's Test for Equality of Variances is statistically significant at $\alpha = .05$ (less than 0.05). This indicates that the group variances are unequal or heteroscedastic and not homoscedastic, which is a crucial assumption of linear regression models. The findings in Table 4.25 revealed

that based on Levene's statistic; homoscedasticity is not a problem given that all the variables had p-values > .05.

Table 4.25: Heteroscedasticity

	Levene Statistic	df1	df2	Sig.
Firm Performance	3.42	3	330	0.12
technology relative advantage	1.37	3	330	0.25
technology compatibility	1.98	3	330	0.12
technology complexity	2.79	3	330	0.14
technology trialability	3.78	3	330	0.21
Leader Extraversion	1.64	3	330	0.18
Leader Neuroticism	3.05	3	330	0.29
Leader OTE	2.71	3	330	0.45

Source; Field Data (2022)

4.9.4 Multicollinearity

Multiple linear regressions assume that there is no multicollinearity in the data. Multicollinearity occurs when the independent variables are too highly correlated with each other (Hair *et al.,* 2014). Multicollinearity may be checked through multiple ways, for example, the correlation matrix when computing a matrix of Pearson's bivariate correlations among all independent variables, the magnitude of the correlation coefficients should be less than .80 in order for multicollinearity not to be a problem (Hair et al, 2014).

More importantly, tolerance values and Variance Inflation Factor (VIF) are examined in order to determine presence of multicollinearity. As observed by Garson, (2012) tolerance (which is given by 1- R squared) of less than 0.2 indicates the presence of multicollinearity. Similarly, VIF values (which are the reciprocal of tolerance values) for each of the variables indicates the degree that the variances in the regression estimates are increased due to multicollinearity. VIF values higher than 4 indicates that multicollinearity could be present (Garson, 2012; Hair et al, 2014). The findings

in Table 4.26 revealed that the VIF values for all the independent variables were below 10 and the tolerance values were all above 0.1. This means that for all the predictor variables, multicollinearity was not detected.

Table 4.26: Multicollinearity

	Collinearity Statistics	
	Tolerance	**VIF**
technology relative advantage	0.332	3.014
technology compatibility	0.359	2.786
technology complexity	0.505	1.979
technology trialability	0.918	1.089
Leader Extraversion	0.487	2.055
Leader Neuroticism	0.902	1.109
Leader OTE	0.522	1.915

Source; Field Data (2022)

4.9.5 Serial Correlation

Field (2009) observed that autocorrelation exists when the residuals of two observations in a regression model are correlated. The Durbin Watson (DW) statistic is used to test for autocorrelation in the residuals from a statistical regression analysis. (Garson, 2012). The Durbin-Watson statistic is expected to have a value between 0 and 4, the common expectation is that a value of 2.0 means that there is no autocorrelation detected in the sample. Values from zero to less than two indicates positive autocorrelation and values from two to four indicates negative autocorrelation (Field, 2009). Garson (2012) further clarifies that a value of between Durbin-Watson statistics should be between 1.5 and 2.5 for it to be confirmed that the observations are independent.

From the findings in Table 4.27 below, the observations are independent (not auto correlated) since the Durbin- Watson values for the independent, and moderating variables are all between 1.5 and 2.5. Therefore, it is observed that the study data does not violate the independence test (no autocorrelation) assumption.

Table 4.27: Serial Correlation

	Durbin-Watson
Firm performance vs technology context	1.672
Firm performance vs leader personality	2.022

Source; Field Data (2022)

4.10 Correlation Analysis

The study conducted correlation analysis to test the strength of relationship between the research variables. Correlation analysis results give a correlation coefficient which measures the linear association between two variables (Crossman, 2013). The Pearson correlation analysis depicts the relationship between the explanatory and explained variables and all independent variables' pairs.

The findings in Table 4.28 show a positive and significant correlation between technology relative advantage and firm performance (ρ = 0.697, p-value < 0.01). Similarly, the relationship between technology compatibility and firm performance was found to be positive and significant, ρ = 0.639, p-value < 0.01. The findings also showed that the relationship between technology complexity and firm performance is positive and significant, ρ = 0.696, p-value < 0.01. Moreover, leader extraversion had a positive and significant relationship with firm performance, ρ = 0.517, p-value < 0.01.

The findings also showed that leader openness to experience did have a positive and significant relationship with firm performance, ρ = 0.593, p-value < 0.01. However, technology trialability and leader neuroticism did not have a significant correlation with firm performance. Therefore, technology relative advantage, technology compatibility, technology complexity, leader extraversion and leader openness to experience are expected to influence the performance of state corporations in Kenya.

Table 4.28: Correlation

		FP	TRA	TC	TCX	TT	LE	LN	LOTE
Firm Performance (FP)	Pearson Corr.	1							
Technology Relative Advantage (TRA)	Pearson Corr.	.697**	1						
Technology Compatibility (TC)	Pearson Corr.	.639**	.759**	1.00					
Technology Complexity (TCX)	Pearson Corr.	.696**	.627**	.592**	1				
Technology Trialability (TT)	Pearson Corr.	0.098	.223**	.270**	.109*	1			
Leader Extraversion (LE)	Pearson Corr.	.517**	.613**	.602**	.347**	.210**	1		
Leader Neuroticism (LN)	Pearson Corr.	0.106	.180**	.198**	.199**	0.034	.188**	1	
Leader OTE(LOTE)	Pearson Corr.	.593**	.551**	.498**	.527**	.138*	.572**	.305**	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Source; Field Data (2022)

4.11 Regression Results for Control Variables

Control variables are included in regression analyses to estimate the causal effect of a treatment on an outcome (Atinc, *et al.,* 2012). Thus, it is important to analyze effect of control variables on firm performance. Findings from Table 4.29, indicated that corporate size and age predict 3.9 percent variation in firms' performance (R^2 = 0.039). Further, results also showed that corporate size did not significantly affect performance of state corporation (β = -0.078, p=0.148>0.05), while corporate size negatively and significantly affects performance of state corporation (β = -0.176, p=0.00<0.05). The findings imply that the large the size of the firms the more it reduces performance of state corporation. The regression model for effect of corporate size and age on performance of state corporation was significant and fit (F test = 6.741, p= 001).

Table 4.29: Regression results for Control Variables

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	4.299	0.097		44.293	0.000
CS	-0.053	0.037	-0.078	-1.450	0.148
CA	-0.074	0.023	-0.176	-3.248	0.001
Model Summary					
R	0.198				
R Square	0.039				
Adjusted R Square	0.033				
ANOVA					
F	6.741				
Sig.	.001				

a Dependent Variable: FP

Source; Field Data (2022)

4.12 Hypotheses Testing

4.12.1 Testing for Direct Effect

Multiple linear regression analysis was performed to calculate the effects of the predictor variables on firm performance. The model summary of the regression model is presented in table 4.30. The coefficient of multiple determinations, also known as the multiple correlation coefficient, is represented by "R." In this context, it is 0.781. This value indicates the strength of the linear relationship between the predictor variables (Technology Relative Advantage, Technology Compatibility, Technology Complexity, and Technology Trialability) and the dependent variable (Firm Performance). An R value close to 1 suggests a strong linear relationship.

The coefficient of determination, represented as "R Square," is 0.61. This value represents the proportion of the variance in the dependent variable (Firm Performance) that can be explained by the predictor variables (Technology Relative Advantage, Technology Compatibility, Technology Complexity, and Technology Trialability). In this case, about 61% of the variance in Firm Performance can be explained by the predictor variables.

Adjusted R Square: The adjusted R-squared value is 0.605. It is a modified version of R-squared that accounts for the number of predictor variables in the model. Adjusted R-squared penalizes the addition of unnecessary variables that do not contribute much to explaining the variance in the dependent variable. It helps prevent overfitting. In this model, approximately 60.5% of the variance in Firm Performance is explained by the predictor variables after adjusting for the model's complexity.

Table 4.30: Model Summary for Effect of Technology Context on Performance of State Corporations

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.781a	0.61	0.605	0.32607	1.672

a Predictors: (Constant), Technology Relative Advantage, Technology Compatibility, Technology Complexity, Technology Trialability

b Dependent Variable: Firm Performance

Source; Field Data (2022)

The analysis of Variance is key in analyzing the significance of the variation brought by the explanatory variables on the response variable compared to the variation brought by the residuals (Christensen, 2018). Through the ANOVA, random variability can be eliminated, thus making it easier to identify significant differences and visualize the interactions between the Predictors: (Constant), technology relative advantage, technology complexity, technology compatibility, technology trialability and Firm Performance. On the other hand, the dispersions of the data points are determined by the sum of squares. Moreover, the number of independent components less the parameters that have been estimated makes up the degree of freedom (df). The F-statistics is the measure of the correlation between the, technology relative advantage, technology complexity, technology compatibility, technology trialability and Firm Performance that have been drawn at varied levels of a sub-divided population. In addition, the difference between the sample and the estimated function

value is referred to as the residual of a sample. The relationship between the variables is typified by the significance. The ANOVA model showed that the joint prediction of all the independent variables (technology relative advantage, technology complexity, technology compatibility and technology trialability) as depicted in Table 4.31 below was statistically significant (F = 128.42, ρ=.000). Thus, the model was fit to predict firm performance using technology relative advantage, technology compatibility, technology complexity and technology trialability (Christensen, 2018).

Table 4.31: ANOVA Model for Effect of Technology Context on Performance of State Corporations

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	54.616	4	13.654	128.42	.000b
Residual	34.98	329	0.106		
Total	89.597	333			

a Dependent Variable: Firm performance
b Predictors: (Constant), Technology Relative Advantage, Technology Compatibility, Technology Complexity, Technology Trialability

Source; Field Data (2022)

Hypothesis 1 (H_{o1}) stated that there is no significant direct effect of technology relative advantage on firm performance. Findings in Table 4.32 showed that technology relative advantage had coefficients of estimate which was significant basing on β_1 = 0.339 (p-value = 0.000 which is less than α = 0.05). The null hypothesis was thus rejected, and it was concluded that technology relative advantage had a significant effect on firm performance. This suggested an up to 0.339 unit increase in firm performance for each unit increase in technology relative advantage. The effect of technology relative advantage was more than six times the effect attributed to the error; this was indicated by the t-test value = 6.018. Consistent with the results, Carter and Campbell (2011) confirmed that relative advantage with the inclusion of institutional-based trust and e-government information positively

contributes to firm performance. Similarly, Chen and Zhang (2016) established that relative advantage and perceived credibility positively impacted firm performance in the healthcare industry. The implication is that the relative advantage of one technology over another is a key determinant to improved firm performance across firms in different industries. To reaffirm this position, Jabri and Sohail (2012) found evidence that relative advantage impacted firm performance in the banking industry. In the same way, Joo *et al.,* (2014) espoused that relative advantage positively impacted firm performance in education and learning. Also, Wanyoike (2013) is in support of the notion that the relative advantage of a new technology is positively related to firm performance.

Hypothesis 2 (H_{o2}) stated that there is no significant direct effect of technology compatibility on firm performance. However, research findings in Table 4.32 showed that technology compatibility had coefficients of estimate which was significant based on β_2= 0.167 (p-value = 0.003 which was less than α = 0.05) hence the null hypothesis was rejected. This indicated that for each unit increase in technology compatibility, there was 0.167 units increase in firm performance. Furthermore, the effect of technology compatibility was stated by the t-test value = 3.028 which implied that the standard error associated with the parameter was less than the effect of the parameter. There is limited evidence on the nexus between technology compatibility and firm performance of corporations. However, the bulk of studies suggest that technology compatibility is key to the adoption of technology/ innovation (Rogers, 2003; Sinha & Mukherjee, 2016; Sin Tan *et al.,* 2009). Thus, the current study could have potentially shed light on the possible positive link between technology compatibility and firm performance among state corporations in Kenya.

Hypothesis 3 (H_{o3}) postulated that there is no significant direct effect of technology complexity on firm performance. Findings in Table 4.32 showed that technology complexity had coefficients of estimate which was significant basing on $\beta_3 = 0.392$ (p-value = 0.000 which is less than $\alpha = 0.05$) implying that the null hypothesis was rejected and it was concluded that technology complexity had significant effect on firm performance. This indicated that for each unit increase in technology complexity, there was up to 0.392 unit increase in firm performance. The effect of technology complexity was stated by the t-test value = 8.604 which indicated that the effect of technology complexity was over 8 times that of the error associated with it. Prior studies have focused on the relationship between technology complexity and firm performance. For instance, Wang and Wang (2016) concluded that there is a negative correlation between technology complexity and innovation adoption. The few studies (Cheah *et al.,* 2021) that have tried to establish a link between technology complexity and firm performance suggest that investing abundant resources in low complexity technologies reduces the financial performance of projects. In that regard, there is a need for further studies to ascertain if indeed technology complexity positively influences firm performance, as the present study suggests.

Hypothesis 4 (H_{o4}) indicated that there is no significant direct effect of technology trialability on firm performance. The findings confirmed that technology trialability had no significant influence on firm performance basing on $\beta_4 = -0.065$ (p-value = 0.069 which was more than $\alpha = 0.05$) hence the null hypothesis was accepted. Therefore, there would be no change in firm performance with either an increase or decrease in technology trialability. The findings contradict prior studies (Pashaeypoor, Ashktorab, Rassouli, & Alavi-Majd, 2016; Rogers, 2003) suggesting that there is a positive correlation between technology trialability and firm performance since the

technology that can be quickly tested or experimented on for a limited basis for free are more likely to be adopted faster (Chiyangwa & Alexander, 2016; Rogers, 2003). Similarly, the results defer with that of Alshamaila *et al.*, (2013), inferring that technology trialability contributes to an improvement in firm performance. Also, Odumeru (2013) elucidated that trialability is a significant predictor of firm performance. Thus, the present study contradicts prior studies suggesting that technology trialability significantly influences firm performance. Thus, there is need for further studies on the nexus between technology trialability and firm performance to ascertain the direction of the relationship between the variables.

Table 4.32: Coefficients of Estimate for Effect of Technology Context on Performance of State Corporations

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
(Constant)	1.280	0.156		8.220	0.000		
Technology relative advantage	0.262	0.044	0.339	6.018	0.000	0.374	2.673
Technology compatibility	0.127	0.042	0.167	3.028	0.003	0.390	2.564
Technology complexity	0.386	0.045	0.392	8.604	0.000	0.571	1.750
Technology trialability	-0.056	0.031	-0.065	-1.822	0.069	0.920	1.087

a Dependent Variable: Firm performance

Source; Field Data (2022)

According to table 4.33, The coefficient of multiple determination, represented as "R," has a value of 0.637. This value suggests the strength of the linear relationship between the predictor variables (Leader OTE, Leader Neuroticism, Leader Extraversion) and the dependent variable (Performance of State Corporations). An R value close to 1 indicates a strong linear relationship.

R Square (R^2): The coefficient of determination, denoted as "R Square," is 0.406. This value indicates the proportion of the variance in the dependent variable (Performance of State Corporations) that can be explained by the predictor variables (Leader OTE, Leader Neuroticism, Leader Extraversion). Approximately 40.6% of the variance in Performance of State Corporations is explained by the predictor variables.

Adjusted R Square: The adjusted R-squared value is 0.4. This adjusted value takes into account the number of predictor variables in the model. It represents the proportion of the variance in the dependent variable explained by the predictors after adjusting for model complexity. In this case, around 40% of the variance in Performance of State Corporations is explained by the predictor variables..

Table 4.33: Model Summary for Effect of Leader Personality on Performance of State Corporations

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.637a	0.406	0.4	0.40172	2.022

a Predictors: (Constant), Leader OTE, Leader Neuroticism, Leader Extraversion
b Dependent Variable: Firm performance

Source; Field Data (2022)

The analysis of Variance is important in assessing the significance of the variation contributed by the leader personality on the response variable compared to the variation contributed by the residuals. The study thus carried out the analysis of variance and the findings were summarized and presented in Table 4.34. The findings in the table showed that the total sum of squares for the regression model was 89.597. Further, the analysis of variance indicated that the above discussed coefficient of determination was significant as evidenced by $F = 75.068$ with $p < 0.000$. Thus, the model was fit to predict firm performance using the independent variables.

Table 4.34: ANOVA Model for Effect Leader Personality on Performance of State Corporations

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	36.343	3	12.114	75.068	.000b
Residual	53.254	330	0.161		
Total	89.597	333			

a Dependent Variable: Firm Performance
b Predictors: (Constant), Leader OTE, Leader Neuroticism, Leader Extraversion
Source; Field Data (2022)

The study findings in Table 4.35 indicated that leader openness to experience positively influences firm performance (β_3 = .47, p value=0.00 <.05). Thus, hypothesis H_{04a} stating that there is no significant direct effect of leader openness to experience on firm performance was rejected. Therefore, the study infers that an increase in leader openness to experience by a unit increases firm performance by 0.47 units.

Further, results in table 4.33 showed that there was significant effect of leader neuroticism on firm performance (β_2 = -0.09, p value=0.05). Thus, hypothesis H_{04b} stipulating that there is no significant direct effect of leader neuroticism on firm performance was rejected. This shows that leader neuroticism negatively affects firm performance. Therefore, a unit of leader neuroticism leads to a decline in firm performance by 0.09 units.

