UNIVERSITY OF NAIROBI
FACULTY OF SCIENCE AND TECHNOLOGY

Influence of Information Technology Infrastructure Library (ITIL) framework adoption
on Information Technology (IT) service quality
-A case of Telecommunication companies in Kenya

BY:

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MANAGEMENT

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5TH AUGUST 2021

DECLARATION

I hereby declare that this research project is my original work and that it has never been submitted to any other university for the award of any other degree or professional qualification.
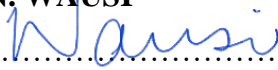
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APRROVAL

This research project has been submitted for examination to the Faculty of Science and Technology at the University of Nairobi with my approval as the supervisor.

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ABSTRACT

The focus of information technology (IT) services has been initially on providing services that are of high quality and have low cost. IT executives in most organizations are uncertain of the influence IT Service Management (ITSM) practices have on the delivery of quality IT services, and therefore, there exists a knowledge gap in the popularity of the ITSM frameworks where their influence has not been linked to the IT service quality dimensions. The study's purpose was to assess the influence of IT Infrastructure Library (ITIL) framework adoption on the IT service quality among the telecommunication companies in Kenya. Both quantitative and qualitative primary data were obtained using questionnaires from 19 telecom companies. Random sampling was used with a sample of 35 respondents believed to have the required information relating to the study. Data were analyzed using SPSS. The regression analysis results revealed that all the independent variables against the dependent variable jointly accounted for 34.8% (R-square =.348, P-value of 0.005) of the variation in IT service quality dimensions (dependent variable). 65.2% of the variation in IT service quality dimensions was unexplained, and this is covered by factors not considered in this research. Further, it was established that all the ITIL adopted practices under the current study are positive and significant predictors of IT service reliability, IT service responsiveness, and IT service assurance. The study concluded that IT executives attempting to attain an improved quality of IT services need to focus more on the full adoption of ITIL. This study recommends that IT service provider organizations need to strongly recognize the critical role of ITIL frameworks in improving the quality of IT services.

KEYWORDS: IT Service Management, ITIL Frameworks, ITIL Adopted Practices, IT Service Quality

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LIST OF ABBREVIATIONS

ITSM- Information Technology Service Management

SLM- Service Level Management Practices

CMP- Change Management Practices

IMP- Incident Management Practices

PMP- Problem Management Practices

AMP- Access Management Practices

ISO/IEC 20000- International Organization for Standardization

ITSQ- Information Technology Service Quality

DEFINITION OF TERMS

Information Technology Service Management - ITSM refers to a process through which organizations combine their business operations with their IT services.

Best Practices- These are industry procedures prescribed as being the most effective and accepted for adoption.

Adoption- the act of taking something on as your own.

Information Technology Infrastructure Library- (ITIL) - A framework for providing effective IT support services that include a set of best practices.

CHAPTER ONE: INTRODUCTION

Most organizations in modern business environments are becoming more reliant on their internal information technology (IT) to offer critical business services and functions (Cherwell, 2019).

To implement, operate, or improve information technology (IT) services, such organizations rely on externally developed service management frameworks such as the Information Technology Infrastructure Library (ITIL).

According to Marrone and Kolbe (2010), practitioners have been interested in studying the probable benefits achieved by telecommunication firms that use information technology service management (ITSM) frameworks.

With regard to assessing the influence of adoption of ITSM frameworks on the delivery of quality IT services, in general, slight research has been done in developing countries. (Iden and Eikebrokk 2013). This is to say that academic research in this field is in developing phases, regardless of its appearances severally in the popular media (Marrone and Kolbe 2010).

1.1 Background of the Study

While technology continues to play a key role in businesses, organizations need to invent mechanisms to swiftly integrate information technology (IT) services into daily procedures (What Is ITSM? 2021).

In an increasingly digital era, the process of combining these operations with an organization's IT services is becoming more important than ever. The divide between "business" and "IT" is almost nonexistent as technology takes up a crucial role in the business world (Why Is ITSM Important? 2021). ITSM enables enterprises to create a structure around the IT service lifecycle, from creation to management and maintenance (White, 2019). Many firms that employ ITSM best practices view IT as a service that focuses on providing value to customers rather than a technology department.

According to White (2019), the quality of services provided by the IT department has realized remarkable progress, which was not the case before the implementation of ITSM frameworks. Therefore, this is what ITSM helps accomplish. Technological solutions must be integrated into business functions to ensure that they run smoothly daily and that all staff are utilizing technology to its greatest capacity. This is what ITSM helps achieve.

For technology to deliver tangible business benefits such as business scalability and drive success, IT teams require an approach that sets the organization up for success, and therefore, many teams employ IT service management (Izquierdo, 2020). According to Winniford et al. (2009) survey, 45% of companies in the United States use the ITSM framework, with the remaining 15% planning to use it. On the other hand, according to the IT Governance Institute (2010) survey, IT governance frameworks had been applied in 33% of firms, while 28% of organizations had implemented IT service management frameworks. IT service management frameworks usage has increased from 13% in 2005 to 28% in 2011.

1.2 Information technology infrastructure library framework (ITIL)

Amongst the most often used ITSM frameworks is ITIL. ITIL is a widely known ITSM framework that was created to define best practices for service management in organizations that rely largely on IT infrastructure for their overall operations (Cherwell, 2019).

While ITIL consists of twenty-six core processes that work together to manage IT services within your organization, no organization would endeavor to implement them all at once. Cartlidge et al. (2003) outline that ITIL is organized around an organization's IT service life cycle with various established processes.

The basis of IT is currently changing drastically as it's no longer about technology alone but also the people and services that IT provides. Information technology (IT) service level management strategies are becoming increasingly important in organizations as computers becomes more common. According to Gianmario et al. (2011), this method assesses the level of service given by IT, such as responsiveness. Within the ITIL framework, Service Level Management (SLM) is likely the most significant set of processes (Helpsystems, n.d).

According to Case (2010), ITIL's service level management process is the link between IT and the business that communicates and updates as to how information technology (IT) is delivering services to the business. It is one of the areas where improvement initiatives and new business requirements can be found, as well as if the client is satisfied or dissatisfied with the service as it is now provided. Wustenhoff (2002) states that the service level management process is crucial in managing the quality of services (Qos). Telecommunications make extensive use of IT Business Support Systems (BSS) and Operations Support Systems (OSS). Because of the complexity of IT, effective service level management is required (Gianmario et al., 2011).

The rate of change is speeding up as the digital age transforms many industries and can result in difficulties in managing IT services if they aren't well prepared (Seiteam, 2021) through ITIL change management practices. Technology changes daily, therefore leading to more frequent changes in business processes that reduce the number of incidents, improve services and reduce costs. Taylor, et al. (2005) noted that IT changes that aren't well-managed might cause major service disruptions, unexpected system or network outages affecting key applications, as well as user dissatisfaction. A lot of businesses have struggled to provide their staff with the required level of access to the resources they need (Chakray, n.d.). In order to successfully manage such risks and eliminate operational inefficiencies, businesses must effect IT governance policies and solutions. This can only be achieved and met by implementation of a functional identity and access management system.

ITIL access management services exist to prevent unauthorized access to systems and resources and ensure a safe environment for users. According to Sakr and Zomaya (2018), competent service providers should update their services according to best practices by creating a recovery plan and proper technique to notice threats, updating their software on a regular basis, and installing security patches to address vulnerabilities. Businesses strive to provide continuous services in order to improve efficiency and production (Gillingham, 2021). Most businesses use ITIL's incident management technique as the first step toward a quick recovery. The ITIL problem management process is used to achieve specific goals, such as preventing incidents from reoccurring (Yearly, 2018). When problem management practice is done right, it can prove to be an extremely valuable practice that will help you enhance the IT support experience.

1.3 Research problem

As IT functions continue to be integrated into day-to-day business operations, more telecommunications companies are implementing IT service management (ITSM) best practices to meet their businesses' rapidly evolving needs (Cherwell, 2019). ITSM frameworks and standards have been developed for the implementation and evaluation of processes where ITIL has been the most commonly adopted framework. With 80% of organizations accelerating their digital transformation strategies because of the global pandemic, the future of ITSM, (enterprise) service management, and ITIL is strong (itsmhub, n.d). While the core aim of ITSM best practices is to define and manage IT services through their life cycle, a significant majority of IT departments are unprepared to satisfy rising service expectations (Behari, 2018). They keep operating using antiquated passive-reactive methodologies that fail to deliver the aspects that businesses require to be competitive.

According to Praeg and Spath (2011), IT executives in most organizations are uncertain of the influence ITSM practices have on the delivery of quality IT services. A knowledge gap in the popularity of the ITSM frameworks therefore exists where their influence has not been linked to the IT service quality dimensions. Therefore, there is a need in both research and practice to examine the influence of ITIL adoption practices, being the most widely adopted framework, on the IT service quality within telecommunication companies.

1.4 Research objectives

The key purpose of this study was to assess the influence of ITIL framework adoption on the quality of IT service in telecommunication companies. Under this objective, the study addressed the following specific objectives:

1. To assess the impact of ITIL-adopted practices on the quality of IT services.
2. To evaluate the impact of ITIL enablers on the relationship between ITIL practices and IT service quality.

1.5 Research Questions

The key objective of this study was to examine the influence of ITIL adopted practices on the IT service quality in telecommunication companies. Thus, for this purpose, the researcher framed main research questions indicated below:

1. What influence do ITIL's adopted practices have on the IT service quality dimensions?

2. What is the effect of the ITIL success factors on the relationship between ITIL adopted practices and IT service quality dimensions?

1.6 Significance of the study

The outcomes of the study will benefit a broad audience. For example, the research findings will help policymakers make decisions about IT service management, particularly for IT service provider organizations. The study outcomes will contribute to the professional body of ITSM practitioners in pushing the standards of IT service provider organizations.

1.7 Assumptions of the study

The following assumptions were made:

(i) All respondents answered the questions honestly and correctly

ii) That the selected respondents in the telecommunications companies had all of the necessary information.

2.1 Introduction

Many technology service provider organizations are investing in information technology management frameworks to improve their IT support processes based on ITSM frameworks (Jäntti & Cater-Steel, 2017). Such organizations begin their ITSM process advancement path by integrating the ITIL framework. Jäntti & Cater-Steel (2017) state that it is inevitable for these providers to ignore ITSM processes because a lot of IT customers expect quality and effective service delivery from suppliers. Technology service provider organizations that do not implement ITSM may suffer a loss of business opportunities and credibility among customers.

The subheadings outlined by this chapter include the theoretical framework, an overview of ITSM best practices, ITSM enablers, a review of empirical studies, synthesis of ITSM frameworks, and the Conceptual Framework. The source was from journal articles obtained from online research databases.

2.2 Theoretical Framework

IT SERVQUAL model

Supported by the current service quality models and literature on information technology service management (ITSM) adoption, a framework was developed to actualize and assess information technology service quality (IT).
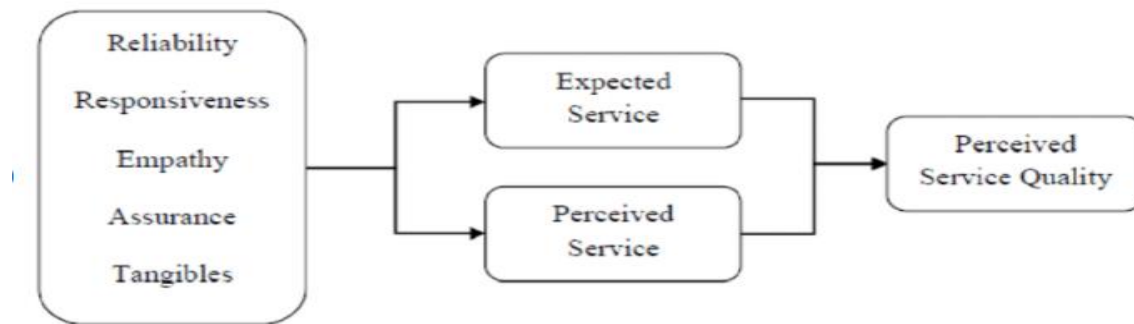
SERVQUAL model (Parasuraman et al., 1988)

The SERVQUAL model with its scale is among the most widely used service quality assessment scales brought about by Parasuraman et al. (1988). According to Khan and Fasih (2014), the SERVQUAL model uses a scale of 44 items which is then placed into 5 segments to evaluate the

service quality before and after it is consumed. SERVQUAL is the difference between a customer's service expectations and their thoughts of the service. Miller (1999) states customers demand a regular, reliable, and prompt delivery of service, as well as the competency of the service provider and an accessible service provider who is kind and respectful.