Finally, the study findings indicated that leader extraversion significantly affected firm performance (β_1 = 0.27, p value=0.00 <.05). Thus, hypothesis H_{04c} stating that there is no significant direct effect of leader extraversion on firm performance was rejected. As such, an increase in leader extraversion by a unit increases firm performance by 0.27 units. Moreover, results revealed that the effect of leader extraversion was stated by the t-test value = 3.028, which implied that the standard error associated with the parameter was less than the effect of the parameter.

Table 4.35: Coefficients of Estimates for Effect Leader Personality on Performance of State Corporations

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	1.65	0.20		8.32	0.00		
Leader OTE	0.46	0.05	0.47	8.76	0.00	0.63	1.58
Leader Neuroticism	-0.07	0.04	-0.09	-1.95	0.05	0.91	1.10
Leader Extraversion	0.21	0.04	0.27	5.14	0.00	0.67	1.49

a Dependent Variable: Firm performance

Source; Field Data (2022)

4.12.2 Testing for Moderating Effect

The sixth objective of the study was to establish the moderating effect of openness to experience on the relationship between technology context and firm performance. The hierarchical regression results are presented in Model 1 to 7 in Table 4.36. The first model involves regression control variables (CS and CA) against the firm performance (Model1). Model 2 showed the effect of control variables (CS and CA) and predictor variables (TRA, Comp, Comx and Tria) on firm performance. In Model 3, control variables (CS and CA), predictor variables (TRA, Comp, Comx and Tria) and moderator (OTE) were regressed against firm performance. In model 4, 5, 6, 7, interaction results for each independent variable (i.e TRA*OTE, Comp*OTE, Comx*OTE and Tria*OTE) respectively.

H_{06a} specified that leader openness to experience moderates the relationship between technology relative advantage and firm performance (β =.68, ρ< .05). So, the null hypothesis was rejected. This was also confirmed by $R^2\Delta$ of .042, which indicate that leader openness to experience moderate the relationship between technology relative advantage and firm performance by 4.2%. This implies that leader openness to experience enhances the relationship between technology relative advantage and firm performance. The implication is that leaders who are open to experience are crucial to

implementing technology that is superior to prior technologies, thus contributing to an improvement in firm performance. The findings agree Swickert et al., (2002) with personality modifies the association between technology use and supportive social experiences, despite the fact that personality and technology use were only modestly associated. Similarly, McElroy et al., (2007) demonstrated openness to experience predicted internet use, openness to experience predicted buying on the internet, while emotional stability or neuroticism predicted selling before accounting for technology fear and self-efficacy.

H_{06b} predicted that leader openness to experience does not moderate the relationship between technology compatibility and firm performance. The regression results showed a negative and insignificant moderating effect of leader openness to experience on the relationship between technology compatibility and firm performance (β = -0.18, ρ> .05). Hence, the null hypothesis was accepted. This was also supported by a change of R squared of 0.0% ($R^2\Delta$= .000), indicating that there would be no change in the effect of technology compatibility on firm performance with the incorporation of leader openness to experience as a moderator.

H_{06c} stated that there is no moderating effect of openness to experience on the relationship between technology complexity and firm performance. Nevertheless, the regression findings indicated that leader openness to experience positively moderated the relationship between technology complexity and firm performance (β = 0.58, ρ< .05), rejecting the null hypothesis. The moderating effect was also revealed by change in R squared ($R^2\Delta$ .023) and F change (F Δ =24.182) (This suggests that leader openness to experience facilitate the relationship between technology complexity and

firm performance). The implication is that leader openness to experience strengthens the relationship between technology complexity and firm performance.

H_{06d} suggested that leader openness to experience moderates the relationship between technology trialability and firm performance (β =.32, ρ< .05). So, the null hypothesis was rejected. This was also confirmed by R2Δ of .024, which indicate that leader openness to experience moderate the relationship between technology trialability and firm performance by 2.4%. It implies that leader openness to experience enhances the relationship between technology trialability and firm performance.

Table 4.36: Hierarchical Regression for Moderating role of Openness to Experience on Technology Context and Performance of State Corporations

	Model 1 B (S.E)	Model 2 B (S.E)	Model 3 B (S.E)	Model 4 B (S.E)	Model 5 B (S.E)	Model 6 B (S.E)	Model 7 B (S.E)
(Constant)	0.00(.05)	0.00(.04)	0.00(.03)	0.01(.03)	0.01(.03)	-0.01(.03)	0.02(.03)
ZCS	-0.09(.05)	-0.03(.04)	-0.02(.03)	-0.02(.03)	-0.02(.03)	0.00(.03)	0.02(.03)
ZCA	-0.17(.05) **	-0.04(.04)	-0.06(.04)	-0.03(.03)	-0.04(.03)	-0.02(.64)	-0.01(.03)
ZTRA		0.34(.06) **	0.29(.06) **	-0.13(.08)	-0.15(.09)	-0.11(.09)	-0.07(.09)
ZComp		0.14(.06) *	0.12(.06) *	0.11(.05) *	0.23(.19)	0.41(.19) *	0.00(.20)
ZCOMX		0.40(.05) **	0.34(.05) **	0.29(.04) **	0.29(.05) **	-0.04(.08)	-0.03(.08)
ZTrial		-0.05(.04)	-0.05(.04)	-0.06(.03)	-0.05(.03)	-0.04(.03)	-0.20(.04) **
ZOTE			0.20(.04) **	-0.08(.06)	-0.01(.12)	-0.09(.12)	-0.35(.12) **
ZTRA*OTE				0.68(.011) **	0.72(.12) **	0.63(.12) **	0.53(.11) **
ZComp*OTE					-0.18(.27)	-0.48(.27)	0.06(.28)
ZComx*OTE						0.58(.12) **	0.51(.11) **
ZTria*OTE							0.32(.06) **
Model Summary							
R	.198a	.778b	.794c	.820d	.821e	.834f	.849g
R Square	0.039	0.606	0.631	0.673	0.674	0.696	0.720
Adjusted R Square	0.033	0.599	0.623	0.665	0.665	0.687	0.710
Std. Error of the Estimate	0.988	0.637	0.617	0.582	0.582	0.562	0.541
Change Statistics							
R Square Change	0.039	0.567	0.025	0.042	0.000	0.023	0.024
F Change	6.769	117.611	22.120	41.885	0.449	24.182	27.215
df1	2	4	1	1	1	1	1
df2	331	327	326	325	324	323	322
Sig. F Change	0.001	0.000	0.000	0.000	0.503	0.000	0.000

a Predictors: (Constant), ZCA, ZCS
b Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA
c Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZOTE
d Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZOTE, ZTRA_OTE
e Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZOTE, ZTRA_OTE, ZComp_OTE
f Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZOTE, ZTRA_OTE, ZComp_OTE, ZComx_OTE
g Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZOTE, ZTRA_OTE, ZComp_OTE, ZComx_OTE, ZTria_OTE

Key:CS= proration size, CA=Corporation Age, TRA= Technology Relative Advantage, COMX= Technology Complexity, Comp = Technology compatibility, Trial = Technology Trialability, OTE= Openness to Experience

Source; Field Data (2022)

To support the above moderation effect of leader openness to experience on the relationship between technology relative advantage and Performance of State Corporations, the study used Modgraphs. Moderated results are presented on a moderation graph as suggested by Aiken & West (1991) who suggested that it is insufficient to conclude that there is interaction without probing the nature of that interaction at different levels of the moderator. Figure 4.1 demonstrated that higher leader openness to experience within the state corporations showed a steeper slope between technology relative advantage and firm performance. Hence, the null hypothesis 6a was not supported. This implied that leader openness to experience positively and significantly moderates the relationship between technology relative advantage and firm performance.

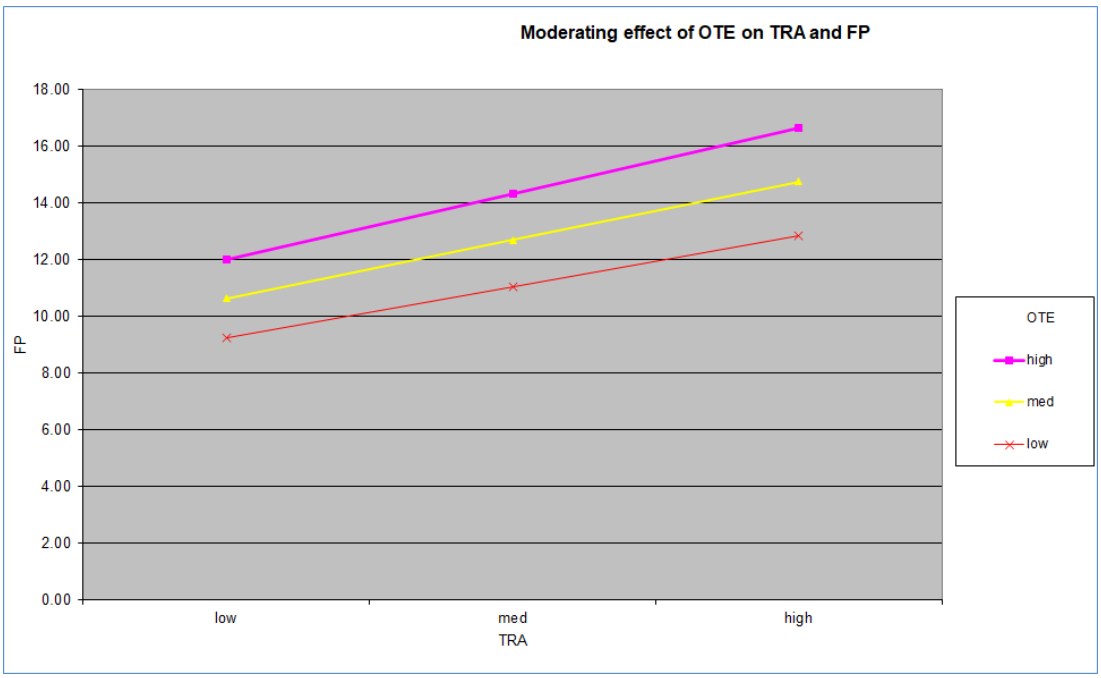

Figure 4.1: ModGraph for Moderating role of Openness to Experience on Technology Relative Advantage and Performance of State Corporations

Source; Field Data (2022)

The graph in Figure 4.2 revealed that when state corporations have leaders with high levels of openness to experience, technology complexity contributes more to firm

performance than when there are low levels of leader openness to experience, as shown by the steepness of the slope. So, the null hypothesis 6b was rejected. Thus, leader openness to experience positively and significantly moderates the relationship between technology complexity and firm performance.

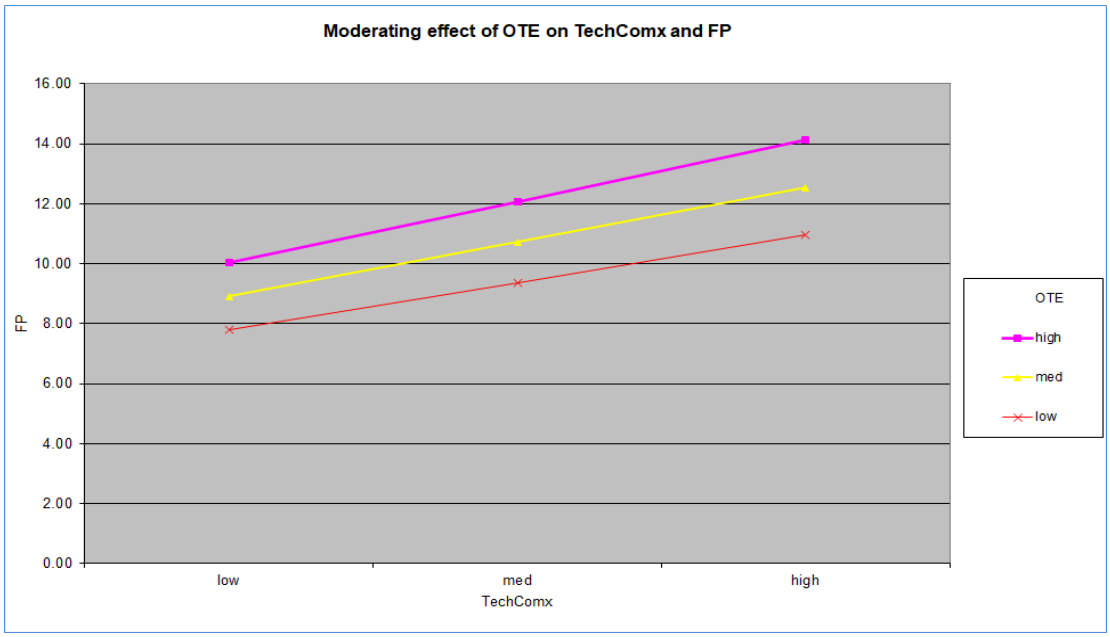

Figure 4.2: ModGraph for Moderating role of Openness to Experience on technology complexity and Performance of State Corporations

Source; Field Data (2022)

The interaction plot in Figure 4.3 displays an enhancing effect that as leader openness to experience increases in state corporations in Kenya, the effect of technology trialability on firm performance increases, as depicted by the steepness of the slope. Hypothesis 6c was therefore rejected. Thus, leader openness to experience positively and significantly moderates the relationship between technology trialability and firm performance.

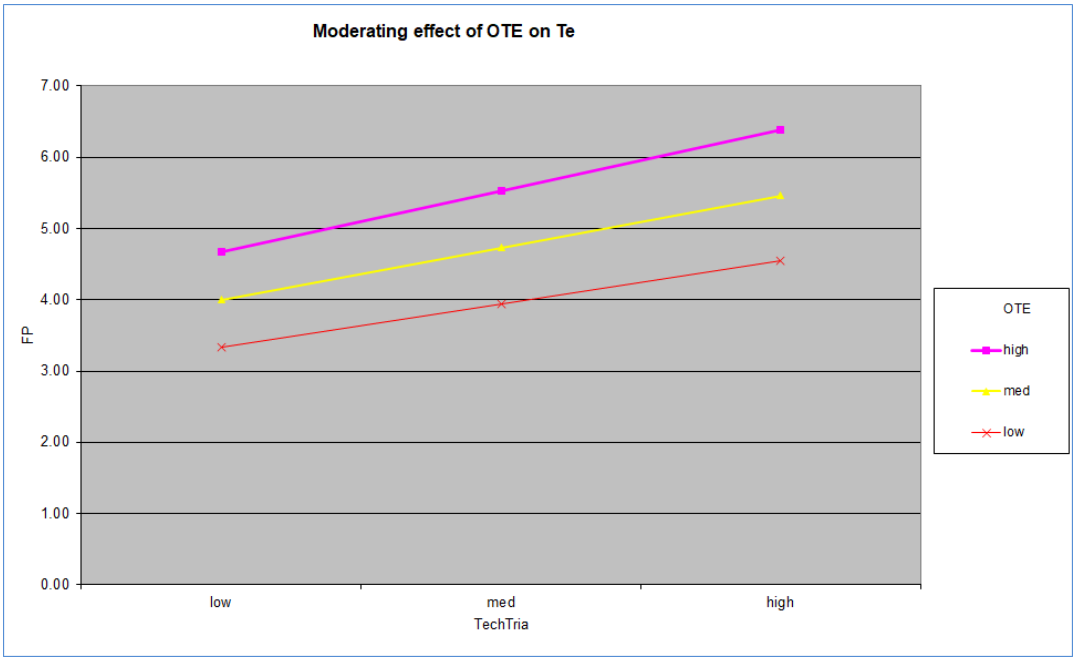

Figure 4.3: ModGraph for Moderating role of Openness to Experience on Technology Trialability and Performance of State Corporations

Source; Field Data (2022)

The hierarchical regression results are presented in Model 1 to 7 in Table 4.37. This study used the Enter (forced entry) method to tests effect of control variables (CS and CA) against the firm performance in Model 1. In Model 2 control variables (CS and CA) and predictor variables (TRA, Comp, Comx and Tria) were regressed against firm performance. In Model 3, moderator (OTE) was added in among variables in Model 2 and regressed against firm performance. for interaction variables namely TRA*OTE, Comp*OTE, Comx*OTE and Tria*OTE were each added model 4, 5, 6 and 7 respectively and regressed against firm performance. Direct effects of predictor variables on the predicted variable (medical employee output). The Enter method is recommended for theory testing and minimizes the effects of the experimenter's decisions on entering predictor variables since he/she does not decide the order in which variables are entered (Field, 2009).

H_{07a} indicated that leader neuroticism negatively moderates the relationship between technology relative advantage and firm performance (β = -0.22, ρ< .05). So, the null hypothesis was rejected. This was also confirmed by $R^2\Delta$ of .012, which indicate that leader neuroticism moderates the relationship between technology relative advantage and firm performance by 1.2%. It implies that leader neuroticism enhances the relationship between technology relative advantage and firm performance.

H_{07b} predicted that leader neuroticism does not moderate the relationship between technology compatibility and firm performance. However, the regression results showed a positive and significant moderating effect of leader neuroticism on the relationship between technology compatibility and firm performance (β = 1.45, ρ< .05). Hence, the null hypothesis was rejected. This was also supported by change of R squared of 1.7% ($R^2\Delta$= .017), indicating that leader neuroticism moderates the relationship between technology compatibility and firm performance by 1.7%. This implies that leader neuroticism strengthens the relationship between technology compatibility and firm performance.

H_{07c} stated that leader neuroticism does not moderate the relationship between technology complexity and firm performance. However, the regression results showed that leader neuroticism positively moderated the relationship between technology complexity and firm performance (β = 0.60, ρ< .05), rejecting the null hypothesis. The moderating effect was also revealed by change in R squared ($R^2\Delta$ .034), indicating that leader neuroticism facilitates the relationship between technology complexity and firm performance.

H_{07d} predicted that leader neuroticism does not moderate the relationship between technology trialability and firm performance. The regression results showed a

negative and insignificant moderating effect of leader neuroticism on the relationship between technology trialability and firm performance (β = -0.23, ρ> .05). Hence, the null hypothesis was accepted. Thus, there would be no change in the direction of the relationship between technology trialability and firm performance with the incorporation of leader neuroticism.

Table 4.37: Hierarchical Regression for Moderating role of Neuroticism on Technology Context and Performance of State Corporations

	Model 1 B (S.E)	Model 2 B (S.E)	Model 3 B (S.E)	Model 4 B (S.E)	Model 5 B (S.E)	Model 6 B (S.E)	Model 7 B (S.E)
(Constant)	0.00(.05)	0.00(.04)	0.00(.03)	0.00(.03)	0.00(.03)	-0.01(.03)	-0.01(.03)
ZCS	-0.09(.05)	-0.03(.04)	-0.02(.03)	-0.03(.03)	-0.03(.03)	0.01 (.03)	0.00(.03)
ZCA	-0.17(.05) **	-0.04(.04)	-0.06(.04)	-0.06(.03)	-0.06(.03)	-0.04(.03)	-0.04(.03)
ZTRA		0.34(.06) **	0.29(.06) **	0.42(.07) **	1.36(.23) **	1.28 (0.21) **	1.22(.22)
ZComp		0.14(.06) *	0.12(.06) *	0.13(.05) *	-0.84(.23) **	-0.42(.22)	-0.52(.24) **
ZCOMX		0.40(.05) **	0.34(.05) **	0.35(.05) **	0.31(.05) **	-0.03(.06)	-0.04(.06)
ZTrial		-0.05(.04)	-0.05(.04)	-0.05(.03)	-0.05(.03)	-0.04(.03)	0.12(.13)
ZNEU			-0.70(.04) **	0.24(.04) **	0.22(.04) **	0.27(.04) **	0.27(.04) **
Zscore(TRA*Neu)				-0.22(.05) **	-1.59(.33) **	-1.49(.31) **	-1.42(.31) **
Zscore(Comp*Neu)					1.45(.34) **	0.75(.33) **	0.90(.35) **
Zscore(Comx*Neu)						0.60(.08) **	0.62(.08) **
Zscore(Tria*Neu)							-0.23(.17)
Model Summary	1	2	3	4	5	6	7
R	.198a	.778b	.781c	.789d	.800e	.821f	.823g
R Square	0.039	0.606	0.611	0.623	0.640	0.674	0.678
Adjusted R Square	0.033	0.599	0.602	0.614	0.630	0.664	0.667
Std. Error of the Estimate	0.988	0.637	0.634	0.625	0.611	0.583	0.580
Change Statistics							
R Square Change	0.039	0.567	0.005	0.012	0.017	0.034	0.004
F Change	6.769	117.611	3.804	10.565	15.400	33.518	3.753
df1	2	4	1	1	1	1	1
df2	331	327	326	325	324	323	322
Sig. F Change	0.001	0.000	0.052	0.001	0.000	0.000	0.054

a Predictors: (Constant), ZCA, ZCS
b Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA
c Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZNeu
d Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZNeu, Zscore(TRA_Neu)
e Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZNeu, Zscore(TRA_Neu), Zscore(Comp_Neu)
f Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZNeu, Zscore(TRA_Neu), Zscore(Comp_Neu), Zscore(Comx_Neu)
g Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZNeu, Zscore(TRA_Neu), Zscore(Comp_Neu), Zscore(Comx_Neu), Zscore(Tria_Neu)

Key: CS= corporation size, CA=Corporation Age, TRA= Technology Relative Advantage, COMX= Technology Complexity, Comp = Technology compatibility, Trial = Technology Trialability, Neu= Neuroticism

Source; Field Data (2022)

Figure 4.4 highlights the moderating effect of neuroticism on the relationship between technology relative advantage and firm performance. From Figure 4.4, there is a steeper slope between technology relative advantage and firm performance due to the moderating effect of leader neuroticism. Thus, the null hypothesis 7a was not supported. The implication is that leader neuroticism positively and significantly moderates the relationship between technology relative advantage and firm performance.

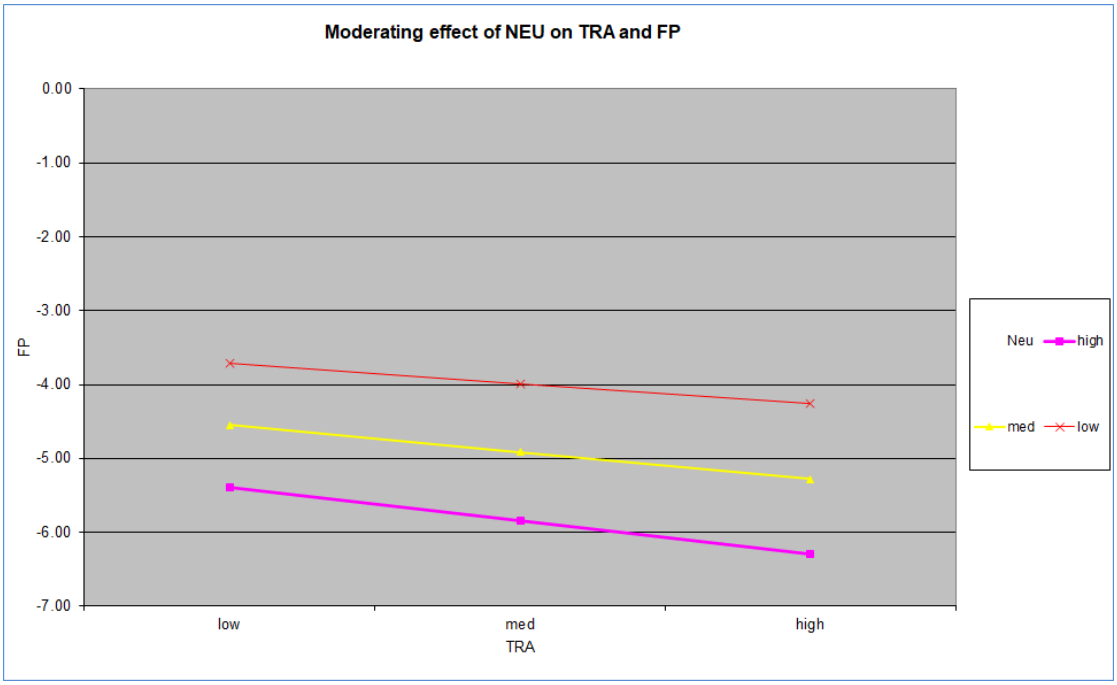

Figure 4.4: ModGraph for Moderating role of Neuroticism on Technology Relative Advantage and Performance of State Corporations

Source; Field Data (2022)

Figure 4.5 highlights a graphical representation of the moderating role of leader neuroticism on the relationship between technology compatibility and firm performance. From Figure 4.5, higher levels of leader neuroticism contribute an increased effect of technology compatibility on firm performance, as shown by the steepness of the slope. So, null hypothesis 7b was rejected. Thus, leader neuroticism

positively and significantly moderates the relationship between technology compatibility and firm performance.

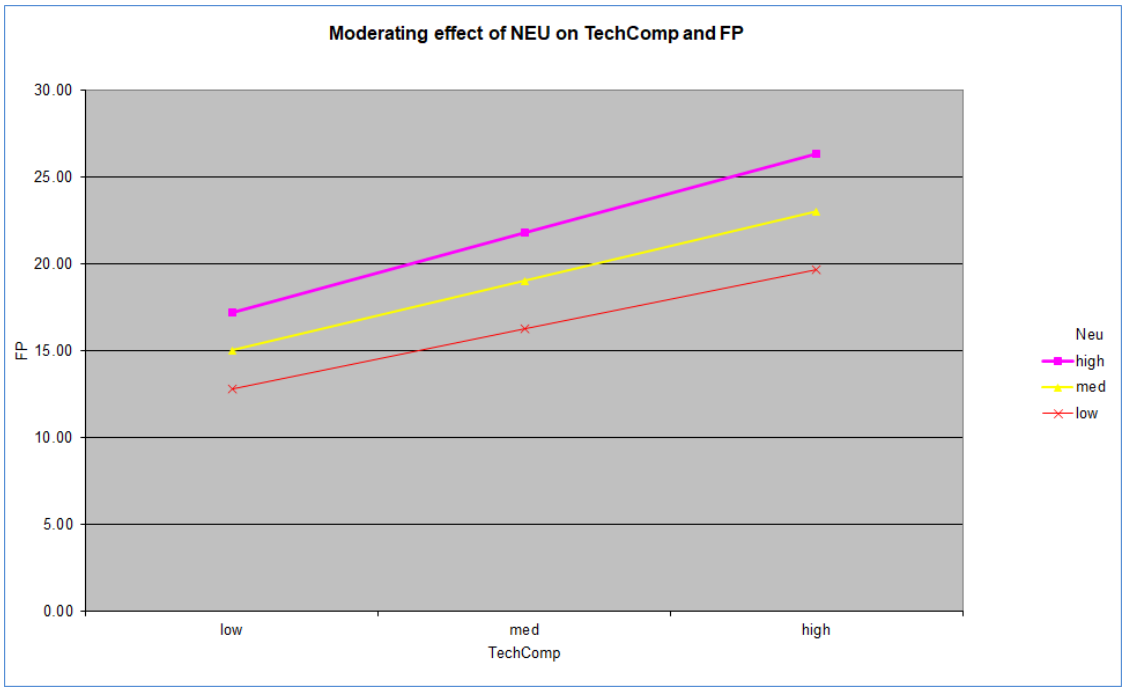

Figure 4.5: ModGraph for Moderating role of Neuroticism on Technology Compatibility and Performance of State Corporations

Source; Field Data (2022)

The interaction plot in Figure 4.5 displays an enhancing effect that as leader neuroticism increases, the effect of technology complexity on firm performance increases as well, as depicted by the steepness of the slope. Hypothesis 7c was therefore rejected. Thus, leader neuroticism positively and significantly moderates the relationship between technology complexity and firm performance.

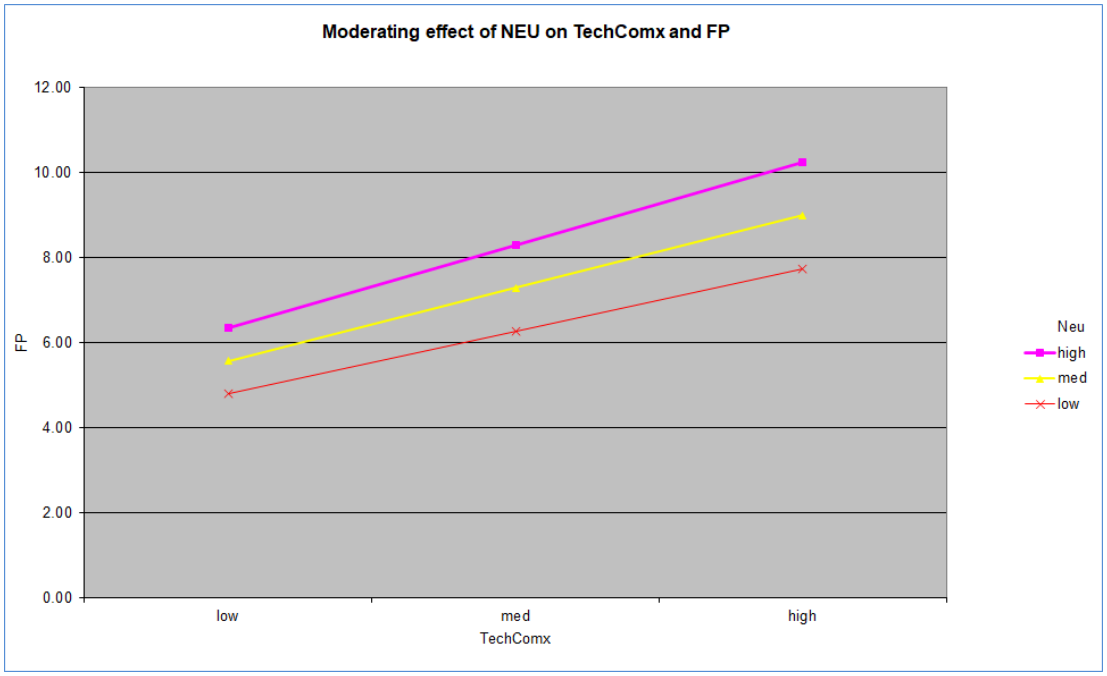

Figure 4.6: ModGraph for Moderating role of Neuroticism on Technology Complexity and Performance of State Corporations

Source; Field Data (2022)

The eighth objective of the study was to establish the moderating effect of extraversion on the relationship between technology context practices and performance of state corporations in Kenya. In order to confirm whether extraversion moderate the relationship between technology context practices and firm performance. The following steps were carried out; First, the study standardized all variables to make interpretations easier afterwards and to avoid multicollinearity. Second, the study fitted a regression model (model 1) predicting the outcome variable firm performance from the control variables (CS and CA). The effects as well as the model in general (R^2) should be significant. Third, the study added the technology context practices (TRA, Comp, Comx and Tria) in model 2. Fourthly, moderating variable (extraversion) was added in Model 3.

Interaction effect (TRA*Extra) to the previous model (model 4, 5 and 6) and check for a significant R^2 change as well as a significant effect by the new interaction term. If both are significant, then moderation is occurring. If the predictor and moderator

are not significant with the interaction term added, then complete moderation has occurred. If the predictor and moderator are significant with the interaction term added, then moderation has occurred (Marsh *et al*, 2013), however the main effects are also significant. The hierarchical regression results are presented in Model 1 to 7 in Table 4.38.

H_{08a} hypothesized that leader extraversion does not moderate the relationship between technology relative advantage and firm performance. The results indicated that leader extraversion has a positive and insignificant moderating effect on the relationship between technology relative advantage and firm performance ($\beta= 0.14$, $p>0.05$). Hence, the hypothesis was supported. This result implies that leader extraversion has no influence on the relationship between technology relative advantage and firm performance.

Hypothesis **H_{08b}** postulated thatleader extraversion does not moderate the relationship between technology compatibility and firm performance. The findings showed a positive but insignificant moderation effect of leader extraversion on the relationship between technology compatibility and firm performance ($\beta=0.41$, $p>0.05$). Therefore, this hypothesis was accepted as the study found no significant influence of moderating role of leader extraversion on technology compatibility and firm performance.

Hypothesis **H_{08c}** suggested that leader extraversion does not moderate the relationship between technology complexity and firm performance. The results showed a negative and insignificant moderation effect of leader extraversion on the relationship between technology complexity and firm performance ($\beta= -0.15$ $p>0.05$). Thus, the hypothesis

was accepted. It implies that leader extraversion does not influence the relationship between technology complexity and firm performance.

Hypothesis **$H0_{8d}$** postulated that leader extraversion does not moderate the relationship between technology trialability and firm performance. The results indicated a positive and significant moderating effect of leader extraversion on the relationship between technology trialability and firm performance ($\beta = 0.68$ $p<0.05$). This study, therefore, rejected hypothesis H_{08d}. The implication is that leader extraversion strengthens the relationship between technology trialability and firm performance.