In this case, the study employed this model because it considers both consumers' expectations and impressions of a service, making it the most accurate way to quantify service quality in the service industry. This study establishes the ITSERVQUAL from the SERVQUAL model, which includes diverse quality features.

Reliability of services

Reliability of service quality is the capability of service providers to offer a service that a customer expects and when they expect it (Khan & Fasih, 2014). Reliable service is regular, accurate, timely, consistent, and ensures the service provider's potential to regularly provide a presumed quality of service. After a customer consumes a service, the reliability dimension leaves an imprint in their mind. Reliability of service quality is the most crucial service quality dimensions recognized through the people aspect. Studies by Lam (2000) ranked and classified reliability as the first element of the SERVQUAL service quality model.

Service Assurance

Khan & Fasih (2014) describe service assurance as an aspect of customer service that makes customers trust you and to prove to them your credibility and ability to address their concerns competently. This gives the customer assurance that the service delivery agent will carry out their duties ethically and professionally.

Tangibility of services

A study by Khan & Fasih (2014) shows that tangibility is perceived by touching or having a visible presence. The tangible component of service quality includes ICT, tools, places, staff, and other amenities that can be seen. Naidoo (2014) views tangibles as important, especially to service delivery firms where they are regarded as crucial variables in developing strong, positive, and inspiring customer associations and experiences through their proprietary assets.

Responsiveness of service providers

Blery et al. (2009) state that the responsiveness of a service provider is the manner in which a service provider responds promptly to address customer issues in a favorable manner within a certain time frame. Advancements in information technology (IT) through emails, webpages, and customer service interfaces have improved the responsiveness of service delivery firms.

The empathy of service providers

Customer empathy is how service providers pay attention to individual customer issues and needs to make them feel as if you care about them while effectively addressing their issues.

According to Kaura et al. (2012), service quality elements are activated in the minds of customers through people, process, and physical evidence mechanisms. Responsiveness, reliability, assurance, and empathy dimensions mainly focus on the human aspect of service delivery, whereas tangibility mainly focuses on the physical evidence mechanisms. According to their study, the relative value of service quality dimensions was reported to be reliability (32%), responsiveness (22%), assurance (19%), empathy (16%), and tangibility (11%).

Ladhari (2009) recommends that the SERVQUAL model is a useful tool for examining service quality in a wide range of industries, however, to ensure trustworthy and valid results, it is a good idea to figure out which of this model's parameters are most relevant to the service being measured. Therefore, this research focused on the top three (3) relatively important IT service quality dimensions facilitated through the people aspect of service quality.

2.3 Overview of ITSM best practices

The focus of this study is on service operations and other major processes in service design and service transition. The Office of Government Commerce (2007) affirms that a service operation is responsible for supporting, delivering and managing IT services at agreed levels to business users and customers, and hence the ongoing study focused on incident management, problem management, and access management processes, which fall under this category. As a result, the current study only focused on the service level management process in this category, whereas the goal of service transition is to address change management, so the study only focused on the change management process.

Large organizations would also find it hard when attempting to implement a few of these processes at the same time. In this regard, some begin by adopting a smaller set of processes and maturing them within the rest of the organization while deciding whether to add more or not (Cherwell, 2019). Such organizations begin with the basics of a service desk before adopting the remaining ITIL processes.

2.3.1 Incident management practices

Office of Government for Commerce, OGC (2007) defines ITIL incident as an unplanned disruption to an IT service. Incident management is a service operation procedure that involves controlling the life cycle of all occurrences in order to promptly restore regular service operations while minimizing business effect. The incident management process is shown on figure 2.3 and described on the below section.
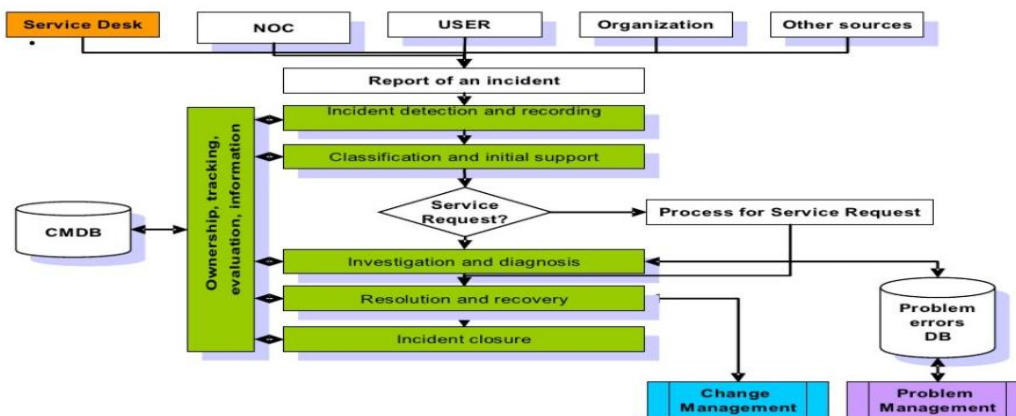
Figure 1.3: The Incident management process flow (Cabinet Office, 2011b, p.75)

2.3.2 Problem management practices

Problem management, according to the OGC (2007), is a service operation procedure that identifies the primary source of issues and traces them until they are resolved or a permanent solution is discovered. This is illustrated in figure 3.3.
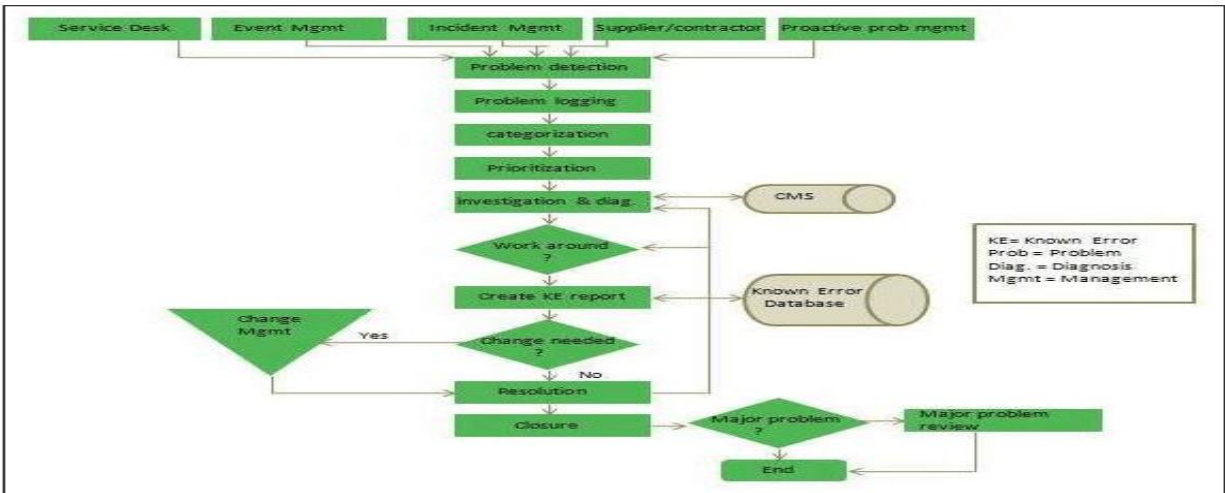
Figure 2.3: The problem management process flow (Cabinet Office, 2011b, p.77)

The process includes the seven steps such as problem detection, logging, diagnosis, workaround, known error record, resolution, and problem closure.

2.3.3 Access management practices

The Office of Government for Commerce (2007) describes access management as a service operation method that allows authorized personnel to use a service while blocking those who are not authorized from doing so. It ensures that users are granted the right to use a service at the agreed times.

2.3.4 Service Level management practices

The Office of Government for Commerce (2007) describes SLM as a service design process involved in establishing SLAs with customers and suppliers and ensuring that they are met. Through the event management process, service operation teams are involved in executing monitoring actions that can give early identification of service level breaches. SLM also keeps track of the agreements that access management uses to grant access to services, and request fulfillment operations may be constrained by service targets.

2.3.5   Change management practices

This is defined as a set of techniques for managing and controlling changes to actual configuration items (Cis) and their connections. It commences when a client or IT personnel makes a request for change (RFC).

2.4 Information Technology Service management (ITSM) success factors

Pollard & Cater-Steel (2009) define ITSM enablers as success factors of an ITSM project while Iden and Eikebrokk (2014) study identified seven ITSM enablers but the current study has combined them into two (2), whose effect on the influence of ITIL practices is being determined in the currentstudy. These include knowledge and skills related to ITSM and resource availability (such as time, tools, people, and funding for projects and ongoing processes).

2.5 Review of empirical studies

Case (2010) paper outlines five benefits of employing ITIL's service level management. The author (Case, 2010) states that enhancing service level management processes is a great chance to better define offered IT services, effectively measure performance, and better manage customer expectations.

According to research on the use of SLM to enhance service value and costs, Wavestone US (2013) outlines measurable benefits that consistent use of SLM processes provides, such as operational cost reduction, improved service maturity and quality, and improved service capabilities for IT to ensure that IT is delivering service value. Wustenhoff (2002) in his article looks at benefits service level management practices bring to Internet data center (IDC) providers.

Seiteam's (2021) research on why ITIL Change management practices are important for IT Services outlines four major benefits, including improved customer and user satisfaction, protection of online IT services whose malfunctions may be noticed by customers, a reduction in the number of unauthorized changes, assisting IT services in responding more quickly to changing business requirements, ensuring that business operations remain effective after the changes are implemented, and Gillingham (2021) also wrote about an overview of ITIL change

management practices and outlined the benefits of implementing a well-structured change management process on IT services within an organization as improved alignment of IT services towards the company's core business, great minimization of the negative impact of change on business operations, and ensures prioritization of responsiveness to the changes made to ensure that only the most important issues are a priority.

Jan (2018) outlines four ways of implementing ITIL access-control mechanisms on IT services, which provide four benefits, such as: mandatory access-control where both the subjects and objects are classified into various levels of security clearance; discretionary access-control where the owner of a file or program can give access rights to any user at their discretion; rule-based access-control, which deals with restricting a user from using a service during specific timings; and role-based access-control where rights are assigned based on a user's job role and responsibilities.

Chakray (n.d) noted that ITIL's identity access and management controls are useful to IT service delivery in many ways while Irwin (2019) identified benefits for organizations that adopt ITIL's incident management processes in their service delivery, on the other hand, research by Helpsystems (n.d) also identifies four ways in which implementing ITIL incident management will help improve IT service delivery, such as: maintaining service levels by ensuring that IT services are always up and running; ensuring that the organization consistently meets service availability requirements; increasing staff efficiency and productivity through use of tools for monitoring of incidents; and improving user satisfaction. A Yeary (2018) study investigated the gains of successful ITIL Incident Management System implementation on an organization's service delivery.

A study by Bender (2021) outlines benefits of implementing ITIL's problem management practices while research by Helpsystems (n.d) also identifies ways in which implementing ITIL problem management processes helps in improving IT service delivery by maintaining service levels, preventing service disruptions, ensuring service availability, improving user satisfaction, and increasing staff productivity and efficiency.