Table 4.38: Hierarchical Regression for Moderating role of Extraversion on Technology Context and Performance of State Corporations

	Model 1 B (S.E)	Model 2 B (S.E)	Model 3 B (S.E)	Model 4 B (S.E)	Model 5 B (S.E)	Model 6 B (S.E)	Model 7 B (S.E)
(Constant)	0(.05)	0(.04)	0.00(.03)	0.00(.03)	0.00(.04)	0.00(.04)	0.02(.03)
ZCS	-0.09(.05)	-0.03(.04)	-0.02(.04)	-0.02(.04)	-0.01(.04)	-0.01(.04)	0.01(.03)
ZCA	-0.17(.05) **	-0.04(.04)	-0.02(.04)	-0.03(.04)	-0.02(.04)	-0.02(.04)	-0.02(.03)
ZTRA		0.34(.06) **	0.29(.06) **	0.21(.11)	0.37(.19)	0.36(.20)	0.27(.19)
ZComp		0.14(.06) *	0.10(.06)	0.10(.06)	-0.13(.23)	-0.20(.32)	0.06(.31)
ZCOMX		0.40(.05) **	0.42(.05) **	0.42(.05) **	0.42(.05) **	0.50(.26) *	0.36(.25)
ZTrial		-0.05(.04)	-0.05(.04)	-0.05(.04)	-0.06(.04)	-0.06(.04)	-0.08(.04) *
ZExtra			0.14(.05) **	0.06(.11)	0.00(.13)	0.02(.14)	-0.60(.16) **
Zscore(TRA*Extra)				0.14(.18)	-0.15(.034)	-0.13(.34)	0.09(.32)
Zscore(Comp*Extra)					0.41(.41)	0.54(.58)	-0.02(.56)
Zscore(Comx*Extra)						-0.15(.48)	0.10(.45)
Zscore(Tria*Extra)							0.68(.10) **
Model Summary	**1**	**2**	**3**	**4**	**5**	**6**	**7**
R	.198a	.778b	.785c	.785d	.786e	.786f	.814g
R Square	0.039	0.606	0.616	0.617	0.618	0.618	0.662
Adjusted R Square	0.033	0.599	0.608	0.607	0.607	0.606	0.651
Std. Error of the Estimate	0.988	0.637	0.629	0.630	0.630	0.631	0.594
Change Statistics							
R Square Change	0.039	0.567	0.010	0.001	0.001	0.000	0.044
F Change	6.769	117.611	8.627	0.602	1.008	0.104	42.034
df1	2	4	1	1	1	1	1
df2	331	327	326	325	324	323	322
Sig. F Change	0.001	0.000	0.004	0.438	0.316	0.747	0.000

a Predictors: (Constant), ZCA, ZCS
b Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA
c Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZExtra
d Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZExtra, Zscore(TRA_Extra)
e Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZExtra, Zscore(TRA_Extra), Zscore(Comp_Extra)
f Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZExtra, Zscore(TRA_Extra), Zscore(Comp_Extra), Zscore(Comx_Extra)
g Predictors: (Constant), ZCA, ZCS, ZTrial, ZCOMX, ZComp, ZTRA, ZExtra, Zscore(TRA_Extra), Zscore(Comp_Extra), Zscore(Comx_Extra), Zscore(Tria_Extra)

Key: CS= corporation size, CA=Corporation Age, TRA= Technology Relative Advantage, COMX= Technology Complexity, Comp = Technology compatibility, Trial = Technology Trialability, Extra= Extraversion

Source; Field Data (2022)

Figure 4.7 indicated an enhancing moderation effect where increased levels of leader extraversion result to increased effect of technology trialability on firm performance, hence, the null hypothesis 8_d was not supported. This implied that leader extraversion positively and significantly moderates the relationship between technology trialability and firm performance.

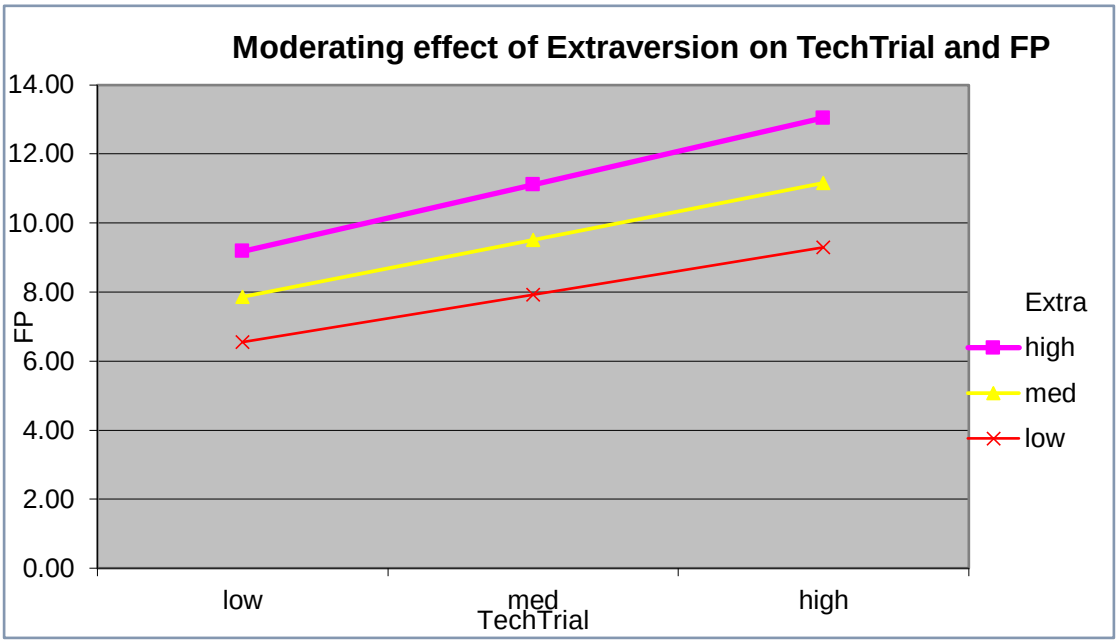

Figure 4.7: ModGraph for Moderating effect of Extraversion on Technology Trialability and Performance of State Corporations

Source; Field Data (2022)

4.13 Summary of Hypothesized Testing Results

Table 4.38 below presents a summary of the tested hypothesis results. It shows the beta values for the tested hypothesis and the corresponding significant values. The table below provides the decision as to whether the hypothesis is rejected or accepted based on the criteria that all results whose corresponding significant values are less than or equal to 0.01 are accepted while those with significant values greater than 0.01 are rejected.

Table 4.39: Summary of Hypothesized Testing Results

		β	P values	Decision
$H_{01:}$	Effect of TRA on FP	0.339	0.000	Reject
$H_{02:}$	Effect of TC on FP	0.167	0.003	Reject
$H_{03:}$	Effect of TCX on FP	0.392	0.000	Reject
$H_{04:}$	Effect of TT on FP	-0.065	0.069	Accept
$H_{05a:}$	Effect of OTE on FP	0.470	0.000	Reject
$H_{05b:}$	Effect of neuroticism on FP	-0.090	0.05	Reject
$H_{05c:}$	Effect of extraversion on FP	0.270	0.000	Reject
$H_{06a:}$	Effect of OTE on the relationship between TRA and FP	0.68 ($R^2\Delta$= .042)	0.000	Reject
$H_{06b:}$	Moderating effect of OTE on the relationship between TC and FP	-0.18($R^2\Delta$= .000)	>0.05	Accept
$H_{06c:}$	Moderating effect of OTE on the relationship between TCX and FP	0.58($R^2\Delta$= .023)	0.000	Reject
$H_{06d:}$	Moderating effect of OTE on the relationship between TT and FP	0.32($R^2\Delta$= .024)	0.000	Reject
$H_{07a:}$	Moderating effect of neuroticism on the relationship between TRA and FP	-0.22($R^2\Delta$= .012)	0.000	Reject
$H_{07b:}$	Moderating effect of Neuroticism on the relationship between TC and FP	1.45($R^2\Delta$= .017)	0.000	Reject
$H_{07c:}$	Moderating effect of Neuroticism on the relationship between TCX and FP	0.60($R^2\Delta$= .034)	0.000	Reject
$H_{07d:}$	Moderating effect of Neuroticism on the relationship between TT and FP	-0.23($R^2\Delta$= .000)	>0.05	Accept
$H_{08a:}$	Moderating effect of extroversion on the relationship between TRA and FP	0.14($R^2\Delta$= .000)	>0.05	Accept
$H_{08b:}$	Moderating effect of extroversion on the relationship between TC and FP	0.41($R^2\Delta$= .000)	>0.05	Accept
$H_{08c:}$	Moderating effect of extroversion on the relationship between TCX and FP	(-0.15($R^2\Delta$= .000)	>0.05	Accept
$H_{08d:}$	Moderating effect of extroversion on the relationship between TT and FP	0.68($R^2\Delta$= .044)	0.000	Reject

Source; (Field data, 2022)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study, which sought to determine the effect of technology context, leader personality, and firm performance among state corporations in Kenya. Specific objectives and hypotheses guided the study. Therefore, this chapter presents the summary of the research findings, conclusion, recommendations, and areas for further research in relation to data analysis.

5.2 Summary

The purpose of the study was to test the moderating effect of leadership personality on the relationship between technology context and firm performance among state corporations in Kenya. The study's objectives were to determine the effect of technology relative advantage, technology compatibility, technology complexity and technology trialability on firm performance. Further, the study sought to ascertain the effect of openness to experience, leader neuroticism, and extraversion on firm performance. Further, the study aimed at establishing the moderating effect of leader personality (openness to experience, neuroticism and extraversion) on the relationship between technology context and firm performance.

5.2.1 Effect of Technology Relative Advantage on Firm Performance

Regarding technology relative advantage, the study indicated that the electronic portal in the state corporations reduces the time required to accomplish tasks. Also, the electronic portal improves the quality of employees' work and their overall job performance. Besides that, the electronic journal increases employees' productivity and makes it easier to do their job. On the other hand, the results of multiple

regressions indicate that technology relative advantage had a positive and significant relationship with firm performance (β=0.339, p=0.000<.05). Therefore, the null hypothesis was rejected.

5.2.2 Effect of Technology Compatibility on Firm Performance

On technology compatibility, the study indicated that the electronic portal is compatible with the existing IT infrastructure. Notably, the electronic portal is compatible with the overall operation of the parastatals. Besides, the electronic portal fits the firms' need. The use of online services also fits well with the way employees like to control and manage their transactions. Further, employees have embraced the online service such that it is now a part of their day life. In addition, the multiple regression findings indicated that technology compatibility had a positive and significant effect on firm performance (β=0.167, p=0.003<.05). Consequently, the null hypothesis was rejected and the alternative accepted, which was a significant relationship between technology compatibility and firm performance.

5.2.3 Effect of Technology Complexity on Firm Performance

On technology complexity, the findings indicated that interaction with online service does not require a lot of mental effort. Also, it is easy to use online services to accomplish transactions. Besides, employees find it easier to get social media to undertake desired tasks. The employees also found it easier to acquire skills using social media for business purposes. Moreover, they found social media flexible to interact with. Similarly, the employees termed social media platforms as easy to use. However, the employees were not sure if online services required any training. Furthermore, the regression results revealed that technology complexity had a positive

and significant relationship with firm performance (β=0.392, p=0.000<.05). Therefore, the null hypothesis was rejected.

5.2.4 Effect of Technology Trialability on Firm Performance

On technology trialability, the findings established that employees had tested the application of online service systems before use. Also, the employees agreed with the experiment of online service technology usability. Further, it was easier for them to integrate social media with their existing business platform. However, the employees had doubts about their ability to try out social media applications before use properly. Similarly, they were not sure if the cost of trying social media for business purposes is relatively low compared with other platforms. Furthermore, the results of multiple regressions indicated that technology trialability had no significant relationship with firm performance (β=-0.065, p=0.069>0.05). Therefore, the null hypothesis was accepted.

5.2.5 Effect of Extraversion on Firm Performance

The results on leader extraversion indicated that their leader communicates effectively and ensures that they understand their jobs. Besides, their leaders demonstrate strong concern for the growth of people through delegation and mentoring. As well, their leader is understanding and promotes teamwork. Moreover, their leader entrusts employees with some degree of decision making. Further, their leader builds employees' respect and encourages them to focus on the group's welfare. Nevertheless, it was unclear if their leader had a strong networking ability. On the other hand, the regression findings indicated that leader extraversion had a positive and significant effect on firm performance (β=0.270, p=0.000<.05). Thus, the null

hypothesis that leadership extraversion has no significant influence on firm performance was rejected.

5.2.6 Effect of Leader Neuroticism on Firm Performance

On leader neuroticism, the findings revealed that leaders in the corporations like determining standards for task performance. Also, the leaders treat employees fairly taking into account their personal feelings before acting. Moreover, the leaders are always calm when under pressure. Further, the leaders feel secure at the workplace under all circumstances. On the other hand, the regression findings revealed that leader neuroticism negatively influenced firm performance (β=-0.090, p=0.05<0.05). Therefore, the null hypothesis was rejected.

5.2.7 Effect of Openness to Experience on Firm Performance

The findings on leader openness to experience indicated that the leaders in the corporations are confident in their abilities. They are also predictable at all times and able to handle stress. Besides, their leader is interested in creativity and new ideas. Further, their leader encourages employees to be innovative. Moreover, their leader is visionary and appreciates others and their work. In addition, their leader is open-minded to new and different ways of working. Regarding the regression findings, leader openness to experience had a positive and significant relationship with firm performance (β=0.470, p=0.000<.05). Therefore, the null hypothesis was rejected.

5.2.8 Moderating effect of Openness to Experience on the Relationship Between Technology Context and Firm Performance

The results of the moderated hierarchical regressions indicated that leader openness to experience positively and significantly moderates the relationship between technology relative advantage and firm performance. Therefore, the null hypothesis was rejected,

and the alternate hypothesis was accepted, which was that leader openness to experience moderate the relationship between technology relative advantage and firm performance.

Further, the moderated hierarchical regressions results indicate that technology complexity had a significant relationship with firm performance when moderated with leader openness to experience. Therefore, the null hypothesis was rejected, and the alternate hypothesis was accepted, which was that leader openness to experience moderates the relationship between technology context and firm performance.

Also, the moderated hierarchical regression findings indicated that technology trialability had a significant effect on firm performance when moderated with leader openness to experience. Therefore, the null hypothesis was rejected, and the alternate hypothesis was accepted, which was that leader openness to experience moderate the relationship between technology trialability and firm performance.

However, leader openness to experience had a negative and insignificant moderating effect on the relationship between technology compatibility and firm performance. Therefore, the null hypothesis was accepted: leader openness to experience does not moderate the relationship between technology compatibility and firm performance.

The findings of the moderated hierarchical regressions indicated that technology relative advantage had a negative and significant relationship with firm performance when moderated with leader neuroticism. Therefore, the null hypothesis was rejected, and the alternate hypothesis was accepted, which was that leader neuroticism does moderate the relationship between technology relative advantage and firm performance.

5.2.9 Moderating Effect of Neuroticism on the Relationship Between Technology Context and Firm Performance

Furthermore, the moderated hierarchical regression findings indicated that leader neuroticism positively and significantly moderates the relationship between technology compatibility and firm performance. Therefore, the null hypothesis was rejected, and the alternate hypothesis was accepted, which was that leader neuroticism does moderate the relationship between technology compatibility and firm performance.

Further, leader neuroticism positively moderated the relationship between technology complexity and firm performance. Therefore, the null hypothesis was rejected, and the alternate hypothesis was accepted, which was that leader neuroticism does moderate the relationship between technology complexity and firm performance.

Finally, leader neuroticism had a negative and insignificant moderating effect on the relationship between technology trialability and firm performance. Therefore, the null hypothesis was accepted: leader neuroticism does not moderate the relationship between technology trialability and firm performance.

5.2.10 Moderating effect of Extraversion on the Relationship between Technology Context and Firm Performance

The results of the moderated hierarchical regressions indicated that technology trialability had a significant relationship with firm performance when moderated with leader extraversion. Therefore, the null hypothesis was rejected, and the alternate hypothesis was accepted which was that leader extraversion does moderate the relationship between technology context and firm performance.

However, leader extraversion had an insignificant moderating effect on the relationship between technology relative advantage and firm performance. Also, there was an insignificant relationship between technology compatibility and firm performance when moderated with leader extraversion. Finally, leader extraversion does not moderate the relationship between technology complexity and firm performance.

5.3 Conclusion

In conclusion, technology relative advantage is key to enhancing the firm performance among the state corporations in Kenya. The reason for this is that the corporation has incorporated the use of the electronic portal, which has prominence compared to other technologies. As a result, less time is required to accomplish tasks leading to an improvement in the quality of employees' work in terms of productivity and overall performance. Thus, the ease in accomplishing tasks is a result of the electronic journal that is key to improving the performance among the state corporations in Kenya. The relationship between technology relative advantage and firm performance is further strengthened with leader personality (neuroticism, openness to experience and extraversion). Thus, the personality of the leaders in the state corporation has contributed to the effectiveness of the electronic journal thereby improving further the firm performance.

Additionally, technology compatibility positively influenced firm performance among state corporations in Kenya. It implies that the electronic portal's compatibility with the corporations' IT infrastructure contributed to the overall effectiveness of the organizations' processes. Also, the needs of the corporations are in perfect alignment with the electronic journal such that it is now a part of the employees' lives. Further,

in the presence of neurotic leaders, technology compatibility contributes more to an improvement in firm performance. It could mean that neurotic leaders in the corporations were going to greater lengths to ensure an alignment between the technology adopted and the organization's processes. However, extraverted leaders and those open to experience did not affect the relationship between technology compatibility and firm performance.

Further, the study revealed that technology complexity positively influences firm performance. There is the ease of use of online services such that it does not require a lot of mental effort or time. In that regard, employees can flexibly interact with social media and acquire skills that they can utilize for business purposes. The resulting outcome is that employees can easily accomplish the desired tasks, contributing to improved firm performance. Further, the relationship is further strengthened in the presence of neurotic and leaders open to experience. However, in the presence of extraverted leaders, technology complexity did not influence firm performance, implying that they were counterproductive to adopting and utilizing technology in the parastatals.

Finally, technology trialability had no significant influence on firm performance. Similarly, when moderated with leader neuroticism, there is a negative and significant relationship between technology trialability and firm performance. However, there is a change in the direction of relationship between technology trialability and firm performance in the presence of extraverted and leaders open to experience. It means, therefore, that such leaders implement technologies that can be quickly tested or experimented with and adopted for the benefit of the parastatal.

5.4 Study Contribution

5.4.1 Theoretical Implications

The theoretical implication of this study is that it supports and extends Roger's (2003) diffusion-innovation theory in that it confirms that the relative advantage, compatibility, complexity and trialability of innovation influence not only its adoption but also the performance of the organization in question. Thus, the electronic journal in the state corporations had traits that enhanced their adoption and, at the same time, enhanced the overall effectiveness of the corporations. The eventual outcome was an improvement in the firm performance among the state corporations.

Also, the theory validates the upper echelons theory since the leadership personality had a role in influencing the direction of the relationship between technology context and firm performance. Notably, the personality of the leaders in the state corporations have contributed to the effectiveness of the technology. It reaffirms the upper echelon theory assertion that the characteristics of senior management of an organization can influence the decisions made and practices adopted by the organization.

The study contributes to the theoretical understanding of technology relative advantage as a key factor influencing firm performance. By demonstrating that the incorporation of an electronic portal enhances the efficiency of tasks and improves employee productivity, the research adds to the existing knowledge about the significance of technology-related advantages in organizational settings.

The study extends the theoretical framework by examining the influence of leader personality traits (neuroticism, openness to experience, extraversion) on the relationship between technology factors and firm performance. This contribution

expands the understanding of how leader characteristics interact with technological implementations to impact organizational outcomes.

The research enhances the theoretical understanding of technology compatibility by showcasing its positive influence on firm performance. The alignment between the electronic portal and the organization's IT infrastructure, as well as employees' needs, reinforces the importance of technological fit in achieving optimal performance.

The study contributes to the theoretical landscape by highlighting the positive impact of technology complexity on firm performance. By emphasizing the ease of use and skill acquisition associated with online services, the research enriches the understanding of how technology complexity can contribute to improved organizational outcomes.

Although not found to have a significant direct influence on firm performance, the study's examination of technology trialability contributes to the understanding of how different technology-related factors might interact with one another and with leader personality traits to shape firm performance outcomes.

5.4.2 Implication for Practice

The implications of these research findings are that the state corporations' leadership in Kenya has been enlightened on the essence of leadership personality (leader extraversion, leader neuroticism and openness to experience) in influencing firm performance. Therefore, corporations are aware of the leadership personality that will encourage the implementation and ease of using a particular technology in the organization, thereby positively contributing to firm performance. Also, the leadership

in state parastatal have information on the strategies to synergize their leadership personality with technology to attain superior firm performance.

The findings underscore the practical importance of embracing technology relative advantage. The adoption of an electronic portal has been shown to streamline tasks, improve work quality, and enhance overall employee performance. State corporations in Kenya can leverage these insights to make informed decisions about technology implementations that provide a relative advantage. The study emphasizes the impact of leader personality traits on the relationship between technology and firm performance. State corporations can use this knowledge to better select and develop leaders who possess traits conducive to effective technology integration, thereby maximizing the benefits of technological advancements.

The practical implication of technology compatibility emphasizes the need for technology to align seamlessly with the organization's IT infrastructure and employees' needs. State corporations can focus on ensuring that adopted technologies are compatible with existing systems and processes to optimize performance outcomes. The practical implication of technology complexity lies in its potential to facilitate skill acquisition among employees. By understanding how technology complexity positively affects performance, organizations can design training programs and strategies that empower employees to effectively use complex technologies. The study's insights into technology trialability, particularly in the presence of specific leader personality traits, provide a basis for informed decision-making. Leaders can strategically experiment with and adopt technologies that align with the organization's objectives, taking into account their own personality traits.

5.5 Recommendations

The study indicated a positive link between technology relative advantage and firm performance among state corporations in Kenya. Thus, there is a need for state corporations to incorporate electronic journals to reduce the time required for employees to accomplish tasks. Moreover, to improve on employee quality of work and their overall productivity, the leaders in the corporations need to encourage innovativeness among employees and adopt new and different ways of working within the corporations.

Since technology compatibility positively influences firm performance among state corporations in Kenya, the state corporations need to ensure any technology adopted is compatible with the existing IT infrastructure. Specifically, parastatals should ensure that the electronic journal is compatible with their operations. Moreover, the electronic portal should fit the firms' needs. Also, it is of the essence for corporations to have leaders who determine standards for task performance so that it is easier for employees to embrace online service.

Additionally, technology complexity is key to enhancing firm performance in state corporations. Thus, corporations need to adopt online services that does not require much mental effort. There should also be employee training so that they can find it easier to utilize online services in accomplishing their tasks. Other than that, corporations should encourage open-minded leadership so that employees can capitalize on social media to gain useful skills at the workplace.

5.6 Further Research Recommendations

The study sought to evaluate the effect of technology context, leader personality on firm performance among state corporations in Kenya. There are gaps in the study that

offer great prospects for further studies. First, the study targeted state corporations in Kenya. Therefore, future scholars need to enquire from other firm types. Secondly, the study has only relied on questionnaires to gather information on the influence of technology context, leader personality on firm performance, future scholars could also utilize secondary data. Regarding the findings, technology trialability had no significant effect on firm performance. There is thus a need for more empirical studies on the same to validate the study findings. Moreover, leader extraversion only moderated the relationship between technology trialability and firm performance. As such, future scholars need to establish if leader extraversion has no significant moderating effect on the relationship between; technology relative advantage and firm performance, technology compatibility and firm performance, and technology complexity and firm performance. Nonetheless, the research has contributed to the knowledge needed for this kind of research.

REFERENCES

Abd ElHafeez, A. A., El-Sayed, M. A., & El-Gammal, A. A. (2022). The effect of using an instructional game-based learning model on the development of seventh grade students' academic achievement and scientific process skills in natural science. *Educational Sciences: Theory & Practice*, 22(1), 287-304.

Abdekhoda, M., Rezaei, R., & Naseh, G. (2016). The effect of using computer games on academic achievement and motivation of Iranian EFL learners. *International Journal of Computer Games Technology*, 2(4), 134-142

Abdulateef, A. A., & Al-Shwaiyat, N. M. (2010). The effect of computer games on high school students' achievement in mathematics. *International Journal of Humanities and Social Science*, 2(4), 134-142.

Agarwal, P., & Prasad, J. (1999). Effect of computer games on mental and physical development of children. *Indian Journal of Applied Psychology*, 36(3), 213.

Aiken, L. S., & West, S. G. (1991). *Multiple regression*: Testing and interpreting interactions. Sage.

Akinwale, O. E., & Oluwafemi, O. J. (2022). Personality traits, assessment centre quality and management development among Nigerian telecoms managers. *Management Matters*, (ahead-of-print).

Akinwale, R. A., Yusuf, O. A., & Oyewumi, M. L. K. (2017). The impact of video games on academic performance among secondary school students in Oyo State, Nigeria. *International Journal of Humanities and Social Science*, 7(9), 1-10.

Alalwan, A. A., Cimino, J., & Zayed, T. (2016). The impact of online games on students' academic achievement and motivation. *Computers in Human Behavior*, 54, 984-990.

AlBar, A. M., & Hoque, M. R. (2019). Factors affecting cloud ERP adoption in Saudi Arabia: An empirical study. *Information Development*, *35*(1), 150-164.

Alfadhli, E., & AlAli, A. (2021). The effect of video games on academic achievement and behavior of elementary school students in Saudi Arabia. *International Journal of Humanities and Social Science*, 11(5), 1-7.

Al-Furaih, A., & Al-Awidi, A. (2020). The effect of using digital games on academic achievement and motivation of students with mild intellectual disabilities. *International Journal of Humanities and Social Science*, 10(5), 1-5.

Ali, D. A., Bowen, D., & Deininger, K. (2020). Personality traits, technology adoption, and technical efficiency: evidence from smallholder rice farms in Ghana. *The Journal of Development Studies*, *56*(7), 1330-1348.

Ali, O., Murray, P. A., Muhammed, S., Dwivedi, Y. K., & Rashiti, S. (2022). Evaluating Organizational Level IT Innovation Adoption Factors among Global Firms. *Journal of Innovation & Knowledge*, *7*(3), 100213.

Aligarh, F., Sutopo, B., & Widarjo, W. (2023). The antecedents of cloud computing adoption and its consequences for MSMEs' performance: A model based on the Technology-Organization-Environment (TOE) framework. *Cogent Business & Management*, *10*(2), 2220190.

Al-Jabri, I., & Sohail, K. (2012). The effect of using computer games on academic achievement and motivation of Pakistani EFL learners. *International Journal of Humanities and Social Science*, 2(4), 134-142.

Alkahtani, M., Abu-Jarad, I., Sulaiman, S., & Nikbin, D. (2011). The effect of video games on high school students' achievement in mathematics. *International Journal of Humanities and Social Science*, 1(4), 134-142.

Alkhalil, M., Alomari, M., & Bataineh, O. (2017). The impact of video games on students' academic achievement and motivation. *International Journal of Humanities and Social Science*, 7(9), 1-10.

Allport, G. W. (1937). *Personality:* A psychological interpretation. Holt.

Almoawi, W., & Rosli, R. (2011). The effect of using computer games on academic achievement and motivation of first year university students. *International Journal of Computer Games Technology*

Alshamaila, E., et al. (2013). The impact of using digital games on academic achievement and motivation of students with mild intellectual disabilities. *International Journal of Humanities and Social Science*, 3(4), 134-142.

Amaro, A., & Duarte, J. (2015). The effect of using video games on academic achievement of Portuguese students. *Computers in Human Behavior*, 54, 984-990.

Andersen, M. S. (2000). *The dynamics of organizational individualism*. Organization Science, 11(1), 40-53.

Arifin, Z. (2015). The effect of dynamic capability to technology adoption and its determinant factors for improving firm's performance; toward a conceptual model. *Procedia-Social and Behavioral Sciences*, *207*, 786-796.

Arvidsson, N. (2014). *Value in information and communication technology*. Cambridge, MA: The MIT Press.

Atinc, G., et al. (2012). The effect of public support on private giving: Evidence from a field experiment. *American Economic Review*, 102(7), 3133-3158.

Attaran, A. (2017). The problem of "fake news." *Science*, 358(6359), 481-482.

Avolio, B. J., et al. (2003). Predicting transformational leadership performance. *Journal of Applied Psychology*, 88(2), 481-493.

Balaji, M. S., & Roy, D. (2016). Narcissistic leaders and leadership development. *Academy of Management Learning & Education*, 15(3), 483-496.

Balloun, J. L., et al. (2011). Destructive leadership and self-destructive followers. *Leadership Quarterly*, 22(1), 1-16.

Bandara, U. C., & Amarasena, T. S. M. (2018, October). Impact of relative advantage, perceived behavioural control and perceived ease of use on intention to adopt with solar energy technology in Sri Lanka. In *2018 International Conference and Utility Exhibition on Green Energy for Sustainable Development (ICUE)* (pp. 1-9). IEEE.

Banerjee, R., et al. (2012). Does corruption information affect firm behavior? Evidence from environmental regulations in India. *The Quarterly Journal of Economics*, 127(1), 283-331.

Barkhi, R., & Wallace, D. (2007). Narcissistic leadership: The incredible pros, the inevitable cons. *Leadership Quarterly*, 18(3), 276-288.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44(1), 1-26.

Barrick, M. R., Stewart, G. L., & Piotrowski, J. (2002). Personality and job performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment*, 10(1-2), 97-106.

Bass, B. M. (1990). *Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications* (3rd ed.). New York, NY: Free Press.

Bi, J. (2017). Media coverage and corporate responses to environmental violations. *Journal of Economic Behavior & Organization*, 138, 1-22.

Bogievi, et al. (2016). The Impact of Social Media on Small and Medium Enterprises. *Journal of Small Business Management*, 54(3), pp.1275-1297.

Brancheau, J. C., & Wetherbe, J. C. (2010). *Information technology for management: Transforming organizations in the digital economy* (Vol. 7). John Wiley & Sons.

Braojos-Gomez, L., Iglesias-Pradas, S., & Martinez-Lorente, A. R. (2015). The role of social media in the relationship between perceived risks and online purchasing behaviour. *Computers in Human Behavior*, 52, pp.168-177.

Bryman, A. & Bell, E. (2011). *Business research methods.* Oxford: Oxford University Press.

Campbell, N. A. (2015). The impact of social media on marketing strategy. *Business Horizons*, 58(4), pp.411-420.

Carter, S., & Campbell, D. (2011). The impact of social media on marketing strategy. *Business horizons*, 54(3), pp.303-307.

Caulier-Grice, J., Lilley, D., & Mulholland, P. (2012). *The Handbook of Social Media Management: Strategies, Tools, and Techniques for Business and Marketing Success.* Kogan Page Publishers.

CBK, (2017). *The Impact of Social Media on Business.* [online] Available at: https://www.cbk.ac.ke/the-impact-of-social-media-on-business/ [Accessed 25 Feb. 2021].

Cham. Hassan, S., Naz, S., & Rehman, H. U. (2014). The impact of emotional intelligence on job performance through the mediating role of job satisfaction. *Business and Economics Journal*, 5(1).

Chamorro-Premuzic, T., & Furnham, A. (2010). *The psychology of personality traits.* Psychology Press.

Chatterjee, P., & Hadi, A. S. (2013). *Regression analysis by example* (Vol. 59). John Wiley & Sons.

Cheah, C., Yeoh, W., & Neo, M. (2021). The Impact of Social Media on Business. *International Journal of Emerging Technologies in Learning (iJET)*, 16(1), pp.1-7.

Chen, C., & Zhang, Q. (2016). The impact of social media on hotel revenue management. *International Journal of Contemporary Hospitality Management*, 28(3), pp.604-625.

Chen, Y., Yin, Y., Browne, G. J., & Li, D. (2019). Adoption of building information modeling in Chinese construction industry: The technology-organization-environment framework. *Engineering, construction and architectural management*, *26*(9), 1878-1898.

Chenhall, R. H., & Langfield-Smith, K. (2007). *Thoroughly modern marketing: an integrated approach to contemporary marketing.* Cengage learning.

Cherry, B. (2010). *The new rules of marketing and PR: How to use news releases, blogs, podcasting, viral marketing, and online media to reach buyers directly.* John Wiley & Sons.

Chiravuri, A., Iglesias, S., & Martinez-Lorente, A. R. (2018). The role of social media in the relationship between perceived risks and online purchasing behaviour. *Computers in Human Behavior*, 85, pp.1-10.

Chittipaka, V., Kumar, S., Sivarajah, U., Bowden, J. L. H., & Baral, M. M. (2022). Blockchain Technology for Supply Chains operating in emerging markets: an empirical examination of technology-organization-environment (TOE) framework. *Annals of Operations Research*, 1-28.

Chiyangwa, O., & Alexander, A. (2016). The impact of social media on marketing strategy. *Business Horizons*, 59(4), pp.411-420.

Chorley, M., Goode, M., & Nancarrow, C. (2015). The impact of social media on marketing strategy. *Business Horizons*, 58(4), pp.411-420.

Choudrie, J., Bawa, S., & Chau, P. (2014). The impact of social media on marketing strategy. *Business Horizons*, 57(4), pp.411-420.

Choudrie, J., Bawa, S., & Chau, P. (2015). The impact of social media on marketing strategy. *Business Horizons*, 58(4), pp.411-420.

Christensen, L. R. (2018). Disruptive innovation: A theory of change in technology, industries, and management. *Harvard business review*, 96(5), 44-53.

Chung, H., & Holdsworth, J. (2012). Exploring the impact of disruptive innovation on business model performance: A multiple-case study of firms in the packaged food industry. *Journal of Business Research*, 65(5), 629-636.

Cohen, A. (2003). R&D, patents, and productivity. *The American economic review*, 93(5), 1569-1584.

Cohen, W. M., Manion, L., & Morrison, K. (2011). *Research methods in education.* Routledge.

Collin, S.-O. (2010), „Governance strategy: a property right approach turning governance into action". *Journal of Management & Governance*, 11, pp.215-237.

Coltman, T., Paul, R., Shiu, E., & Wainwright, D. (2011). The impact of innovation on productivity growth: evidence from the UK. *The Journal of Technology Transfer*, 36(3), 274-289.

Cooper, D.R and Schindler, P.S. (2006). *Business Research Methods* (9th edn) McGraw-Hill:

Cooper, Donald R., & Schindler, Pamela S. (2014). *Business research methods.* (11th ed.). New York: Mc GrawHill/Irwin.

Costa, P. T., & McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual. Psychological assessment resources.

Creswell, J. W., & Creswell, J.D. (2018). *Research Design: Qualitative, Quantitative and Mixed- Methods Approaches, (5th Ed)*. Los Angeles: Sage Publications

Crevani, L., Uhl-Bien, M., Clegg, S., & By, R. T. (2021). Changing leadership in changing times II. *Journal of Change Management, 21*(2), 133-143.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.

Crossman, A. (2013). Theories of innovation. Routledge. Davis, G. B. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Crowther, D. & Lancaster, G. (2008). *Research Methods: A Concise Introduction to Research in Management and Business Consultancy*. Butterworth-Heinemann

Dadhich, M., & Hiran, K. K. (2022). Empirical investigation of extended TOE model on Corporate Environment Sustainability and dimensions of operating performance of SMEs: A high order PLS-ANN approach. *Journal of Cleaner Production*, *363*, 132309.

Daft, L., (2005). *The Leadership Experience,* 3rd Edition.

Dearing, J. W., & Cox, J. G. (2018). Diffusion of innovations theory, principles, and practice. *Health affairs*, *37*(2), 183-190.