2.6 Synthesis of ITSM framework studies

Case (2010), Wavestone US (2013), and Wustenhoff (2002) studies focused on the benefits of implementing ITIL's service level management processes on service delivery; outlining service and operational efficiency; improving IT and business relationships; increasing customer satisfaction among IT customers; increasing service stability; improving service maturity and quality; lowering operational service costs; and improving reliability, availability, and predictability. These studies did not link to the dimensions of IT service quality impacted by the ITIL framework. The current study assesses the influence of ITIL practices with a detailed perspective on the IT service quality dimensions.

Seiteam's (2021) and Gillingham's (2021) research on why ITIL change management practices are important for IT service outlining user satisfaction, protection of online IT services, the responsiveness of IT services to changing business requirements, business operations remaining effective after the changes are implemented, improved staff efficiency and productivity, improved alignment of IT services to business, improved risk management, reduced disruptions to the IT services, and faster implementation of changes in a systematic manner. The two studies had a general focus on the benefits of ITIL change management and did not link to a detailed perspective of how IT service quality dimensions are influenced. The current study focuses on the benefits of IT service quality, with a detailed view of the impact of ITIL practices on its dimensions.

Jan (2018), Chakray (n.d.) and Gillingham (2021) studies on the value ITIL access control management practices bring to the business highlight benefits such as information confidentiality, error reduction in the use of a critical service among others. These studies had a general focus on the confidentiality, availability, and integrity of information values within ITIL access control management. The current study concentrates in detail on the influence of ITIL practices on the IT service quality dimensions.

Yearly (2018), Irwin (2019) and Helpsystems (n.d) outline how ITIL incident management processes have influenced service delivery in the organizations that have implemented them, including improved incident response times, improved user satisfaction, improved staff efficiency and productivity, and service availability. The three studies cover service availability,

user satisfaction, staff efficiency and productivity, and improved incident response time. The current study concentrates on the influence of ITIL practices on the IT service quality dimensions. Bender (2021) and Helpsystems (n.d) researches on the benefits of implementing ITIL problem management practices identifies four (4) benefits on the organizational service delivery such as speedy incident resolution, increased customer satisfaction, improved service and product quality and service availability. The studies concentrate on incident response time, customer satisfaction, service or product quality and availability benefits on a narrow perspective. The current study concentrates on the influence of the ITIL practices on the IT service quality dimensions in detailed perspective.

Based on the above highlighted studies on ITSM frameworks and particularly ITIL framework and proceeding studies on the IT service quality dimensions, key ITIL adopted practices were identified that could influence the IT service quality dimensions in Telecommunication companies.

Cherwell (2019) identified the key ITIL adopted practices whose influence on the quality of IT services was being assessed. ITSERVQUAL model with its key dimensions of IT service reliability, IT service responsiveness and assurance was applied in this study to determine how these dimensions have been influenced by the ITIL adopted practices.

The remaining section entails the conceptual framework, study hypothesis and operational definition of variables utilized by the study while the operationalization regarding these study variables is captured in table 2.1 below.

2.7 Conceptual framework

The conceptual framework provided by this study (as shown in figure 6.2) was chosen for its ability to accommodate the key ITIL adopted practices identified as the most influential to IT service quality dimensions in telecommunication organizations.

Under ITIL adopted practices, service level management practices relate to adherence to SLAs, OLAs, and IT underpinning contracts; change management practices relate to the use of change management workflows in the co-ordination of changes with minimal disruptions and accepted risks; incident management practices relate to the use of incident management workflow to

manage disruptions and restore critical IT services; problem management practices relate to the use of incident management workflow for root-cause analysis and elimination of all future incidents; and access management practices relate to the use of access controls to different IT services in order to maintain the confidentiality and integrity of information.

These comprised the independent study variables. The dependent variable was expressed by IT service quality dimensions influenced within the IT department in organizations. This was then used to guide the research methodology.

The moderating variables of the study were the Information Technology Infrastructure Library (ITIL) success factors namely knowledge and skills related to ITSM frameworks and the availability of resources (such as tools and funding for projects and ongoing processes) in the organization.

Figure 3.2: Conceptual framework

ITIL Adopted practices

Service Level Management practices • Adherence to SLAs, OLAs and underpinning IT contracts	H1
Change Management practices • Use of change management workflow to co-ordinate IT changes with minimal disruptions and accepted risks	H2
Incident Management practices • Use of incident management workflow to manage disruptions and restore critical IT services	H3
Problem Management practices • Use of problem management workflow for root cause analysis and elimination of all future incidents	H4
Access Management practices • Access controls to different IT services in order to maintain the confidentiality and integrity of information	H5

IT Service Quality

• Service reliability- *Consistency of IT service performance*
• Service responsiveness- *Timely provision of IT services*
• Service assurance- *Improved trust and credibility of IT services.*

ITIL Enablers or Success factors
• Knowledge and skills related to ITSM
• Resources availability (Tools and funding for projects and ongoing processes)

H6

Independent Variables

Moderating Variables

Dependent Variables

Source, Author (2021)

2.8 Study hypothesis

The following discussions explain the basis on which the study's hypotheses were derived.

2.8.1 Service Level Management practices

SLA according to Overby et al. (2017), establishes the degree of service a customer expects from a supplier and is typically between corporations and external suppliers or between two departments inside a company. Misalignment of SLAs with the engagement's technological or business objectives can have a detrimental impact on transaction price, service delivery quality, and customer experience. In the context of assessing the influence of ITIL adopted practices on the quality of IT services, adherence to service level agreements will therefore help organizations achieve the delivery of quality IT services. The researcher thus proposes: *H_1-ITIL's adopted Service Level Management practices have a significant positive influence on the quality of IT services.*

2.8.2 Change Management practices

Change management is noted as one of the significant factors of success in ITIL implementation to improve the delivery of IT services (Cater-Steel, Tan, & Toleman, 2006a). Wallace and Webber (2009) and Cater-Steel, Tan, and Toleman (2006b) showed that ITIL change management was initiated to ensure proper IT service delivery and reduce service disruption. This research, therefore, postulates that: *H_2-ITIL's adopted Change Management practices have a significant positive influence on the quality of IT services.*

2.8.3 Incident Management practices

The third component of incident management, according to Gillingham (2021), is the review of the data gathered, which helps companies make decisions that increase the quality of service provided while reducing the overall volume of events recorded. Incident management is simply one of the processes that enable service delivery in the service operation architecture. This study therefore proposes that: *H_3-ITIL's adopted incident management practices have a significant positive influence on the quality of IT services.*

2.8.4 Problem Management practices

According to Flora (2021), great ITIL problem management can help pull organizations away from daily firefighting and focus their time and that of their customers on more valuable work. Overby, et al. (2017) also state that poor problem management practices can cause a decrease in the quality of service delivery to customers. The current study pertaining to this subject postulates that:

H_4-ITIL's adopted problem management practices have a significant positive influence on the quality of IT services.

2.8.5 Access Management practices

The three basic security parameters of confidentiality, integrity, and availability of IT services can help organization manage access controls (Jan, 2018). Whereas confidentiality is about keeping information and data private from unauthorized users, achieved through encryption, integrity is making sure that data and information has not been compromised, modified, altered, or amended by an unauthorized user through the use of a hashing algorithm. With regard to the above assertion, this study hypothesizes that:

H_5-ITIL's adopted Access Management practices have a significant positive influence on the quality of IT services.

2.8.6 ITIL Enabler's or success factors

According to Iden and Eikebrokk (2014), the ITIL success factors such as management's support, the organization, and teams involved in implementing ITIL project play a positive important role in the impact of ITIL on service delivery, although their effect sizes are low. Based on this, the current study postulates that:

H_6-ITIL enablers or success factors have a significant moderation effect on the influence of ITIL adopted practices on the quality of IT services.

2.7.2 Operationalization of variables

Table 2.1: Operationalization of variables

Variable	Indicator Code	Indicators	Supporting Literature	Measurement
ITIL Adopted practices- ITILAP (Independent variable)	SLMP	i. To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced reliability of IT services? (Dependability of Services) ii. To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced responsiveness of IT services (Timely provision of services) to the business support needs? iii. To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced trust and credibility of IT services (service assurance)	Case (2010), Wustenhoff (2002) Yearly (2018), Irwin (2019) Bender (2021)	**Likert scale**
	CMP	iv. To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced reliability of IT services? (Dependability of IT Services) v. To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced responsiveness of IT services (Timely provision of services) to the business support needs? vi. To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced trust and credibility of IT services (service assurance)?		**Likert scale**
	IMP	vii. To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced reliability of IT services? (Dependability of IT Services) viii. To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced responsiveness of IT services (Timely provision of services) to the business support needs? ix. To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced trust and credibility of IT services (service assurance)?		**Likert scale**
	PMP	x. To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced reliability of IT services? (Dependability of IT Services) xi. To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced responsiveness of IT services (Timely provision of services) to the business support needs?		**Likert scale**

				Likert scale
	AMP	xiii. To what extent has the use of access controls to different IT services (in order to maintain the confidentiality and integrity of information) in your IT department enhanced reliability of IT services? (Dependability of IT Services) xiv. To what extent has the use of access controls to different IT services (in order to maintain the confidentiality and integrity of information) in your IT department enhanced responsiveness of IT services (Timely provision of services) to the business support needs? xv. To what extent has the use of access controls to different IT services (in order to maintain the confidentiality and integrity of information) in your IT department enhanced trust and credibility of IT services (service assurance)		**Likert scale**
ITIL Enablers or Success Factors (Moderating variable) **ITILENAB**	KAS RA	a. Knowledge and skills related to IT Service Management (ITSM) frameworks in our organization have enhanced the use of ITIL best practices in improving the quality of IT Services offered by our IT department b. Availability of resources (such as tools and funding for projects and ongoing processes) in our organization have enhanced the use of ITIL best practices in improving the quality of IT Services offered by our IT department		**Likert scale**
IT Service quality (Dependent Variable)- **ITSQ**	SREL	The IT department in my organization has significantly achieved consistency of performance and offered Dependable IT services as a result of use of ITIL adopted best practices. (Service reliability)		**Likert scale**
	SRES	The IT department in my organization has significantly achieved timely provision of IT services as a result of use of ITIL adopted best practices. (Service responsiveness)		**Likert scale**
	SASS	There has been Improved trust and credibility of services offered by the IT department in my organization as a result of use of ITIL adopted best practices. (Service assurance)		**Likert scale**

The top partial row reads:

xii. To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced trust and credibility of IT services (service assurance)?

Source, Author (2021)

The variables were operationalized as presented in Table 2.1 above, which was guided by the conceptual framework. ITIL adopted practices are operationalized with five items presented on a 5-point rating scale, with 1 representing not at all and 5 representing to a very great extent.

The moderating variables (ITIL enablers or success factors) comprise two variables: knowledge and skills related to ITSM and resource availability, such as time, tools, people, and funding for projects and ongoing processes, measured on a 5-point Likert scale.

The dependent variable consists of three variables measured by service reliability, service responsiveness, and service assurance using a five-point Likert scale.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section consists of the approaches used in this research while collecting and analyzing data to understand how ITIL adopted frameworks have influenced the IT service quality dimensions. It is divided into various sections as discussed below.

3.2 Research Design

Descriptive research was used to analyze the influence of the ITIL adopted best practices on the IT service quality dimensions. This design was agreed on because the purpose of the study was to describe things as they are during the study rather than manipulate the study variables. Quantitative and qualitative analyses were done to capture the level of influence that ITIL adopted practices have on the IT service quality dimensions. The quantitative research approach provided statistical data, whereas qualitative research provided detailed explanations of respondents' opinions, knowledge, and experiences. These two techniques were used to balance the strengths and minimize the weaknesses of quantitative and qualitative research approaches, thereby boosting the authenticity and credibility of the data collected.

3.3 Target Population

The study population was the telecommunications sector in Kenya. Data indicates that as at October 30, 2019, there were nineteen (19) telecommunication companies in Kenya. All nineteen (19) operators were considered in the current study.

The reason for selecting these organizations was, first and foremost, that they are large and consist of areas that specialize in ICT/IT and the problem being researched is a concern even in other sectors. The targeted population to collect the data from was the ICT/IT department of each of these organizations, which were represented by individuals in such departments.