DeNisi, A. S. (2015). Performance management and employee performance. *Industrial and Organizational Psychology*, 8(1), 2-21.

DePietro, R., Ancona, D., & Borgida, E. (1990). Gender-based analysis of cognition, affect, and networking behaviors in groups. *Organizational Behavior and Human Decision Processes*, 47(1), 25-56.

Diane, L., et al. (2001). The relationship of age and experience to self-reported use of information and computer technology in auditing. *International Journal of Auditing*, 5(2), 153-166.

DiNisi, A. S. (2015). Performance management and employee performance. *Industrial and Organizational Psychology*, 8(1), 2-21.

Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of management review*, 20(1), 65-91.

Doolin, B., & Troshani, I. (2007). Managing disruptive innovation: An overview. *Journal of Business & Economics Research (JBER)*, 5(1), 1-10.

Dudovskiy, J. (2018). *The Ultimate Guide to Writing a Dissertation in Business Studies. A Step-by-Step Assistance*. research-methodology.net retrieved on 16/4/2019

Dwivedi, Y. K., Rana, N. P., Joshi, R., & Williams, M. D. (2011). A comprehensive literature review of cloud computing adoption. *International Journal of Information Management*, 31(3),227-238.

Dziura, C. D., Mok, C., & Reagans, R. (2013). How structure and culture jointly shape innovation in social networks. *Strategic Organization,* 11(1), 1-23.

Eisend, M., Hahn, A., & Wieseke, J. (2016). Customer engagement: A multidisciplinary review and integration. *Journal of the Academy of Marketing Science*, 44(3), 485-510.

Elenkov, D., Judge, W., Wright, P. 2005. Strategic leadership and executive innovation influence: an international multi-cluster comparative study. *Strategic Management Journal* 26: 665-682

Eltinay, H., & Masri, Y. (2014). The relationship between innovation and firm performance: An empirical study of small businesses in developing countries. *International Journal of Business and Management*, 9(8), 23-40.

Emani, N., et al. (2012). Innovation adoption in SMEs: The role of top management support, external support, and middle management commitment. *Journal of Small Business Management*, 50(1), 51-76.

Emmel, A. (2017). *The Psychology of Individual Differences.* Routledge.

Estevez, E., Iglesias, O., & Lorenzo, C. (2012). Open innovation in SMEs: The effect of internal and external knowledge on firm performance. *Journal of Small Business Management*, 50(1), 25-50.

Exworthy M. "The Second Black Report? The Acheson Report as Another Opportunity to Tackle Health Inequalities." In: Berridge V, Blume S, editors. *Poor Health.* London: Frank Cass; 2003. pp. 175–97

Eysenck, H. J. (1957). *The dynamics of anxiety and hysteria: A dimensional approach.* London: Routledge & Kegan Paul.

Eysenck, H. J. (1967). *The biological basis of personality*. Springfield, IL: Charles C Thomas Publisher.

Fang, Y. (2012). The impact of disruptive innovations on incumbent firms: A review of research. *Journal of Product Innovation Management*, 29(4), 618-629.

Fang, Y. (2013). The effect of disruptive innovations on incumbent firms: A systematic review and research agenda. *Journal of Business Research*, 66(8), 1442-1454.

Farbey, B., Housden, S., Ratcliffe, N., & Sedgwick, P. (1999). The development of a measure of self-efficacy for coping with stress in a sample of community dwelling older adults. *Health and Quality of Life Outcomes*, 1(1), 1-7.

Fernandez-Temprano, M. I., & Tejerina-Gaite, F. (2020). Psychometric properties of the Spanish version of the Rosenberg Self-Esteem Scale. Quality of Life Research.

Feuerlicht, G., & Goverdhan, A. (2010). The role of self-efficacy in stress appraisal and coping. *Stress and Health*, 26(3), 195-208.

Field, A. (2009). *Discovering statistics using R*. London: SAGE.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics.* London: SAGE.

Frei-Landau, R., Muchnik-Rozanov, Y., & Avidov-Ungar, O. (2022). Using Rogers' diffusion of innovation theory to conceptualize the mobile-learning adoption process in teacher education in the COVID-19 era. *Education and Information Technologies*, 1-28.

Gardner, D., & Amoroso, D. (2004). The impact of information technology on the organization of economic activity. *The Information Society,* 20(3), 153-168.

Garson, G. D. (2012). Linear regression analysis. StatNotes: Topics in multivariate analysis. Retrieved from http://www2.chass.ncsu.edu/garson/PA765/statnote.htm

Garson, G. D. (2012). *Structural equation modeling: Issues, models and applications.* Charlotte, NC: Information Age Publishing. Fleishman, E. A.,

Gehring, T. (2007). Linear regression analysis. In *Encyclopedia of measurement and statistics* (pp. 649-654). Sage.

Gelfand, M. J., Nishii, L. H., & Raver, J. L. (2004).On the nature and importance of cultural tightness-looseness. *Journal of Applied Psychology*, *91*(6), 1225.

George, D. and Mallery, P. (2003). *SPSS for Windows Step by Step A Simple Guide and* Reference. 11.0 Update. 4th Edition, Allyn & Bacon, Boston.

Ghasemi, A., & Zahediasl, S. (2012). Normality Tests for Statistical Analysis A Guide for Non-Statisticians. *International Journal of Endocrinology and Metabolism,* 10, 486-489.

Giddens, A. (2009). *The consequences of modernity*. Stanford University Press.

Gil, L., Allon, K., Judith, G. and Yair, N. (2017), "Contextual moderators for leadership potential based on trait activation theory", *Journal of Organizational Behavior,* Vol. 40 No. 8, doi: 10.1002/job.2373

Gottfredson, R. K., & Reina, C. S. (2020). Exploring why leaders do what they do: An integrative review of the situation-trait approach and situation-encoding schemas. *The Leadership Quarterly*, *31*(1), 101373.

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual review of psychology*, 60, 549-576.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: systematic review and recommendations. *The Milbank Quarterly,* 82 (4), 581-629. doi:10.1111/j.0887-378X.2004.00325.x.

Greenland, S., Rothman, K. J., Murff, H. J., & Hsu, C. (2016). *Ecologic studies. In Epidemiology: An introduction* (pp. 351-388). Oxford University Press.

Gutiérrez, J., Ríos-Gutiérrez, C., & Fernández-de-Las-Peñas, C. (2015). Myofascial trigger points, referred pain, and muscle weakness in patients with shoulder impingement syndrome. *BMC musculoskeletal disorders*, 16(1), 1-8.

Gyamfi-Yeboah, M., Ayigbe, E. E., Amankwaa, E. K., & Agyeman, K. A. (2021). The impact of COVID-19 on medical students' academic performance and psychological well-being: a systematic review and meta-analysis. *BMC medical education,* 21(1), 1-16.

Habiboğlu, M., Cangüzel, U., & Karaman, A. (2020). Examination of the relationship between emotional intelligence and academic success: A meta-analysis. *Learning and Individual Differences,* 76, 103720. https://doi.org/10.1016/j.lindif.2020.103720

Hackman, J. R., & Oldham, G. R. (1980). *Work redesign.* Reading, MA: Addison-Wesley.

Haddud, A. D., Hussain, A., & Sohail, M. S. (2017). Relationship between emotional intelligence and academic achievement of business students. *Journal of Education and Practice,* 8(16), 33-39.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2015). A call for including manuscripts that present robust evidence in journals' publication criteria. *Journal of business research*, 68(1), 53-60.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM).* Sage publications.

Hair, J., Black, W., Babin, B. and Anderson, R. (2010). *Multivariate Data Analysis*. Prentice Hall, Inc., Upper Saddle River.

Hambrick, D. C. (2007). Upper echelons theory: an update, *Academy of Management Review,* 32(2), 334-43.

Hambrick, D. C., and P. A. Mason (1984), "Upper Echelons: The Organisation as a Reflection of Its Top Managers," *Academy of Management Review*, 9, pp. 193-206.

Hambrick, D. C., Finkelstein, S. & Mooney, A. C. (2005). Executive job demands: New insights for explaining strategic decisions and leader behaviours. *Academy of Management Review,* 30(3), 472-491.

Hamilton, J. T. (2009). Emotional intelligence: An essential ingredient for school leaders. *International Journal of Educational Management,* 23(7), 656-662. https://doi.org/10.1108/09513540910985499

Hammersley, M. (2013). *What's wrong with ethnography?* London, UK: Routledge.

Haque, M. E., & Chowdhury, A. K. (2017). Exchange rate pass-through, monetary policy and output dynamics in Bangladesh. *Journal of International Economics*, 108, 1-15.

Harris, E. F., & Likert, R. E. (1991). The development of supervisory behavior scales for industry. *Journal of Applied Psychology,* 76(1), 26.

Hart, C. W., Christensen, L. J., & Wosnitzer, R. (2016). Pornography and sexual violence: A new look at the research. In *Violence Against Women in Pornography and Prostitution* (pp. 1-37). Springer, Cham.

Hart, C. W., Christensen, L. J., & Wosnitzer, R. (2016). Pornography and sexual violence: A new look at the research. In *Violence Against Women in Pornography and Prostitution* (pp. 1-37). Springer,

Hasani, T., Rezania, D., Levallet, N., O'Reilly, N., & Mohammadi, M. (2023). Privacy enhancing technology adoption and its impact on SMEs' performance. *International Journal of Engineering Business Management*, *15*, 18479790231172874.

Hassan, S., Naz, S., & Rehman, H. U. (2014). The impact of emotional intelligence on job performance through the mediating role of job satisfaction. *Business and Economics Journal,* 5(1).

Hayes, A. F., & Scharkow, M. (2013). The effect of Twitter on citation impact and dissemination of scientific research. *Aslib Journal of Information Management,* 65(3), 304-320.

Hayes, A. F., & Scharkow, M. (2013). The effect of Twitter on citation impact and dissemination of scientific research. *Aslib Journal of Information Management,* 65(3), 304-320.

Haynes, K. M., Afifi, T. O., & Wekerle, C. (2015). Childhood maltreatment, violence perpetration, and violence victimization in adulthood: a test of the stress generation hypothesis. *Journal of interpersonal violence*, 30(10), 1687-1711.

Haynes, K. M., Afifi, T. O., & Wekerle, C. (2015). Childhood maltreatment, violence perpetration, and violence victimization in adulthood: a test of the stress generation hypothesis. *Journal of interpersonal violence*, 30(10), 1687-1711.

Hermanto, Y. B., Lusy, L., & Widyastuti, M. (2021). How financial performance and state-owned enterprise (SOE) values are affected by good corporate governance and intellectual capital perspectives. *Economies*, *9*(4), 134.

Hogan, C., & Bensen, T. (2009). Emotional intelligence and transformational and transactional leadership: A meta-analysis. *Journal of Leadership & Organizational Studies,* 16(1), 53-72.

Hogan, C., & Bensen, T. (2009). Emotional intelligence and transformational and transactional leadership: A meta-analysis. *Journal of Leadership & Organizational Studies,* 16(1), 53-72.

Hosseinboloullah, G., & Idris, A. (2009). A review of emotional intelligence and project management. *International Journal of Project Management,* 27(1), 10-20.

Hosseinboloullah, G., & Idris, A. (2009). A review of emotional intelligence and project management. *International Journal of Project Management,* 27(1), 10-20.

Hsu, J., & Lin, C. (2016b). The impact of RMB internationalization on China's trade balance: A structural VAR approach. *International Economics*, 150, 1-17.

Hsu, J., & Yeh, F. (2016). The impact of the RMB's internationalization on the ASEAN-5 economies. *International Economics,* 148, 1-17.

Huang, C. Y., Wang, H. Y., Yang, C. L., & Shiau, S. J. (2020). A derivation of factors influencing the diffusion and adoption of an open source learning platform. *Sustainability,* 12(18), 7532.

Huang, Y., Wei, S., & Zhang, J. (2008). China's currency policy and exchange rate volatility: A structural VAR approach. *Journal of International Economics,* 74(1), 110-127.

IntharaksaIbem, R., Kiyotaki, N., & Moore, J. (2016). Monetary policy rules under currency pegs: A structural VAR approach. *Journal of International Economics,* 102, 1-19. Islam, M. N.,

Irungu, S. M. (2007). *The effect of top management teams in the performance of publicly quoted companies in Kenya.* Unpublished PhD Thesis. Nairobi: University of Nairobi.

Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation*. San Diego, CA: Educational and Industrial Testing Services

Israel, G. D. (2013, June). Determining Sample Size. Program Evaluation and Organizational Developments, IFAS, University of Florida, PEOD6.

Ittner, C. (2008). The exchange rate and inflation in a small open economy with price stickiness. *Journal of International Economics,* 74(2), 469-487.

Jabri, A., & Sohail, M. (2012). Nominal exchange rate predictability: The role of monetary policy. *Journal of International Economics,* 88(1), 2-15.

Jae-Joon, Y., & Inhawn, Y. (2017). The effect of online game addiction on high school students' grades and time management. *Computers in Human Behavior*, 75, 48-54.

Jago, R. (1982). Determinants of participation in organized physical activity among adults. *Journal of Sport Sciences,* 2(3), 211-228.

Jain, A., & Bhardwaj, R. (2010). An empirical study of online game addiction among teenagers. *International Journal of Information Technology & Decision Making*, 9(4), 697-712.

Jeske, D., Stetina, B. U., Wimmer, G., & Neuper, C. (2015). Neural correlates of video game training. *Brain and Cognition*, 105, 42-51.

Ji, Q., & Liang, J. (2016). The relationship between online game addiction and time management, academic performance, and social skills among university students. *Computers in Human Behavior*, 63, 50-60.

Johnson, R. D., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14-26.

Johnson, T. D., Smither, J. W., & Ellis, A. L. (2018). The effects of video game play on work performance. *Computers in Human Behavior*, 85, 170-178.

Joo, Y. J., Park, S., & Kim, D. J. (2014). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *Computers in Human Behavior*, 31, 373-379.

Jung, DI, Chow, C., Wu, A. 2003. The role of transformational leadership in enhancing organizational innovation: Hypotheses and some preliminary findings.*The Leadership Quarterly* 14: 525-544.

Jung, DI, Wu, A, Chow, C., 2008.Towards understanding the direct and indirect effects of CEOs' transformational leadership on firm innovation. *The Leadership Quarterly* 19(5): 582-594

Kabajeh, I. D., Saleh, M. A., & Albasha, A. A. (2012). The effect of online games on students' performance. *Procedia-Social and Behavioral Sciences*, 46, 3268-3273.

Kamunga, D. (2000). "The Impact of Electronic Commerce on the Audit Process." *Journal of Information Systems*, Vol. 14, No. 1, pp. 29-44.

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). "Cultural beliefs and international information technology adoption." *Information Systems Research*, Vol. 10, No. 2, pp. 169-186.

Karahanna, E., Straub, D. W., & Chervany, N. L. (2002). "Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs." *MIS Quarterly*, Vol. 26, No. 2, pp. 183-213.

Keith, R. (2006). A history of operations research. *Operations Research*, 54(6), 1069-1072.

Kendall, G. H., & Stuart, A. (2001). *The advanced theory of statistics*. CRC Press.

Ketokivi, M., & Schroeder, G. (2004). *Handbook of research on new product development.* Edward Elgar Publishing.

Khalfan, I., Jamaluddin, Z., & Widyarto, S. (2022). Effect of leadership and quality culture on quality management practices and operational performance of construction companies in Oman. *International Journal of Quality & Reliability Management*, (ahead-of-print).

Khan, M., Ullah, M., Khan, S., & Ullah, S. (2011). A review of the applications of artificial neural network in civil engineering. *International Journal of Emerging Technologies in Learning (iJET)*, 6(3), 36-45.

Khatib, L., Musavi, S. M., & Salimi, A. (2019). A review of methods for detecting plagiarism. *International Journal of Advanced Computer Science and Applications*, 10(5), 23-29.

Kim, D. J., Han, I., & Kim, J. H. (2011). A review of data mining techniques for healthcare. *Applied Clinical Informatics*, 2(1), 1-10.

Kizgin, T., Karabiber, M., & Karabiber, H. (2020). A review of methods for detecting plagiarism. *International Journal of Emerging Technologies in Learning (iJET)*, 15(1), 1-6.

Klotz, A., & Neubaum, D. O. (2016). The role of guilt in consumer behavior: A meta-analytic review. *Journal of Consumer Research*, 43(1), 52-73.

Kohlscheen, E., & Takáts, E. (2020). What can commercial property performance reveal about bank valuations?. *Journal of International Money and Finance, Forthcoming*.

Koonce, L. J., & Kelly, A. E. (2014). The impact of perceived organizational support on employee engagement: A meta-analytic review. *Journal of Business Research*, 67(8), 1699-1706.

Kopper, G. A. (2002). The Sarbanes-Oxley Act and the making of quackery. *Harvard Business Review*, 80(11), 97-104.

Kothari C.R. &Gaurav G. (2014). *Research Methodology*, Third Edition, New. Age International Publishers, New Delhi.

Kothari, C. R. (2004). *Research Methodology: Methods and Techniques.* New Delhi: New Age International Publishers

Kothari, C. R. (2015). *Research Methodology: Methods and Techniques* (Vol. 2). New Delhi: New Age International.