3.4 Sampling Design

A random sampling method was used where each staff member in the ICT/IT departments of the population had equal selection probability. In order to select respondents out of the population of the nineteen (19) telecom organizations, the study targeted only one (1) IT Service Manager and at least one (1) Service Management agent per organization in the representation, and thus only a total of thirty-eight (38) respondents formed the population size. Newbert (2007) asserts that one top manager representing each organization is enough in that they fully understand internal operations of organizations.

Table 1.3: Total Number of Respondents in identified Telecommunication organizations

	Respondents for the study per organization	Representation
1	IT Manager/IT Service Manager/IT Process Manager	1
2	IT Service Management Agent/ICT staff	1
	Total number of respondents in selected Telecommunications' ICT/IT Department is 2*19	38

3.5 Sample Size

Kothari (2004) states as long as the sample is accurately represented, the data from the sample can be utilized to generate generalizations about the full population. A sample of respondents from each telecom firm was employed in the study with a population size of thirty-eight (38) people. According to Kothari (2004), the formula for the sample is given by the below equation with a confidence interval of 95% with a significance level of 5%.

$$: n = \frac{N}{1+N\,(e)^2} \text{-------------------(i)}$$

The Formula for sample size

Where:
n = Sample size to be studied
N= Population size
e = margin of error

From the above formula, the sample size for this study was:

23

$$n= \frac{38}{1+38(0.05)^2}$$

$$n=\frac{38}{1+0.095}$$

n=34.7   this gave a sample size of **35 respondents**

3.6 Data Collection Method

According to Creswell and Plano (2011), the study used a mixed data collection approach in which both quantitative data from the rating scale and qualitative data from open-ended interviews were consolidated into the same questionnaire, but analyzed separately and presented concurrently according to the study's objectives.

In each of the identified organizations, a contact person assisted in the administration of online questionnaires so as to collect data regarding the general information of the respondents and information relating to the application of ITIL adopted best practices. Primary data for quantitative measurement was collected by administering online closed and open-ended questionnaires to the selected sample of IT staff within the target organizations. For the secondary data, a review of existing documents was done during the literature review. Documents sourced from online journals, international publications, and internet data were used to collect data on publications related to ITSM frameworks. This formed the secondary data that assisted in choosing relevant indicators for the research instrument.

3.7 Data validity and reliability

This study employed content validity as a measure of the extent to which the data collected through the research instrument represented the concept being measured. An experienced researcher was requested to scrutinize the research questionnaires for content validity before they were administered to the respondents.

For the assessment of the reliability of data collected using the research instrument, a pilot study was conducted using the test-retest method of assessing reliability. In this method, the same questionnaire was administered to the same group of individuals at two separate times.

All the questionnaires that were administered the second time had similar responses as those administered the first time, and this proved that the questionnaires were reliable, hence appropriate for use in the study. Some questions in the questionnaires provided more information about the topic under investigation, and this ensured the determination of consistency in the responses given. Through the research assistant, several follow-ups were done with the key contact individuals, and this was mainly done through emails and phone calls.

3.8 Data Analysis

The questionnaires were thoroughly checked after the data collection and before coding and entering the data into SPSS for analysis. The obtained data was coded and recorded first in a Microsoft Excel program, and later transferred to SPSS. The check on the questionnaire's responses was done to identify and note any possible errors or omissions. Quantitative data were classified based on the common subject of ITIL adopted practices against IT service quality dimensions and then analyzed using descriptive and inferential statistical techniques. The descriptive statistics included standard deviations, mean, frequencies, and percentages, while the inferential statistics entailed correlation and regression analysis.

The multiple regression analysis consisted of the model summary, analysis of variance, and regression coefficient mean. Data was illustrated in tables, graphs, and charts on which the basis for interpretation and discussion was based. The results from this analysis helped explore the correlation between ITIL adopted practices and their influence on the IT Service Quality Dimensions.

The multiple linear regression analysis is expressed as follows:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \ldots\ldots\ldots + \beta_n X_n + \varepsilon$

Y = IT Service Quality {*Service Reliability, Service Responsiveness, Service Assurance*}

β_1, β_2 and β_3 are independent variables' regression coefficients.

X1= Service Level Management practices (SLMP)

X$_2$= Change management practices (CMP)

X$_3$= Incident management practices (IMP)

X4= Problem management practices (PMP)

X$_5$= Access management practices (AMP)

ε = Unexplained error term

3.9 Ethical Considerations

Before collecting the research data, the researcher first sought permission from the management of the target organization. In addition to that, the researcher also holds a moral obligation to only use the information given exclusively for the intended research work. This was emphasized in the cover letter that accompanied the questionnaire.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents an analysis of the interpreted data on the influence of ITIL framework adoption on the IT service quality among the telecommunication organizations in Kenya. The purpose of the results was to answer the study's research questions.

4.2 Descriptive Analysis

Responses received were quantitatively and qualitatively analyzed using frequency tables, pie charts, standard deviation (SD), mode, mean, and percentages.

4.2.1 Response Rate

The study included a sample of 35 respondents recruited from IT/ICT experts working in telecommunications businesses, to whom questionnaires were administered. A total of 28 completed surveys were returned, resulting in 80 percent response rate. For descriptive research, a response rate of 50% is considered adequate for data analysis. Based on this assertion, the received threshold was considered sufficient for analysis.

Table 2.4: Frequency of response rate

	Response Rate	Frequency	Percentage
1	Online questionnaires which were filled and submitted	28	80%
2	Online questionnaires which were not submitted	7	20%
	Total	**35**	**100%**

Source: Research (2021)

4.2.2 Name of the respondent's organization

The study also analyzed the response rate by respondent's organization name, and the findings revealed that the majority of the respondents (28.6%) worked for Telkom Kenya, followed by Eaton Towers Ltd. (10.7%), then Jamii Telecommunication Ltd. and MT Business Kenya Limited (7.1% each). There was no response (0%) from NewTelco South Africa (Pty) Ltd and DT One Fixed and Mobile Pte Ltd. The rest represented 3.6% each.

Table 3.4: Name of the respondent's organization

	Name of the Organization	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Airtel Networks Kenya ltd	1	3.6%	3.6%	3.6%
	East African Marines Systems Ltd	1	3.6%	3.6%	7.1%
	Eaton Towers Ltd	3	10.7%	10.7%	17.9%
	Ericsson	1	3.6%	3.6%	21.4%
	Finserve Africa Ltd	1	3.6%	3.6%	25.0%
	Huawei	1	3.6%	3.6%	28.6%
	Iway Africa	1	3.6%	3.6%	32.1%
	Jamii Telecommunication Ltd	2	7.1%	7.1%	39.3%
	Liquid Telecom	1	3.6%	3.6%	42.9%
	MTN Business Kenya Ltd	2	7.1%	7.1%	50.0%
	Safaricom PLC	1	3.6%	3.6%	53.6%
	Sea Submarine Communications	1	3.6%	3.6%	57.1%
	Space Engineering LTD	1	3.6%	3.6%	60.7%
	Telkom Kenya	8	28.6%	28.6%	89.3%
	Vodacom Group Ltd	1	3.6%	3.6%	92.9%
	Wananchi Group Kenya Ltd	1	3.6%	3.6%	96.4%
	ZTE Kenya	1	3.6%	3.6%	100.0%
	Total	28	100.0%	100.0%	

Source: Research (2021)

4.2.3 Current Job Position by the Respondent

The respondents were asked to specify the positions they hold in the telecommunication organizations in which they work. From the results in **Table 4.4,** most respondents (32.1%) indicated being IT Service Management agents, followed by IT Service Manager and IT Process Manager positions (21.4% and 14.3%), respectively, and then IT Senior Analyst and IT Support Specialist each with 7.1%. The number of respondents was distributed evenly (3.6%) in the cyber security, IT applications expert, IT manager, service delivery engineer, and system admin job positions. From the findings, it can be shown that many of the respondents were IT Service Management agents, indicating diversity in the remaining positions held by the respondents. This is important as these agents are the ones who are actively interacting with the ITIL framework implementation and operationalizing those processes on a regular basis, and therefore their input was vital in the research.

Table 4.4: Current Job Position by the Respondent

Job Position	Frequency	Percent	Valid Percent	Cumulative Percent %
Cyber security	1	3.6	3.6%	3.6%
IT Applications Expert	1	3.6	3.6%	7.1%
IT Manager	1	3.6	3.6%	10.7%
IT Process manager	4	14.3	14.3%	25.0%
IT Senior Analyst	2	7.1	7.1%	32.1%
IT Service Management agent	9	32.1	32.1%	64.3%
IT Service Manager	6	21.4	21.4%	85.7%
IT Support Specialist	2	7.1	7.1%	92.9%
Service delivery engineer	1	3.6	3.6%	96.4%
System Admin	1	3.6	3.6%	100.0%
Total	**28**	**100.0**	**100.0%**	

Source: Research (2021)

4.2.4 Respondent's Years of Experience with the Organization

The survey looked into the respondents' years of experience working for the firm. From the results as illustrated in Figure 5.4, 3 (10.7%) of the respondents stated that they have worked for their organization for 0 to 2 years, and 15 (53.6%) indicated that they have worked in their organization for 3 to 5 years. Seven (25%) of the respondents have worked in their organization for 6 to 9 years, while 3 (10.7%) of the respondents have worked in their organization for 10 or more years. As a result, the findings revealed that the majority of respondents had worked in their respective organizations for 3–5 years.

Figure 5.4: Frequency Graph: Respondent's Years of Experience with the Organization
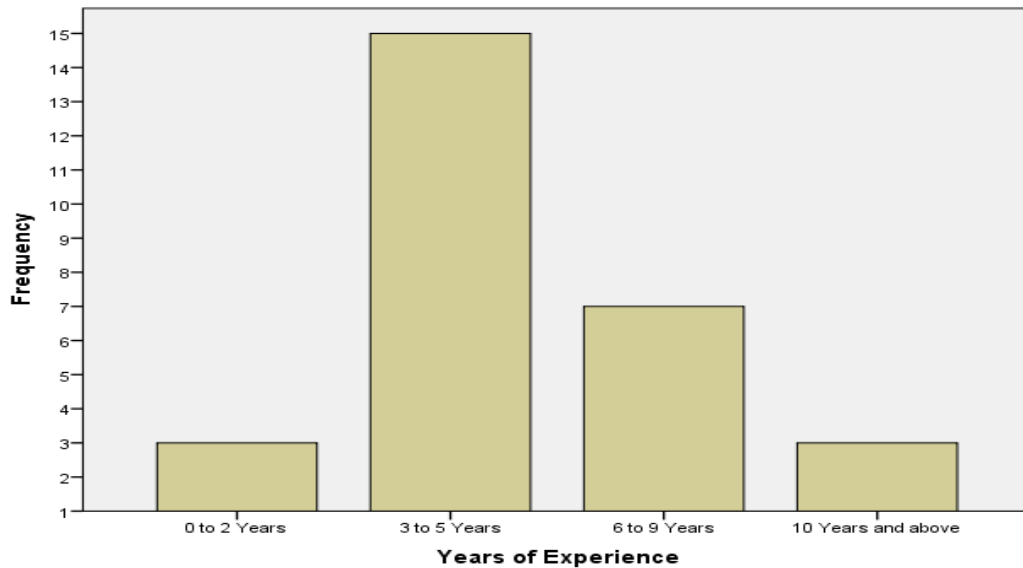
4.2.5 ITIL practices adopted and implemented by Respondent's IT department

The study asked the respondents to state the ITIL best practices already adopted and implemented by the IT/ICT department in their organization. From the findings as illustrated in Table 6.4, the respondents mostly (82.1%) indicated that their IT department had adopted and implemented all the five (5) ITIL best practices under study, while 2 (7.1%) of the respondents indicated that their IT department had adopted and implemented only one (1) ITIL best practice under study, another 1 (3.6%) of the respondents indicated that their IT department had adopted and implemented only three (3) of the ITIL best practices under study, and finally 1 (3.6%) of the remaining respondents indicated that their IT department had adopted and implemented only two (2) of the ITIL best practices.

Table 6.4: ITIL practices adopted and implemented by Respondent's IT department

ITIL practices adopted and implemented by Respondent's IT department	Frequency	Valid Percent	Cumulative Percent
Change Management practices, Incident Management practices	1	3.6%	3.6%
Change Management practices, Incident Management practices, Access Management practices	2	7.1%	10.7%
Service Level Management practices	1	3.6%	14.3%
Service Level Management practices, Change Management practices, Incident Management practices	1	3.6%	17.9%
Service Level Management practices, Change Management practices, Incident Management practices, Problem management practices, Access Management practices	23	82.1%	100.0%
Total	**28**	**100.0%**	

Source: Research (2021)

4.2.6 Influence of ITIL adopted practices on IT Service reliability

Table 7.4 shows how respondents responded to the statements concerning extent of influence of various ITIL adopted practices on the IT Service Reliability.

Table 7.4: Descriptive Statistics of Influence of ITIL Adopted Practices (ITILAP1) on IT Service Reliability (SREL)

Statements	NAA	SE	ME	GE	VGE	Mean	%Mean	Std.Dev
To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced reliability of IT services? SLMP1	0%	4%	4%	61%	32%	4.21	84%	.686
To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced reliability of IT services?	0%	0%	11%	50%	39%	4.29	86%	.659
To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced reliability of IT services?	0%	0%	25%	54%	21%	3.96	79%	.693
To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced reliability of IT services?	7%	18%	18%	39%	18%	3.43	69%	1.200
To what extent has the use of access controls to different IT services (in order to maintain the confidentiality and integrity of information) in your IT department enhanced reliability of IT services?	4%	4%	32%	43%	18%	3.68	74%	.945
Average Scores	**2%**	**5%**	**18%**	**49%**	**26%**	**3.91**	**78%**	

Source: Research (2021)

On the extent to which adherence to SLAs, OLAs, and IT underpinning contracts in the respondent's IT department enhanced the reliability of IT services, respondents recorded a mean score of 4.21 on a 5-point Likert scale, representing 84%. Similarly, on the extent to which the use of change management workflows in the co-ordination of changes with minimal disruptions and accepted risks in the respondent's IT department enhanced the reliability of IT services, respondents recorded a mean score of 4.29 on that scale, representing 86%. Whereas, on the extent to which the use of incident management workflow to manage disruptions and restore critical IT services in the respondent's IT department enhanced the reliability of IT services, respondents recorded a mean score of 3.96, representing 79%. While on the extent to which the use of problem management workflow for root-cause analysis and elimination of all future incidents in the respondent's IT department enhanced the reliability of IT services, respondents recorded a mean score of 3.43, representing 69%. Finally, on the extent to which the use of access controls to different IT services (in order to maintain the confidentiality and integrity of information) in the respondent's IT department enhanced the reliability of IT services,

respondents recorded a mean score of 3.68, representing 74%. The results indicate that ITIL adopted practices influence IT service reliability to a medium extent, with a mean rated score of 3.91, representing 78%.

4.2.7 Influence of ITIL adopted practices on IT Service responsiveness

Table 8.4 below shows how respondents responded to the statements concerning extent of influence of various ITIL adopted practices on the IT Service Responsiveness.

Table 8.4: Descriptive Statistics of Influence of ITIL Adopted Practices (ITILAP1) on IT Service Responsiveness (SRES)

Statements	NAA (1)	SE (2)	ME (3)	GE (4)	VGE (5)	Mean Score	%Mean Score	Std. Dev
To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced responsiveness of IT services to the business support needs?	0%	0%	11%	57%	32%	4.21	**84%**	.630
To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced responsiveness of IT services to the business support needs?	0%	0%	18%	50%	32%	4.14	**83%**	.705
To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced responsiveness of IT services to the business support needs?	0%	0%	25%	54%	21%	3.96	**79%**	.693
To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced responsiveness of IT services to the business support needs?	7%	18%	21%	29%	25%	3.46	**69%**	1.261
To what extent has the use of access controls to different IT services (in order to maintain the confidentiality and integrity of information) in your IT department enhanced responsiveness of IT services to the business support needs?	4%	4%	18%	39%	36%	4.00	**80%**	1.018
Average Mean	**2%**	**4%**	**19%**	**46%**	**29%**	**3.96**	**79%**	

Source: Research (2021)

To the extent to which adherence to SLAs, OLAs, and IT underpinning contracts in the respondent's IT department enhanced responsiveness of IT services to the business support needs, respondents recorded a mean score of 4.21 on a 5-point Likert scale, representing 84%. Similarly, respondents recorded a mean score of 4.14 on the same scale, representing 83%, on the extent to which the use of change management workflows in co-ordination of changes with

minimal disruptions and accepted risks in respondent's IT department enhanced responsiveness of IT services to business support needs.

Whereas, on the extent to which the use of incident management workflows to manage disruptions and restore critical IT services in a respondent's IT department enhanced the responsiveness of IT services to business support needs, respondents recorded a mean score of 3.96 on a 5-point Likert scale, representing 79%. While on the extent to which the use of problem management workflow for root-cause analysis and elimination of all future incidents in the respondent's IT department enhanced the responsiveness of IT services to the business support needs, respondents recorded a mean score of 3.46, representing 69%. Finally, on the extent to which the use of access controls to different IT services in the respondent's IT department enhanced the responsiveness of IT services to business support needs, respondents recorded a mean score of 4 on a 5-point Likert scale, representing 80%. The results indicate that ITIL adopted practices influence IT service responsiveness greatly, with a mean rated score of 3.96, representing 79%.

4.2.7 Influence of ITIL adopted practices on IT Service assurance

Table 9.4 below shows how respondents responded to the statements concerning the extent of the influence of various ITIL adopted practices on IT Service Assurance.

Table 9.4: Descriptive Statistics of Influence of ITIL Adopted Practices (ITILAP1) on IT Service Assurance (SASS)

Statements	NAA	SE	ME	GE	VGE	Mean	%Mean	Std. Dev
To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced trust and credibility of IT services	0%	0%	11%	57%	32%	4.21	**84%**	.630
To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced trust and credibility of IT services?	0%	0%	25%	39%	36%	4.11	**82%**	.786
To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced trust and credibility of IT services?	0%	0%	18%	54%	29%	4.11	**82%**	.685
To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced trust and credibility of IT services?	7%	14%	29%	32%	18%	3.39	**68%**	1.166
To what extent has the use of access controls to different IT services (in order to maintain the confidentiality and integrity of information) in your IT department enhanced trust and credibility of IT services?	4%	4%	21%	50%	21%	3.82	**76%**	.945
Average Mean	**2%**	**4%**	**21%**	**46%**	**27%**	**3.93**	**79%**	

Source: Research (2021)

To the extent to which adherence to SLAs, OLAs, and IT underpinning contracts in the respondent's IT department enhanced trust and credibility of IT services, respondents recorded a mean score of 4.21 on a 5-point Likert scale, representing 84%.

Similarly, on the extent to which the use of change management workflows in the co-ordination of changes with minimal disruptions and accepted risks in the respondent's IT department enhanced trust and credibility of IT services, respondents recorded a mean score of 4.11, representing 82%. Whereas, on the extent to which the use of incident management workflows to manage disruptions and restore critical IT services in a respondent's IT department enhanced trust and credibility of IT services, respondents recorded a mean score of 4.11, representing 82%.

While on the extent to which the use of problem management workflow for root-cause analysis and elimination of all future incidents in the respondent's IT department enhanced trust and credibility of IT services, respondents recorded a mean score of 3.39, representing 68%.

Finally, on the extent to which the use of access controls to different IT services in the respondent's IT department enhanced trust and credibility of IT services, respondents recorded a mean score of 3.82 on a 5-point Likert scale, representing 76%. The findings indicate that ITIL adopted practices influence IT Service Assurance to a medium extent, with a mean rated score of 3.93, representing 79%.

The range of scores shown below was used to determine the average degree of influence of ITIL-adopted practices on IT service quality.

	Extent		Range of Scores
1	Not At All -	**NAA**	1.0 to 1.9
2	Small Extent-	**SE**	2.0 to 2.9
3	Medium Extent-	**ME**	3.0 to 3.9
4	Great Extent-	**GE**	4.0 to 4.9
5	Very Great Extent-	**VGE**	5.0 to 5.9

4.2.8 Descriptive Analysis for Effect of ITIL enablers on the influence of ITIL adopted practices on IT Service quality

The research also sought to determine the impact of ITIL enablers and success factors on the use of the ITIL adopted practices in improving the quality of IT services. Respondents were asked to rate their level of agreement with the statements concerning the effect of ITIL enablers and success factors on the use of the ITIL adopted practices in improving the quality of IT services. From Table 10.4, on whether knowledge and skills related to ITSM frameworks in the respondent's organization have enhanced the use of ITIL best practices in improving the quality of IT services, 54% agreed and 39% strongly agreed, while 7% were neutral. Whereas, on whether the availability of resources (such as tools and funding for projects and ongoing processes) in the respondent's organization has enhanced the use of ITIL best practices in improving the quality of IT services, 35.7% agreed, 35.7% strongly agreed, 25% were neutral and 3.6% disagreed.

Table 10.4: Descriptive Statistics of Effect of ITIL enablers on the influence of ITIL adopted practices on IT Service quality

Statements	SD	D	N	A	SA	Mean	Std. Dev
Knowledge and skills related to IT Service Management (ITSM) frameworks in our organization have enhanced the use of ITIL best practices in improving the quality of IT Services -**KAS**	0%	0%	7%	54%	39%	4.32	.61183
Availability of resources (such as tools and funding for projects and ongoing processes) in our organization has enhanced the use of ITIL best practices in improving the quality of IT Services- **RAS**	0%	4%	25%	35.71%	35.71%	4.04	.88117
Overall Mean						4.18	

Source: Research (2021)

The findings implied that both knowledge and skills related to ITSM and the availability of resources (such as tools and funding for projects) have a significant positive effect on the research topic.

4.2.9 Descriptive Analysis for respondents' opinions on the Influence of IT Service quality as a result of ITIL adopted practices

The respondents were asked to state the level they agree or disagree with the influence of the various dimensions of IT service quality. From Table 10.4, most (61%) of the respondents agreed that the IT department in their organization had significantly achieved consistency of performance and offered reliable IT services as a result of the use of ITIL adopted best practices, while 28% strongly agreed and 11% were neutral. Alternately, 68% agreed and 25% strongly agreed that the IT department in their organization had significantly achieved timely provision of IT services as a result of use of ITIL adopted best practices, and 7% were neutral. Whereas 64% of the respondents agreed and 29% strongly agreed that there has been improved trust and credibility in services offered by the IT department as a result of the use of ITIL adopted best practices, 7% were neutral.

Table 10.4: Descriptive Statistics- Respondents' opinions on the Influence of IT Service quality as a result of ITIL adopted practices

Statements	SD	D	N	A	SA	Mean	Std. Dev
The IT department in my organization has significantly achieved consistency of performance and offered Dependable IT services as a result of use of ITIL adopted best practices	0%	0%	11%	61%	28%	4.18	.612
The IT department in my organization has significantly achieved timely provision of IT services as a result of use of ITIL adopted best practices	0%	0%	7%	68%	25%	4.18	.548
There has been improved trust and credibility of services offered by the IT department in my organization as a result of use of ITIL adopted best practices	0%	0%	7%	64%	29%	4.21	.568
Overall Mean						**4.19**	

Source: Research (2021)

4.3 Qualitative Data Analysis

Based on the identified themes, qualitative data collected in open-ended questions was assessed and displayed in charts.

4.3.1 Analyzing respondent's comments on the effect of ITIL adopted practices on the IT Service quality

The respondents were asked to indicate the effect the ITIL adopted practices had on the quality of IT Services offered by their IT department.