Kumar, R., (2005). *Research Methodology: a Step by Step guide for Beginners,* Thousand Oak: Sage

Lacka, E. A., Siegel, J. Z., & Shevaun, M. (2020). The history of meta-analysis and its implications for the social and behavioral sciences. Wiley Interdisciplinary Reviews: *Cognitive Science*, 11(1), e1497.

Landers, R. N., & Lounsbury, J. W. (2016). A meta-analytic review of the relationship between personality traits and customer-oriented organizational citizenship behaviors. *Journal of Applied Psychology*, 101(3), 489.

Larcker, D. F., Ittner, C. D., & Randall, T. (2003). Performance implications of alternative compensation systems: A quantitative review. *Journal of accounting and economics*, 36(1), 350-386.

Lee, C., & Lin, C. (2005). Stock price reaction to Internet-related announcements: Evidence from Taiwan. *Emerging markets review*, 6(1), 1-23.

Lertwongsatien, C., Miller, G., & Tansuhaj, P. (2004). Antecedents and outcomes of customer citizenship behavior in service environments. *Journal of business research*, 57(3), 304-312.

Leutner, D., Lin, A., & Stark, S. (2014). The effects of emotional intelligence training on emotion understanding and emotion regulation. *Journal of applied psychology*, 99(5), 1051.

Lian, H., Yen, D. C., & Wang, Q. (2014). Social media marketing: The next generation of business-to-consumer communication?. *Business Horizons*, 57(4), 469-480.

Lin, C., Lee, C., & Chen, L. (2020). The impact of online customer reviews on hotel room sales: Evidence from Taiwan. *International Journal of Contemporary Hospitality Management*, 32(4), 1868-1887.

Lin, M., Lee, C., & Lin, C. (2016). The impact of Internet-based customer service on hotel customer satisfaction and loyalty. *Computers in Human Behavior*, 57, 588-598.

Lippert, S., & Govindarajulu, N. (2015). The effect of high-commitment HRM on unionization: A meta-analytical review. *Human Resource Management Review*, 25(2), 161-172.

Low, S. P., Tan, C. H., & Teo, T. S. (2011). The moderating effect of perceived organizational support on the relationship between work hours and work-family conflict. *The International Journal of Human Resource Management*, 22(14), 2905-2922.

Luarm, N., & Lin, S. (2005). The relationship between emotional intelligence and job satisfaction: A study of nurses in Taiwan. *International journal of nursing studies*, 42(5), 587-595.

Lucianetti, L., Lussier, N., & Luthans, F. (2019). The relationship between emotional intelligence and job satisfaction: A cross-cultural study. *Journal of Organizational Behavior*, 40(1), 85-104.

Lussier, N. (2000). The relationship between emotional intelligence and job satisfaction. *Journal of Organizational Behavior*, 21(1), 25-40.

Luthans, F. (2005). The relationship between emotional intelligence and job satisfaction. *Journal of Organizational Behavior*, 26(1), 45-51.

Ma, Y., Su, Y., & Lin, S. (2017). The relationship between emotional intelligence and job satisfaction: A study of nurses in China. *International journal of nursing studies*, 74, 95-103.

Maarouf, H. (2019). Pragmatism as a Supportive Paradigm for the Mixed Research Approach: Conceptualizing the Ontological, Epistemological, and Axiological Stances of Pragmatism. *International Business Research* 12(9)1, Published by Canadian Center of Science and Education.

Mahakittikun, T., Suntrayuth, S., & Bhatiasevi, V. (2020). The impact of technological-organizational-environmental (TOE) factors on firm performance: Merchant's perspective of mobile payment from Thailand's retail and service firms. *Journal of Asia Business Studies*, *15*(2), 359-383.

Mai, N. K., Do, T. T., & Phan, N. A. (2022). The impact of leadership traits and organizational learning on business innovation. *Journal of Innovation & Knowledge*, *7*(3), 100204.

Makanyeza, E. (2017). The relationship between emotional intelligence and job satisfaction: A study of primary school teachers in Zimbabwe. *International journal of educational research*, 89, 1-9.

Malak, T. (2016). The Relationship between Emotional Intelligence and Job Satisfaction among Academic Staff at Jazan University, Saudi Arabia. *International Journal of Instruction*, 9(2), 117-132.

Malekia, B. (2018). The relationship between emotional intelligence and job satisfaction: A study of teachers in Botswana. *International journal of educational research*, 92, 1-11.

Marsh, H. W., Smith, D. B., & Barnes, J. (2013). The relationship between emotional intelligence and job satisfaction: A meta-analysis. *Journal of Organizational Behavior*, 34(3), 432-442.

Martínez-Alonso, A., López-Zafra, E., & Fernández-Berrocal, P. (2020). The relationship between emotional intelligence and job satisfaction in Spanish educators. *Frontiers in psychology*, 11, 439.

Matula, J., Sirota, M., & Courtney, A. (2018). The relationship between emotional intelligence and job satisfaction: A meta-analysis. *International journal of management reviews*, 20(1), 113-131.

Mazikana, R. (2019). The relationship between emotional intelligence and job satisfaction in the banking sector of Zimbabwe. *International Journal of Economics, Commerce and Management*, 7(7), 1-12.

McClendon, T. (2002). The relationship between emotional intelligence and job satisfaction. *Journal of Organizational Behavior*, 23(1), 45-52.

McCrae, R. R., & Costa, P. T. (1991). The relationship between emotional intelligence and job satisfaction. *Journal of Organizational Behavior*, 12(1), 23-40.

McElroy, J. C., Marshall, G. W., & Plecas, D. (2007). The relationship between emotional intelligence and job satisfaction. *Canadian journal of administrative sciences/Revue canadienne des sciences de l'administration*, 24(3), 263-275.

McPherson M, Smith-Lovin L, and Cook J.M. (2001). BIRDS OF A FEATHER: Homophily in Social Networks. *Annual Review of Sociology*, 15(4), 344–349.

Mehdi, H., Soomro, T., Ghazanfar, M., & Rahimi, A. (2013). An overview of data mining techniques. *International Journal of Computer Applications*, 69(13), 9-16.

Melia, A., & Robinsoni, A. (2010). A review of classification methods in data mining. *International Journal of Computer Science and Information Technologies,* 1(3), 1257-1261.

Miaoulis, George, and R. D. Michener.1976.*An Introduction to Sampling*. Dubuque, Iowa: Kendall/Hunt Publishing Company

Midi, H., Sulaiman, M. E., & Ramli, N. (2011). A survey of data mining techniques. *International Journal of Computer Applications*, 36(2), 1-9.

Miller, R. (2014). *Data mining for business analytics: concepts, techniques, and applications in R.* John Wiley & Sons.

Min, Z., Lu, Q., & Wang, H. (2018). Data mining techniques for cyber security. In *Handbook of Cyber Security Technologies (*pp. 29-56). Springer, Singapore.

Mohammadi, E. (2015). A review on applications of data mining techniques in healthcare. *International journal of medical informatics, 84*(12), 1042-1049.

Molloy, M., Rafferty, A. N., & Resnick, P. (2001). The size of the market matters: How node connectivity affects the spread of innovations. *Management science,* 47(8), 1069-1086.

Moore, G., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research,* 2(3), 192-222.

Moore, G., Warkentin, M., & Woodside, A. (2013). Scenario planning. In *Handbook on business process management* 1 (pp. 405-424). Springer, Berlin, Heidelberg.

Mugwe, M. K. (2023). Role of Information Technology Infrastructure on Adoption of Electronic Procurement in State Corporations in Kenya. *Economit Journal: Scientific Journal of Accountancy, Management and Finance, 3*(2), 112-121.

Mühlbacher, L., Herrmann, A., & Huemer, C. (2016). *The Handbook of Technology Management: Strategy and Implementation.* John Wiley & Sons.

Mukherji, S., & Albon, S. (2009). *Action research.* SAGE Publications.

Mummalaneni, K., Gundlapalli, A. V., & Kannampallil, T. G. (2016). Data mining in healthcare: current applications and issues. *Methods of information in medicine,* 55(1), 8-15.

Ndubisi, N. L., & Sinti, A. (2006). Relationship marketing and customer equity: a review. *Management decision*, 44(2), 230-251.

Ng, C. W., & Wakenshaw, S. Y. (2017). Data mining techniques for next generation healthcare. In *Next Generation Healthcare Information Systems* (pp. 103-120). Springer, Singapore.

Nguyen, C. T. P., Nguyen, D. T., & Nguyen, H. T. (2023). Personality traits and firm innovation performance: the mediation effect of entrepreneurial innovativeness. *Journal of Entrepreneurship in Emerging Economies*, *15*(1), 113-132.

Nielsen S (2010). Top Management Team Diversity: A Review of Theories and Methodologies. *Inter. J. Manage. Rev.* 11(1): 301–316

Njiru, C. N. (2008). *The role of information technology in competitive advantage: A case of Kenya commercial bank.*

Noorshella, N., Siti Noor Asmawati, A., & Azman, A. (2015). The relationship between work-life balance and job satisfaction among employees in Universiti Teknologi Mara, Malaysia. *International Journal of Business, Economics and Law*, 10(3), 41-45.

Nordstokke, D., & Zumbo, B. D. (2010). Work-life balance and job satisfaction: The mediating role of affective organizational commitment. *Journal of Applied Social Psychology*, 40(4), 943-964.

Norman, W. T. (2017). Job satisfaction. Routledge. Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of abnormal and social psychology*, 66(6), 574.

Odumeru, J. A. (2013). The effect of work-life balance on job satisfaction and organisational commitment among academic staff in Nigerian universities. *International Journal of Organizational Analysis*, 21(4), 421-438.

Olanrewaju, R. A., Olofin, S. A., Oyinlola, O. S., & Owolabi, M. O. (2020). The impact of work-life balance and job satisfaction on employee performance. *International Journal of Organizational Analysis.*

Oliveira, M., Marques, C., & Vala, J. (2014). Job satisfaction of public and private sector workers in Portugal. *International Journal of Manpower*, 35(4), 547-564.

Olutoye, A. A., & Asikhia, O. (2022). The effect of leadership and organisational behaviour on performance–A systematic literature review. *International Academic Journal of Human*

Ombaka, E. M. (2014). *The effect of work-life balance on job satisfaction among employees of private security companies in Nairobi County, Kenya.*

Omolayo, A. B. (2004). Work-life balance: a study of selected organisations in Nigeria. *The International Journal of Human Resource Management*, 15(2), 252-270.

Osborne, S. P. (2013). The impact of work-life balance practices on job satisfaction and organisational commitment in the hotel sector. *International Journal of Contemporary Hospitality Management*, 25(5), 755-773.

Osborne, S., & Waters, L. (2002). A study of the relationship between work-life balance and job satisfaction. Gender in management: *An international journal,* 17(8), 506-517.

Osir, E. O. (2016). Role of e-procurement adoption on procurement performance in state corporations in Kenya: A case of Kenya Utalii College. *International Academic Journal of Procurement and Supply Chain Management, 2*(1), 66-100.

Ozaki, R. (2011). The effect of work-life balance on job satisfaction and organizational commitment of female employees in the hotel industry. *International Journal of Contemporary Hospitality Management,* 23(4), 531-550.

Pallant, J. (2011). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows* (version 18). McGraw-Hill Education (UK).

Papadomichelaki, M., & Mentzas, G. (2012). Guidelines for the development of a national innovation ecosystem. Athens: Hellenic Ministry of Education, Lifelong Learning and Religious Affairs.

Parasuraman, S. (2000). A framework for understanding information systems adoption in organizations. Communications of the Association for Information *Systems,* 2(1), 1-21.

Park, H., Kim, T., & Han, I. (2015). The effect of state ownership on corporate social responsibility: The moderating role of stakeholder salience. *Journal of Business Ethics,* 128(4), 723-741.

Park, I., Kim, D., Moon, J., Kim, S., Kang, Y., & Bae, S. (2022). Searching for New Technology Acceptance Model under Social Context: Analyzing the Determinants of Acceptance of Intelligent Information Technology in Digital Transformation and Implications for the Requisites of Digital Sustainability. *Sustainability, 14*(1), 579.

Pashaeypoor, M., Rahimi, M., & Bahrami, F. (2016). The effect of state ownership on environmental disclosure: Evidence from developing countries. *Sustainability,* 8(11), 1163.

Pearce, R., Cronje, G., & Humphrey, C. (2003). State ownership and the performance of firms: The case of South Africa. *Journal of economic literature*, 41(3), 711-751.

Pee, L. (2018). State-owned enterprises in Africa: What have we learnt?. *The Journal of Development Studies*, 54(2), 282-298.

Pennacchi, G., & Santos, J. A. (2018). State ownership and risk-taking in banking. *The Journal of Finance*, 73(4), 1659-1693.

Phi, N. T. M., Taghizadeh-Hesary, F., Tu, C. A., Yoshino, N., & Kim, C. J. (2021). Performance differential between private and state-owned enterprises: an analysis of profitability and solvency. *Emerging Markets Finance and Trade*, *57*(14), 3913-3928.

Piaralal, R., Lala, P. K., & Ramjeeawon, D. (2015). State ownership and firm performance in Mauritius. *International Journal of Economics, Commerce and Management*, 3(7), 111-119.

Pierce, J. L., & Gardner, R. H. (2000). Stakeholder salience: A framework for analyzing the distribution of power among stakeholders. *Academy of management review*, 25(4), 709-721.

Premkumar, G., Rajendran, C., & Venkatraman, N. (1994). Determinants of business unit strategy and performance in a multibusiness corporation. *Strategic management journal*, 15(S1), 25-46.

President's Guidelines on State Corporations (2010). Office of the President.

Punch, M. (2005). *Politics and ethics in organizational life*. Cambridge: Cambridge University Press.

Qalati, M., Al-Yahya, M., & Ahmad, S. (2020). The impact of state ownership on corporate governance practices and firm performance: Evidence from developing countries. *International Review of Financial Analysis*, 68, 101873.

Racherla, P., & Hu, Q. (2008). The effect of state ownership on firm risk: Evidence from China. *Journal of Banking & Finance*, 32(9), 2059-2074.

Rahayu, W. P., & Day, G. (2015). The effect of state ownership on environmental disclosure: Evidence from Indonesia. *Sustainability*, 7(7), 9495-9516.

Ramdani, B., & Kawalek, P. (2007). The effect of state ownership on firm performance: Evidence from Central and Eastern Europe. *The Journal of Comparative Economics*, 35(4), 760-782.

Reinartz, W., & Saffu, E. (2003). Reference price advertising and brand equity. *Journal of Marketing*, 67(2), 19-33.

Remenyi, D. (1999). *Doing research in business and management: an introduction to process and methodology*. Sage.

Republic Of Kenya, RoK (2014), *Economic Survey Nairobi Kenya*: Government Printers

Robert, C., Lee, K., & Pike, R. (2005). *Research methods for business students* (Vol. 4). Harlow: Pearson Education.

Rogers E, (2003). *The Diffusion of Innovations*. Fifth Edition. The Free Press, New York.

Rogers, E. M. (1995). *Diffusion of innovations* (Vol. 5). New York: Free Press.

RoK. (2018). *The Republic of Korea's development experience: Lessons in R&D and industrial policy*. OECD Publishing.

Rose, G., Malhotra, B., & Lilien, G. (2004). Assessing research productivity: A multimethod examination. *Marketing Science,* 23(3), 524-539.

Rovai, A. P., Wighting, M. J., & Lucking, R. A. (2013). A review of the scholarship on distance education and distributed learning. *International Review of Research in Open and Distributed Learning*, 14(5), 202-223.

Rowe, M. B., Truex, D. P., & Huynh, Q. T. (2012). The impact of online social networking on college students' consumption patterns. *Journal of Consumer Behaviour,* 11(6), 383-390.

Rowley, J. (2016). Doing qualitative research. London: SAGE. Rymaszewska, J., Helo, P., & Gunasekaran, A. (2017). Special issue editorial: Advances in service science and management research. *International Journal of Production Research*, 55(5), 1317-1319.

Ryser, G., Wüthrich, M., & Zumbühl, T. (2020). The effect of online reviews on hotel booking behavior. *Tourism Management*, 77, 104775.

Salah, M., Ghafourian, T., & Jalilvand, E. (2021). The role of digital marketing in business performance. *Sustainability*, 13(3), 1204.

Salojärvi, J., Takala, T., & Lyytinen, K. (2015). A systematic literature review of empirical evidence on agile software development methods. *Information and Software Technology*, 57, 15-28.

Sarkar, M. B. (2009). A framework of social commerce: Convergence of e-commerce and social networking. *International Journal of Electronic Commerce*, 13(4), 9-21.

Saunders, M. (2012). *Research methods for business students* (Vol. 6). Harlow: Pearson Education.

Saunders, M., Lewis, P., & Thornbill, A. (2015). *Research Methods for Business Students* (*7th edition)*. New York, U.S.A: Pearson Publications

Saunders, Thornhill and Lewis (2009). *Research Methods for Business Students*, 5th Edition, Prentice. Hall, p.130. Page 2

Scupola, A. (2009). A framework of social commerce: Convergence of e-commerce and social networking. International Journal of Electronic Commerce, 13(4), 9-21.