From the results in figure 5.4, 39% of the respondents stated that ITIL adopted practices had significantly contributed to end-user satisfaction with IT Services while 11% stated that reliability of IT services was significantly improved as a result of ITIL adopted practices and 7% stated that responsiveness of IT Services was significantly improved.

Figure 4.4:   Respondent's Comments on the effect of ITIL adopted practices on the IT Service quality
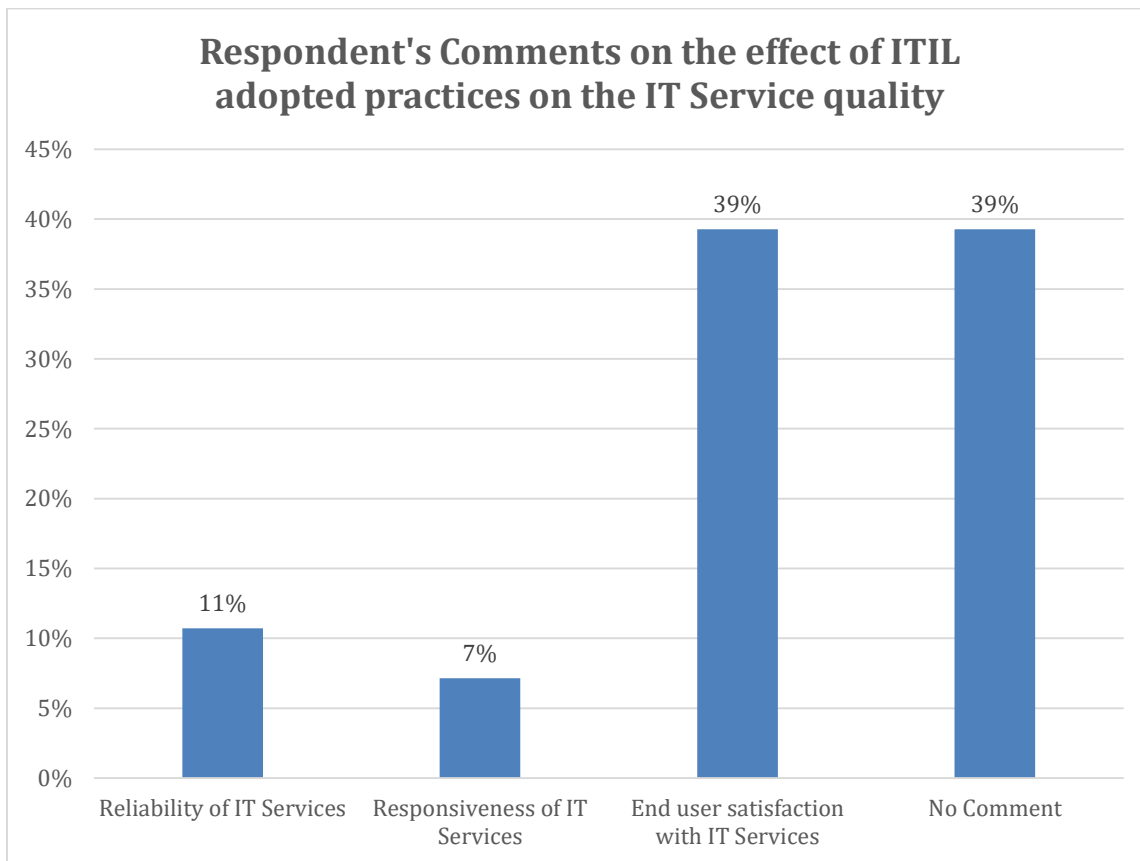
Source: Research (2021)

4.3.2 Analyzing respondent's comment on the ITIL Practice with highest effect on the quality of IT Services

The respondents were asked to state the ITIL adopted practice with the highest effect on the quality of IT services. Findings (in figure 6.4) show that both service level management practices and incident management practices were identified as the best practices with the highest effect, each with a 21% response each, followed by change management practices (14%), and access management practices (7%). However, 32% of the respondents chose not to comment.

Figure 5.4: Respondent's comment on the ITIL Practice with highest effect on the quality of IT Services
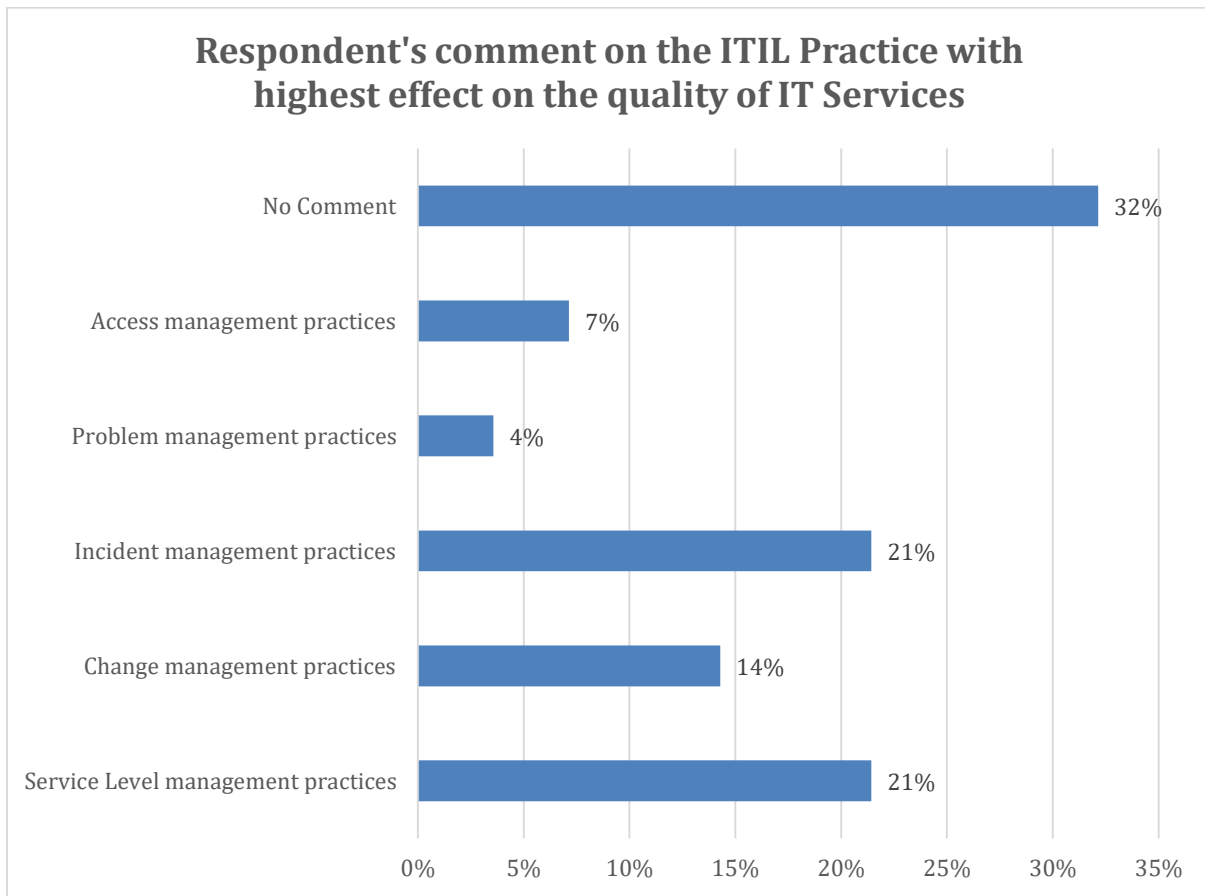
Source: Research (2021)

4.3.3 Analyzing respondent's comments on the effect of ITIL success factors on the influence of ITIL framework on the IT Service quality dimensions

The respondents were also requested to give comments on how ITIL enablers had contributed to the influence of the ITIL adopted practices on the quality of IT services. The results (in figure 7.4) show that most (75%) of the respondents stated that ITIL enablers are an important enhancement of the influence of ITIL adopted practices on the IT service quality, while 11% felt they were not and 14% were undecided.

Figure 6.4: Respondent's comments on the effect of ITIL enablers on the influence of ITIL adopted practices on the IT Service quality
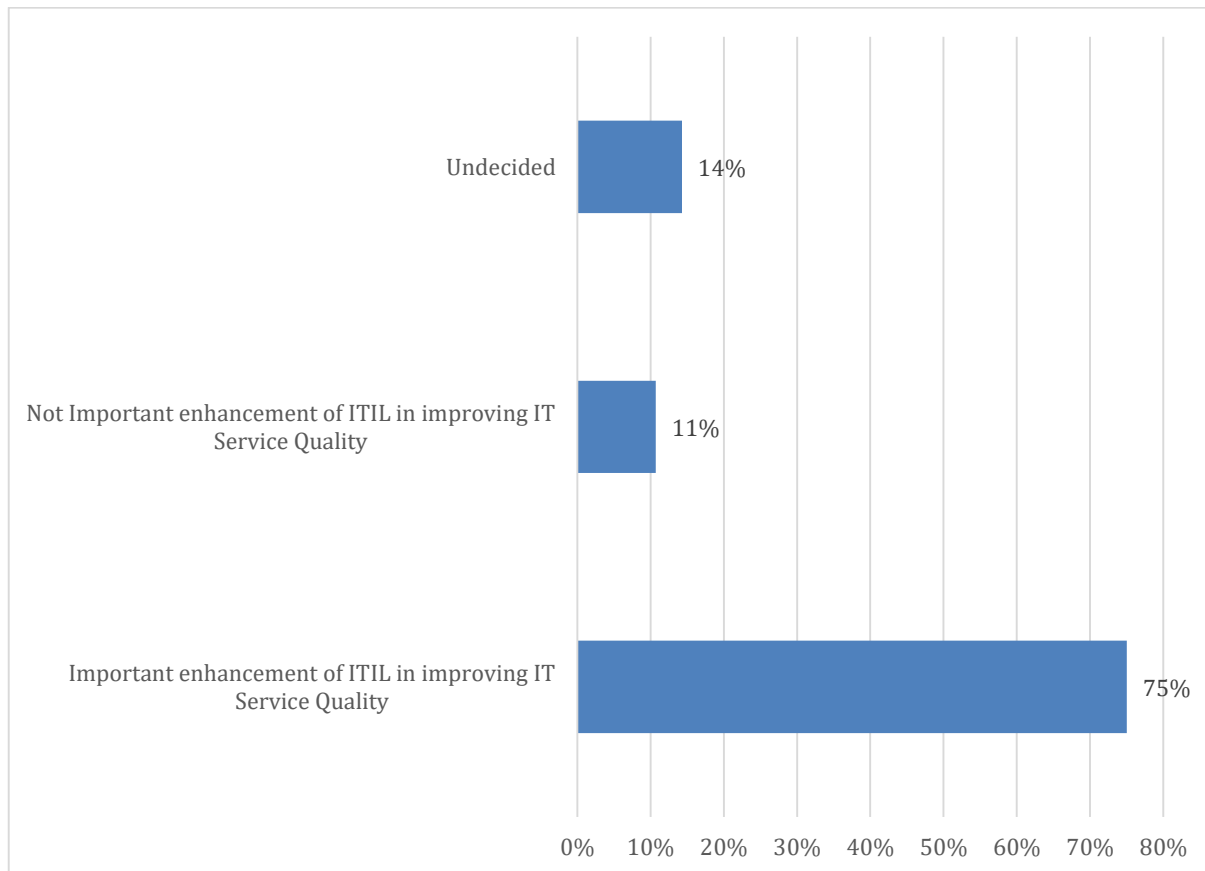
Source: Research (2021)

4.3.4 Analyzing Respondent's comments on any other IT service quality aspect influenced by the ITIL adopted practices

The respondents were also requested to indicate any other IT service quality aspect influenced by the ITIL adopted practices. The results (in figure 8.4) show that most (71%) of the respondents stated that they had no idea, while 14% indicated IT service availability and another 14% indicated IT service performance.

Figure 7.4: Respondent's comments on any other IT service quality aspect influenced by the ITIL adopted practices
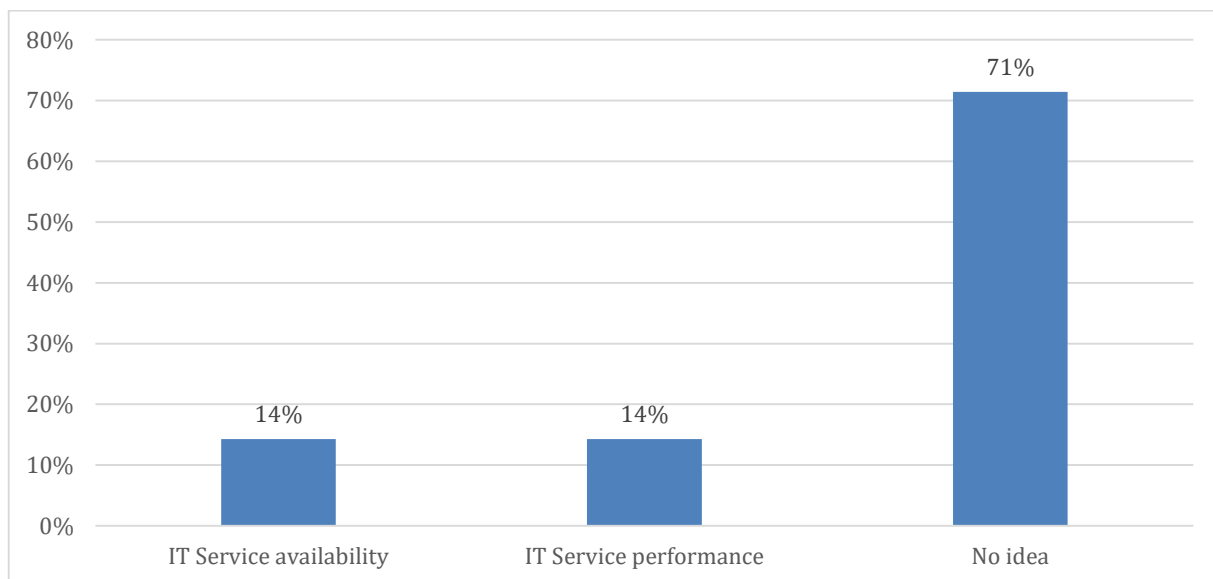
Source: Research (2021)

4.4 Inferential Statistics

Pearson correlation analysis and multiple regression analysis comprised the inferential statistics conducted by this study. This was informed by the fact that the Likert scale data collected was normally distributed, and therefore, parametric methods of analysis were employed.

4.4.1 Normality Test

For inferential statistics, the mean of both dependent and independent variables were transformed in order to perform the test of normality, and the findings are displayed in Table 11.4.

Table 11.4: Tests of Normality 1

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ITILAP1	.117	28	.200[*]	.966	28	.479
ITILAP2	.124	28	.200[*]	.939	28	.107
ITILAP3	.132	28	.200[*]	.946	28	.153
ITSQ	.263	28	.000	.886	28	.006

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The analysis used Shapiro-Wilk test statistics since the data set was less than 100. Table 11.4 shows that the transformed mean of variable values was greater than 0.05, meaning the data set was normally distributed and the values were not statistically significant. **Table 12.4** shows another test of normality results after the transformed variables were logged to check again if they were normally distributed. Analysis of the log of variables indicated that the values were still greater than 0.05, hence confirming that the data was normally distributed.

Tests of Normality 2

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
log_ITILAP1	.123	28	.200[*]	.967	28	.502
log_ITILAP2	.115	28	.200[*]	.943	28	.135
log_ITILAP3	.113	28	.200[*]	.952	28	.219
log_ITSQ	.244	28	.000	.882	28	.004

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

4.4.2 Pearson correlation analysis

A correlational analysis was done to establish the connection between the study variables. Pearson's correlation coefficient was used as it is more appropriate for the normally distributed and non-statistically significant data that is from the questionnaire (Sekaran & Bougie, 2013). Table 13.4 shows the calculated correlation between the influences of various ITIL adopted practices and the IT service quality dimensions.

Table 11.4: Pearson correlation analysis

		ITILAP1	ITILAP2	ITILAP3	ITILAPbyITILENAB	SREL	SRES	SASS
ITILAP1	Pearson Correlation	1	.905**	.890**	.802**	.553**	.396*	.369
	Sig. (2-tailed)		.000	.000	.000	.002	.037	.054
	N	28	28	28	28	28	28	28
ITILAP2	Pearson Correlation	.905**	1	.897**	.795**	.406*	.217	.338
	Sig. (2-tailed)	.000		.000	.000	.032	.268	.079
	N	28	28	28	28	28	28	28
ITILAP3	Pearson Correlation	.890**	.897**	1	.728**	.435*	.352	.454*
	Sig. (2-tailed)	.000	.000		.000	.021	.066	.015
	N	28	28	28	28	28	28	28
ITILAPbyITILENAB	Pearson Correlation	.802**	.795**	.728**	1	.582**	.413*	.409*
	Sig. (2-tailed)	.000	.000	.000		.001	.029	.031
	N	28	28	28	28	28	28	28
SREL	Pearson Correlation	.553**	.406*	.435*	.582**	1	.675**	.419*
	Sig. (2-tailed)	.002	.032	.021	.001		.000	.027
	N	28	28	28	28	28	28	28
SRES	Pearson Correlation	.396*	.217	.352	.413*	.675**	1	.467*
	Sig. (2-tailed)	.037	.268	.066	.029	.000		.012
	N	28	28	28	28	28	28	28
SASS	Pearson Correlation	.369	.338	.454*	.409*	.419*	.467*	1
	Sig. (2-tailed)	.054	.079	.015	.031	.027	.012	
	N	28	28	28	28	28	28	28

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

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

For the independent variables, the correlation between the influence of ITIL adopted practices (ITILAP1) and IT Service Reliability (SREL) is moderate (r = 0.553, p = 0.002) and statistically significant. The correlation between the influence of ITIL adopted practices (ITILAP2) and IT Service Responsiveness (SRES) is moderate (r = 0.39, p = 0.037) and statistically significant. The correlation between the influence of ITIL adopted practices (ITILAP3) and IT Service Assurance (SASS) is weak (r = 0.369, p = 0.054) and is not statistically significant. These findings, therefore, suggest that the use of ITIL-adopted practices will result in a positive influence on IT service reliability, IT service responsiveness, and IT service assurance.

For the moderating variables, the correlation between the moderation effect of ITIL success factors on the influence of ITIL adopted practices and IT Service Reliability (SREL) is moderate (r = 0.582, p = 0.001, and is statistically significant.

The correlation between the moderation effect of ITIL success factors on the influence of ITIL adopted practices and service responsiveness (SRES) is moderate (r = 0.413, p = 0.029) and statistically significant. The correlation between the moderation effect of ITIL success factors on the influence of ITIL adopted practices and Service Responsiveness (SRES) is moderate (r = 0.409, p = 0.031) and statistically significant.

Below is the correlation range used:

Moderate	Value
Very weak	0.00 to 0.19
Weak	0.20 to 0.39
Moderate	0.40 to 0.59
Strong	0.60 to 0.79
Very Strong	0.80 to 1.0

These findings therefore suggest that ITIL enablers such as knowledge and skills related to ITSM and availability of resources such as tools and funding for ongoing processes and projects have a positive significant moderation effect on the influence of ITIL adopted practices on the influence of IT service reliability, IT service responsiveness, and IT service assurance.

Table 12.4: Summary of Pearson's correlation analysis

Independent Variables		Dependent Variables	Correlation (r)	Significance
ITIL Adopted practices -Service level management practices -Change management practices -Incident management practices -Problem management practices -Access management practices	IT SERVICE QUALITY DIMENSIONS	Service Reliability	0.553 *Moderate*	0.002 *Significant*
		Service Responsiveness	0.396 *Moderate*	0.037 *Significant*
		Service Assurance	0.369 *Weak*	0.054 *Not significant*
ITIL Enablers -Knowledge and Skills related to ITSM -Availability of resources such as tools and funding for ongoing processes and projects	IT SERVICE QUALITY DIMENSIONS	Service Reliability	0.582 *Moderate*	0.001 *Significant*
		Service Responsiveness	0.413 *Moderate*	0.029 *Significant*
		Service Assurance	0.409 *Moderate*	0.031 *Significant*

4.4.3 Multiple Linear regression analysis

The relative role of each of the ITIL adopted practice as well as their joint effect was determined through multiple regression analysis. This was used to determine how the ITIL adopted practices collectively influence IT Service quality dimensions among the Telecommunication companies in Kenya. The model summary of the multiple linear regression on the influence of ITIL adopted practices and IT Service quality dimensions is illustrated in Table 15.4. The model summary indicates that all ITIL adopted practices (independent variables) jointly accounted for 34.8% (R-square=.348) of variation in IT service quality dimensions (dependent variable). 65.2% of variation in IT service quality dimensions was unexplained for and this is covered by factors not considered by this research.

Table 13.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.590[b]	.348	.295	.39884	.117	4.470	1	25	.045

a. Predictors: (Constant),SLMP,CMP,IMP, PMP,AMP

b. Dependent Variable: ITSQ

Source: Research (2021)

Table 14.4: ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.118	2	1.059	6.659	.005[c]
1	Residual	3.977	25	.159		
	Total	**6.095**	**27**			

a. Dependent Variable: ITSQ

c. Predictors: (Constant), SLMP,CMP,IMP, PMP,AMP

Similarly, ANOVA results show that F-statistics = 6.659 with a corresponding p-value of 0.005. These results show that the model used to predict the influence of ITIL adopted practices on the IT service quality dimensions in telecommunication companies was statistically significant.

This model had good fitness, making it suitable to predict the influence of ITIL's service level management practices, change management practices, incident management practices, problem management practices, and access management practices on the IT service reliability, service responsiveness, and service assurance in telecommunication companies in Kenya.

4.4.4 Regression Coefficients

The results indicated in Table 17.4 show the regression coefficients of the regression model that was used to predict the influence of ITIL adopted practices on the quality of IT services. Regression coefficients are represented by β values.

Table 15.4: Regression Coefficients

	β	Std. Error	Beta	t	Sig
(Constant)	2.384	**.586**	**.389**	**4.067**	**.000**
SLMP	.459	.142	**.355**	2.114	.045
CMP	.182	.047	**.289**	1.636	.051
IMP	.472	.098	**.316**	2.567	.019
PMP	.481	.069	**.384**	2.291	.031
AMP	.200	.011	**.212**	2.203	.005

a) Dependent variable
IT Service Quality

$Y= 2.384 + 0.459X_1 + 0.182X_2 + 0.472X_3 + 0.481X_4 + 0.200X_5 + ε$

Y= IT Service Quality {*Service Reliability, Service Responsiveness, Service Assurance*}

X₁= Service Level Management practices (SLMP)

X₂= Change management practices (CMP)

X₃= Incident management practices (IMP)

X₄= Problem management practices (PMP)

X₅= Access management practices (AMP)

ε = Unexplained error term

4.5 Discussion of Research Findings

4.5.1 Influence of ITIL adopted practices on the IT service quality dimensions

The findings from sections 4.2.6, 4.2.7, and 4.2.8 show that the ITIL adopted practices under study influence IT Service Reliability to a medium extent, with a mean rated score of 3.91 representing 78%, and the same practices influence IT Service Responsiveness to a great extent, with a mean rated score of 3.96 representing 79%. These practices also have a moderate impact on IT service assurance, with a mean rated score of 3.93, representing 79%. These findings therefore imply that ITIL-adopted practices have a significant positive influence on the IT service quality dimensions.