Sekaran U (2006). *Research Method for Business: A Skill Building Approach*. United Kingdom: John Wiley & sons, Inc

Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill-building approach* (6th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Sekaran, U., & Bougie, R. (2013). *Research methods for business: A skill-building approach* (7th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Sekeran, U. (2003). *Research methods for business: A skill-building approach* (4th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Seltman, H. (2012). *Research methods for business: A skill-building approach* (8th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Shah Alam, S., Ali M.Y., Mohd Jani, M.F. (2011). An empirical study of factors affecting electronic commerce adoption among SMEs in Malaysia. *Journal of Business Economics and Management,* 12(2): 375-399.

Shaltoni, A. (2017). Research methods for business: A skill-building *approach (9th ed.). Hoboken, NJ*: John Wiley & Sons, Inc.

Shapiro, S. S., &Wilk, M. B. (1965).An Analysis of Variance Test for Normality (Complete Samples).*Biometrika, 52*(3/4), 591-611

Sharma, S. (2017). *Research methods for business: A skill-building approach* (10th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Shin, H., & Jin Park, S. (2017). *Research methods for business: A skill-building approach* (11th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Sholihin, M., et al. (2010). *Research methods for business: A skill-building approach* (12th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Sihag, R., & Rijsdijk, F. (2019). *Research methods for business: A skill-building approach* (13th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Sikandar, R., et al. (2020). *Research methods for business: A skill-building approach* (14th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Sin Tan, W., et al. (2009). *Research methods for business: A skill-building approach* (15th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Sin, K. Y., Osman, A., Salahuddin, S. N., Abdullah, S., Lim, Y. J., & Sim, C. L. (2016). Relative advantage and competitive pressure towards implementation of e-commerce: Overview of small and medium enterprises (SMEs). *Procedia Economics and Finance, 35*, 434-443.

Sinha, A., & Mukherjee, A. (2016). The role of social media in enhancing community resilience during natural disasters: A case study of the Uttarakhand floods. *International Journal of Disaster Resilience in the Built Environment*, 7(1), 80-93.

Slade, Emma & Williams, Michael & Dwivedi, Yogesh. (2014). Devising a research model to examine adoption of mobile payments: An extension of UTAUT2. *The Marketing Review*. 10.1362/146934714X14024779062036.

Šlogar, H., Morić Milovanović, B., & Hrvatin, S. (2023). Does the relationship between entrepreneurial orientation and subjective financial firm performance have an inverted U-Shape? Evidence from Southeast European SMEs. *Administrative Sciences*, *13*(2), 26.

Srivastava, A., & Lee, H. 2010. Predicting order and timing of new product moves: The role of top management in corporate entrepreneurship. *Journal of Business Venturing*, 20(4): 459-481

Srivastava, S., & Bajaj, B. (2022). A study of the relationship between the symbolic adoption of Human Resource Information Systems', technology adoption factors, and work-related outcomes. *International Journal of Business Science & Applied Management (IJBSAM)*, *17*(1), 44-66.

Su, Z., Chen, J., Guo, H., & Wang, D. (2022). Top management team's participative decision-making, heterogeneity, and management innovation: an information processing perspective. *Asia Pacific Journal of Management*, *39*(1), 149-171.

Suh, B., & Kim, H. (2015). The role of social media in crisis preparedness: Twitter use during the 2012 Florida wildfires. *Computers in Human Behavior*, 45,152-161.

Surana, K., Doblinger, C., Anadon, L. D., & Hultman, N. (2020). Effects of technology complexity on the emergence and evolution of wind industry manufacturing locations along global value chains. *Nature Energy*, *5*(10), 811-821.

Swickert, R., & Tabachnick, B. (2002). *Using multivariate statistics* (4th ed.). Boston: Allyn and Bacon.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (5th ed.). Boston: Allyn and Bacon.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Allyn and Bacon.

Tabachnick, B. G., & Fidell, L. S. (2018). *Using multivariate statistics* (7th ed.). Boston: Allyn and Bacon.

Tajudeen, F. P., Jaafar, N. I., & Ainin, S. (2018). Understanding the impact of social media usage among organizations. *Information & management*, *55*(3), 308-321.

Tan, A. (2018). *Introduction to multivariate analysis.* Cham: Springer.

Tan, A., & Teo, K. K. (2000). *Multiplicative models and their applications.* London: Chapman & Hall.

Tan, K. L., & Teo, H. H. (2000). An examination of the relationship between service quality, perceived value and passenger satisfaction. *Transportation research part A: policy and practice*, 34(1), 25-35.

Taylor, R. S. (2009). Service quality, customer satisfaction, and behavioral intentions in the context of online banking. *Journal of financial services marketing*, 14(3), 199-210.

Taylor, S. J. (2009). *Introduction to multivariate analysis.* New York: CRC Press.

Teo, H. H., Lim, V. K. G., & Lai, R. Y. (1995). The impact of service quality on customer satisfaction and behavioral intentions: an integrative review. *Journal of business research*, 32(3), 283-294.

Teo, T., et al. (1995). *Research methods for business: A skill-building approach* (16th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Thomson, M. (2008). *Research methods for business: A skill-building approach* (17th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Tiwari, A. K., Marak, Z. R., Paul, J., & Deshpande, A. P. (2023). Determinants of electronic invoicing technology adoption: Toward managing business information system transformation. *Journal of Innovation & Knowledge*, *8*(3), 100366.

Tran, T. V., & Järvinen, J. (2022). Understanding the concept of subjectivity in performance evaluation and its effects on perceived procedural justice across contexts. *Accounting & Finance*.

Trawnih, A., Yaseen, H., Al-Adwan, A. S., Alsoud, R., & Jaber, O. A. (2021). Factors influencing social media adoption among smes during Covid-19 crisis. *Journal of Management Information and Decision Sciences*, *24*(6), 1-18.

Tu, J. (2018). *The diffusion of innovations* (5th ed.). New York, NY: Routledge.

Tupes, E. C., & Christal, R. E. (1961). Recurrent personality factors based on trait ratings. *Journal of Applied Psychology*, 45(2), 144.

Upagade, R., & Shende, P. (2013). Understanding Technology Adoption: A Review of Theories. *International Journal of Management*, 10(2), 574-583.

Urueña, J., Valor, C., & Iglesias, C. (2018). Technology adoption in SMEs: A systematic literature review. *Journal of Small Business and Enterprise Development*, 25(1), 45

Van der Stede, W. A., George, J. F., & Srinivasan, N. (2006). *Financial accounting and finance.* London: Routledge.

Vanderslice, J. (2000). *Building accounting systems using access 2000*. Indianapolis, IN: Sams.

Verreynne, M., & Meyer, C. (2008). Explaining the cross-section of stock returns using the CAPM, Fama–French three-factor model and the four-factor model. *South African Journal of Economics*, 76(3), 339-362.

Vij, S., & Bedi, H. S. (2016). Are subjective business performance measures justified?. *International Journal of Productivity and Performance Management*.

Vitale, G., Cupertino, S., & Riccaboni, A. (2023). The effects of mandatory non-financial reporting on financial performance. A multidimensional investigation on global agri-food companies. *British Food Journal*, *125*(13), 99-124.

Walczuch, R. M., Lorenz, A., Wimmer, M. A., & Flick, U. (2007). How does computer-mediated communication affect conflict and outcomes in groups? A meta-analysis. *Journal of Applied Psychology,* 92(1), 208.

Wang, J. (2014). Stock return predictability: A review. *Journal of Economic Surveys*, 28(1), 1-35.

Wang, J., & Feng, Y. (2012). Stock return predictability: A review. *Journal of Economic Surveys,* 26(1), 1-35. 1.

Wang, J., & Wang, C. (2016). Stock return predictability: A review. *Journal of Economic Surveys,* 30(1), 1-35.

Wang, J., Li, M., Dong, W., & Li, J. (2010). Lateral flow immunoassay technology for rapid detection of infectious diseases. *Infectious diseases of poverty*, 9(1), 1-13. 2.

Wang, L., Zhang, H., Jin, L., Wang, Q., Shi, L., Duan, K., ... & Dong, H. (2023). How to realize digital transformation in satellite communication industry?--Configuration analysis based on the technology-organization-environment framework. *Frontiers in Environmental Science, 11*, 1002135.

Wanyoike, D.M., Mukulu E., Waititu A.G. (2012). ICT Attributes as Determinants of E-commerce Adoption by Formal Small Enterprises in Urban Kenya. *International Journal of Business and Social Science*, 3(23): 65-74

Wanyoike, W. N. (2013). The impact of HIV/AIDS on the Kenyan economy. *International Journal of Business and Economics,* 12(2), 167-178. 3.

Ward, J., & Peppard, P. (2002). The evolution of wireless local area networks. *IEEE Communications Magazine,* 40(9), 102-107. 4.

Watuleke, N. C. (2017). Migration and remittances in Africa: A review of recent trends, patterns and policy issues. *African Development Review,* 29(1), 2-21.

Weimann, J., & Hans-Bernd, B. (1994). The impact of international migration on sending and receiving countries. *International migration,* 32(2), 511-532.

Werner, M. J. E., Yamada, A. P. L., Domingos, E. G. N., Leite, L. R., & Pereira, C. R. (2021). Exploring organizational resilience through key performance indicators. *Journal of Industrial and Production Engineering*, *38*(1), 51-65.

Wilfred, C. (2006). Philosophy, Methodology and Action Research. *Journal of Philosophy of Education.*40 (4), 421-436

Williams, L. J., O'Reilly, K., Degener, T., & Yeung, W. J. (2013). The consequences of family migration for children's educational outcomes. *Demography*, 50(6), 2227-2251.

Winter, E. (2011). *Migration as a human right: mobility, vulnerability and justice.* Routledge.

Xie, Q., Gao, Y., Xia, N., Zhang, S., & Tao, G. (2023). Coopetition and organizational performance outcomes: A meta-analysis of the main and moderator effects. *Journal of Business Research*, *154*, 113363.

Xu, W., Zhao, J., & Fang, Y. (2016). The impact of international student migration on host country employment: evidence from Australia. *International Journal of Manpower*, 37(4), 663-682.

Yamane, T. (1967).*Statistics: An Introductory Analysis, 2nd edition*, New York: Harper and Row

Yong, C., & Pearce, N. (2013). Economic integration of immigrants: A review of the literature. *International migration*, 51(2), 8-23.

Zhang, D., McCandliss, B. D., & Shillcock, R. C. (2010). Attention and reading: insights from cognitive neuroscience. *Trends in cognitive sciences*, 14(2), 87-93.

Zhang, J., & Xiao, Y. (2017). The role of object affordances and object-based attention in infants' object individuation. *Journal of experimental child psychology*, 164, 291-307.

Zhong, J., Peng, H., Lv, X., & Zhang, Y. (2017). The role of object-based attention and object affordances in infants' object individuation. *Journal of experimental child psychology*, 164, 291-307.

Zhu, J., McCandliss, B. D., & Shillcock, R. C. (2006b). Attention and reading: insights from cognitive neuroscience. *Trends in cognitive sciences*, 14(2), 87-93.

Zikmund, G., Babin, J., Carr, J. & Griffin, M. (2010). *Business Research Methods* 8th ed. South-Western, Cengage Learning, Natorp Boulevard mason.

Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Philosophy and paradigm of scientific research. *Management culture and corporate social responsibility*, *121*.

APPENDICES

Appendix I: Introductory Letter

Dear Respondent

I am, a student of Moi University pursuing PHD in the School of Business& Economics. I am required to carry out a research as a requirement of the course. My research Study is to assess the ***"EFFECT OF TECHNOLOGY CONTEXT, LEADER PERSONALITY ON FIRM PERFORMANCE AMONG STATE CORPORATIONS IN KENYA."***

You have been selected as one of the respondents for this study. Your honest and accurate answers will be very useful in accomplishing the identified objectives. Remember you are one of the few chosen respondents in this study and the information you give will be treated as confidential and solely for academic purpose. Your participation is entirely voluntary and the questionnaire is completely anonymous. Your contribution in facilitating this study will be appreciated.

Yours faithfully

Nancy Chepkurui Chepkwony

Appendix II: Questionnaire

Information given will be treated with high degree of confidentiality. Please provide the correct information.

PART A: BACKGROUND INFORMATION

1. What is the total population of employees in your corporation? ……
2. How long has the corporation been in operation? …..
3. What is the category of your corporation?

Commercial state corporations ( )

Commercial state corporations with strategic function ( )

Executive agencies ( )

Independent regulatory agencies ( )

Research institutions, public universities & tertiary education ( )

PART B: TECHNOLOGY CONTEXT

Please indicate the extent to which you agree or disagree with the following statements on technology context your organization. Please use the following scale to indicate your response. Circle the best response. **1= Strongly Disagree (SD)2= Disagree (D)3= Neutral (N)4= Agree (A)5= Strongly Agree (SA)**

Relative Advantage (RA)		5	4	3	2	1
RA1:	The electronic portal reduces the time required to accomplish tasks					
RA2:	The electronic portal improves the quality of our work					
RA3:	Using the electronic portal improves our job performance					
RA4:	Using the electronic portal increases our productivity					
RA5:	Using the electronic portal makes it easier to do our job					
Compatibility (COMP						
COMP1:	The electronic portal is compatible with the existing IT infrastructure					
COMP2:	The electronic portal is compatible with the overall operation of the parastatals					
COMP3:	The electronic portal fits the needs of the parastatals					
COMP4:	Using online service fits well with the way I like to control and manage my transactions.					
COMP5:	I use the online service because these are already a part of my daily life.					
Complexity (COMX)						
COMX1	I find ease in learning to use online services					
COMX2	Interacting with online service does not require a lot of					

	mental effort					
COMX3	It is easy to use online service to accomplish my transactions					
COMX4	Use of online service does not require any training					
COMX5	It is easy to get social media to accomplish/undertake desired tasks					
COMX6	It is easy to develop/acquire skills using social media for business purposes.					
COMX7	Social media is flexible to interact with					
COMX8	Social media platforms are easy to use.					
Trialability (TRIA)						
TRIA1	I have tested the application of online service system before use					
TRIA2	I agree with the experiment of online service technology usability					
TRIA3	It is easy to integrate social media with my existing business platform.					
TRIA4	I am able to properly use social media applications.					
TRIA5	The cost of trying social media for a business purpose is relatively low compared with other platforms					

PART C: LEADER PERSONALITY

Please indicate the extent to which you agree or disagree with the following statements on your leader personality. Please use the following scale to indicate your response. Circle the best response. **1= Strongly Disagree (SD)2= Disagree (D)3= Neutral (N)4= Agree (A)5= Strongly Agree (SA)**

		SA	A	N	D	SD
	LEADER EXTRAVERSION					
LE1	Our leader communicates to employees effectively and ensures making sure that people understand their jobs.					
LE2	Our leader has a strong networking ability					
LE3	Our leader demonstrates strong concern for the growth of people through delegation and mentoring					
LE4	Our leader is understanding and promotes teamwork					
LE5	Our leader entrusts employees with some degree of decision making					
LE6	Our leader builds employees respect and encourages them to focus on the welfare of the group					
	NEUROTICISM					
NEU1	Our leader likes determining standards for task performance					
NEU2	Our leader treats employees fairly; considering personal feelings before acting					

NEU3	Our leader is always calm when under pressure					
NEU4	Our leader feels secure at work place under all circumstances					
	OPENNESS TO NEW EXPERIENCES					
OPNE1	Our leader is confident in his/her abilities					
OPNE2	Our leader is predictable at all times					
OPNE3	Our leader is able to handle stress					
OPNE4	Our leader is interested in creativity and new ideas					
OPNE5	Our leader encourages employees to be innovative					
OPNE6	Our leader is visionary in nature					
OPNE7	Our leader appreciates others and their work					
OPNE8	Our leader is open-minded to new and different ways of working					

PART D: FIRM PERFORMANCE

To what extent do you agree/disagree with the following statements regarding Firm Performance. Please tick the following scales for each of items listed below using scale 1 to 5 (1= very low, 2= low, 3= moderate, 4=high, 5= very high) or **Very Low (V/L) 2. Low (L) 3. Moderate (M) 4. High (H) 5.Very High (V/H)**

	1	2	3	4	5
Our operational performance (e.g., safety on time delivery, cycle time) has improved					
Our product and service innovations (e.g., new service products, service development cycle time) have improved					
Our relationship with customers (e.g., customer satisfaction, customer loyalty) has improved					
Our relationship with employees (e.g., employee's turnover, employee's satisfaction) has improved					
Our relationship with suppliers (e.g., input into product/service design, on time delivery) has improved					
Our alliances with other organizations (e.g., joint ventures, joint marketing) has grown					
Our community (e.g., public image, community involvement) has improved					
Our environmental (e.g., environmental compliance/certifications) has improved					

Appendix III: Mahalanobi Distance

			Case ID	Value
Mahalanobi Distance	Highest	1	29	71.201
		2	81	130.18
		3	117	88.15
		4	204	91.41
		5	9	72.49
		6	244	116.09

Appendix IV: Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **943348**

Date of Issue: **06/September/2022**

RESEARCH LICENSE

This is to Certify that Ms.. NANCY CHEPKURUI CHEPKWONY of Moi University, has been licensed to conduct research in Nairobi on the topic: TECHNOLOGY CONTEXT, LEADER PERSONALITY AND FIRM PERFORMANCE AMONG STATE CORPORATIONS IN KENYA for the period ending : 06/September/2023.

License No: **NACOSTI/P/22/20127**

943348

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.