The multiple linear regression analysis results in Table 15.4 further show that ITIL's service level management practices had a regression coefficient of = 0.45, which implies that service level management practices positively and significantly predict improved quality of IT services. A 1-unit positive change in service level management practices would lead to a positive change of 0.147 units in IT service quality.

Change management practices had a regression coefficient of = 0.18 and p = 0.051, which also implies that change management practices positively but not significantly predict improved quality of IT services. A 1-unit positive change in change management practices would result in an increase of 0.182 units in IT service quality.

Incident management practices had a regression coefficient of = 0.472 and p = 0.019, which also implies that incident management practices positively and significantly predict improved quality of IT services. A 1-unit positive change in incident management practices would result in an increase of 0.472 units in IT service quality.

Problem management practices had a regression coefficient of 0.48 and p = 0.031, implying that they positively and significantly predict improved IT service quality. A 1-unit positive change in problem management practices would result in an increase of 0.481 units in IT service quality.

Access management practices had a regression coefficient of = 0.22 and p = 0.005, which also implies that access management practices positively and significantly predict improved quality

of IT services. A 1-unit positive change in access management practices would result in an increase of 0.2 units in IT service quality. Studies by Wustenhoff (2002), Case (2010), and Wavestone US (2013) outline the benefits service level management practices bring to an organization's service delivery, such as improved IT and business relationships; increased customer satisfaction within IT; increased service operation stability; improved service maturity and quality; cost savings for operational services; improved reliability, availability, and serviceability. These studies' findings indicate that service level management practices positively influence aspects of IT service quality, which is consistent with the current study's findings. Seiteam and Gillingham (2021) conducted research on the impact of ITIL change management practices on IT services. It outlines key benefits like user satisfaction, protection of online IT services, responsiveness of IT services to changing business requirements, business operations remaining effective after the changes are implemented, improved staff efficiency and productivity, improved alignment of IT services to business, improved risk management, reduced disruptions to the IT services, and faster implementation of changes in a systematic manner. The findings in these two studies are indicators that change management practices positively influence the aspects of IT service quality and mirror the findings of the current study.

Studies by Jan (2018), Chakray (n.d) and Gillingham (2021) on the value of ITIL access control management practices bring to the business outline a number of benefits as findings. These studies' findings indicate that access management practices positively influence aspects of IT service quality and are related to the current study's findings.

Research by Yearly (2018), Irwin (2019) and Helpsystems (n.d) outlines how ITIL incident management processes have influenced service delivery in organizations through improved incident response times, improved user satisfaction, improved staff efficiency and productivity, and service availability on the IT service quality dimensions. The findings of this research are an indicator that incident management processes positively influence the aspects of IT service quality and concur with the findings of the current study.

Other studies by Bender (2021) and Helpsystems (n.d) on the benefits of implementing ITIL problem management practices identify four (4) benefits for organizational service delivery, such as speedy incident resolution, increased customer satisfaction, improved service and product

quality, and service availability. The findings in these two studies are indicators that problem management practices positively influence the aspects of IT service quality and are related to the findings of the current study. Hence, this generalized that ITIL-adopted practices are significant positive predictors of IT service reliability, service responsiveness, and service assurance dimensions.

4.5.2 Effect of the ITIL success factors on the relationship between ITIL adopted practices and IT Service quality.

The ITIL success factors covered in this study were knowledge and skills related to ITSM and the availability of resources such as tools and funding for projects and ongoing processes. The effect of these success factors on the influence of ITIL adopted practices on the quality of IT services was assessed and the analysis was presented in section 4.2.9. The findings implied that both knowledge and skills related to ITSM and the availability of resources (such as tools and funding for projects) jointly have a significant positive moderation effect on the influence of ITIL adopted practices on IT Service quality dimensions.

The current study backs up Iden and Eikebrokk's (2014) findings even though their effect sizes were small, indicating a low relative impact on predicting ITIL implementation and outcomes. The current study has combined the seven (7) enablers into two, i.e., knowledge and skills related to ITSM and the availability of resources (such as tools and funding for projects), and the findings agree with those of Iden and Eikebrokk (2014).

4.5.3 Hypothesis Testing

From the foregoing discussion, all of the hypotheses tested were in line with previous research work. Table 18.4 below summarizes the results of hypotheses testing.

Table 16.4: Summary of Hypothesis Testing

Relationship	Hypothesis	Result
ITIL's adopted Service Level Management practices have a significant positive influence on the quality of IT Services	H_1	**Supported**
ITIL's adopted Change Management practices have a significant positive influence on the quality of IT Services	H_2	**Supported**
ITIL's adopted Incident Management practices have a significant positive influence on the quality of IT Services	H_3	**Supported**
ITIL's adopted Problem Management practices have a significant positive influence on the quality of IT Services	H_4	**Supported**
ITIL's adopted Access Management practices have a significant positive influence on the quality of IT Services	H_5	**Supported**
ITIL enablers or success factors have a significant moderation effect on the influence of ITIL adopted practices on the quality of IT Services	H_6	**Supported**

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section provides a summary of the outcomes, conclusions, and recommendations, as well as the research limitations and suggestions for further studies. This was done in accordance with the objectives of the study.

5.2 Summary of the findings

Chapter one describes the background studies related to the IT Service Management field, research problems, research objectives, and research questions, the significance of the current study, and the basic assumptions of the study. The chapter begins by noting that most organizations in the modern business environment are becoming more reliant on their internal information technology (IT) to deliver critical business services and functions, and they are relying on externally developed service management frameworks such as the ITIL to implement, operate, or improve IT services. It also notes that the quality of services provided by the IT department has realized remarkable progress, which was not the case before the implementation of ITSM frameworks. A statement of the problem followed, stating that IT executives in most organizations are uncertain of the influence ITSM practices have on the delivery of quality IT services and therefore pointed to a knowledge gap in the popularity of the ITSM frameworks where their influence had not been linked to the IT service quality dimensions. This led the research to assess the influence of ITIL adopted practices (being the most widely adopted framework) on the IT service quality dimensions. This led to the general objective, specific objectives, research questions, and significance of the current study, as well as the basic assumptions of the study.

The second chapter reviewed the relevant prior literature. It is divided into six main subheadings. The source was from journal articles obtained from online research databases. The theoretical framework consisted of the ITSERVQUAL model with a focus on its three key dimensions and formed the basis of this study. The empirical studies consisted of existing studies relating to the field of ITMS, from which the literature gaps were analyzed. The resultant conceptual framework was used to guide the operationalization of study variables for the research instrument and formulation of the hypothesis of the study.

Chapter three outlines the research methodology with nine (9) subheadings. It provides a description of the research design where the current was designed to use a descriptive design and the target population was defined as all the telecommunication companies within Kenya. A sample size of 35 respondents was determined for the data. The reason for selecting these organizations was, first and foremost, that they are large and consist of areas that specialize in ICT/IT and that the problem being researched is a concern even in other sectors. The instrument utilized for the study was a closed-ended and open-ended questionnaire, which was analyzed using the MS Excel program and SPSS statistical analysis to ascertain the frequencies and correlation between the variables. The sampling plan involved a random sampling of the respondents who were considered to be representative of the sample. The chapter also outlines the use of data validity and reliability as a measure of the extent to which the data collected through the research instrument represented the concept being measured, where an experienced researcher was requested to scrutinize the research questionnaires for content validity before they were administered to the respondents. Ethical considerations have also been observed before collecting the research data.

Chapter four comprises the outcomes of the findings. They are presented and analyzed under fifteen (15) subheadings. name of the respondent's organization, Respondent's Years of Experience with the Organization, ITIL practices adopted and implemented by the Respondent's IT department, ITIL adopted practices' influence on IT service reliability, ITIL adopted practices' influence on IT service responsiveness, ITIL adopted practices' influence on IT service assurance, Qualitative Data Analysis, Inferential Statistics, Normality Test, Pearson Correlation Analysis, Multiple Linear Regression Analysis, Model Summary, ANOVA Results, Regression Coefficients, Discussion of Research Findings and Hypothesis Testing Under the discussion of the findings.

The multiple linear regression analysis results indicated that ITIL's service management level practices had a regression coefficient of $= 0.45$ and $p = 0.045$, which implies that service management level practices positively and significantly predict improved quality of IT services. A 1-unit positive change in service management level practices would lead to a positive change of 0.147 units in IT service quality. Change management practices had a regression coefficient of $= 0.18$ and $p = 0.051$, which also implies that change management practices positively but not

significantly predict improved quality of IT services. A 1-unit positive change in change management practices would result in an increase of 0.182 units in IT service quality. Incident management practices had a regression coefficient of = 0.472 and p = 0.019, implying that they positively and significantly predicted improved IT service quality. A 1-unit positive change in incident management practices would result in an increase of 0.472 units in IT service quality. Problem management practices had a regression coefficient of 0.48 and p = 0.031, implying that they positively and significantly predict improved IT service quality. A 1-unit positive change in problem management practices would result in an increase of 0.481 units in IT service quality. Access management practices had a regression coefficient of = 0.22 and p = 0.005, which also implies that access management practices positively and significantly predict improved quality of IT services. A 1-unit positive change in access management practices would result in an increase of 0.2 units in IT service quality. It was therefore generalized that ITIL-adopted practices are significant positive predictors of IT service reliability, service responsiveness, and service assurance.

On the first research question, the findings implied that ITIL adopted practices have a great positive influence on the IT service quality dimensions.

The second research question aims to assess the effect of ITIL enablers and success factors on the influence of the ITIL adopted practices on the IT service quality dimensions. The ITIL enablers were summarized into two main factors, namely: knowledge and skills related to ITSM frameworks and the availability of resources (such as tools and funding for projects and ongoing processes). The findings implied that both knowledge and skills related to ITSM and the availability of resources (such as tools and funding for projects) have a significant positive moderation effect on the influence of ITIL adopted practices on IT Service quality dimensions.

5.3 Research Limitations

The respondents took a considerable amount of time to respond to the questionnaires. The researcher would have wished the respondents to have taken a shorter time period to complete the questionnaires. There was also non-cooperation by some of the respondents. Also included is the cost of hiring a research assistant to assist in following up with the online questionnaires.

5.4 Addressing the Research limitation

i) The researcher kept on reminding the respondents to fill in the questionnaires in order to avoid further delays.

ii) The research was carried out within the available budget and time.

5.4 Achievements

The research findings have the following achievements for the organizations:

i.   They will aid policymakers in making decisions about IT service management in particular.

ii. The findings will be of great contribution to the professional body of ITSM practitioners in pushing standards for IT service provider organizations.

iii. The findings will make IT executives certain of the perceived improvement of the IT service quality dimensions and therefore make a decision to fully implement the ITIL framework practices

5.5 Conclusion

Previous ITSM research identified improved IT and business relationships; increased customer satisfaction within IT; increased service operation stability; improved service maturity and quality; cost savings for operational services; improved reliability and serviceability; confidentiality of information; reduction in the possibility of an error being induced in the use of a critical service; audit of IT services and easy access to services from anywhere at any time as some of the key benefits of ITIL adopted practices.

The current study has assessed the influence of ITIL practices on the key IT service quality dimensions of service reliability, service responsiveness, and service assurance, and the findings indicate that these practices are positive predictors of IT service reliability, IT service responsiveness, and service assurance.

The findings stemming from the descriptive analysis of the research data revealed that a good number of telecommunication organizations in Kenya have adopted and implemented at least two to three of the key ITIL best practices.

For many organizations whose IT executives are unsure what will be accomplished when they adopt and implement ITSM practices, the findings in this study are a strong predictor that IT service quality will be significantly improved.

This is a gauge of the impact ITSM framework adoption, particularly ITIL, has on the perceived quality of IT services.

Therefore, it can be concluded that IT executives attempting to attain an improved quality of IT services within their organizations need to focus more on full adoption and implementation of ITSM frameworks such as ITIL.

5.6 Recommendations

The quality of services provided by the IT department has realized remarkable progress, which was not the case before the implementation of ITSM frameworks. The key ITIL adopted practices covered in this research were service level management practices, change management practices, incident management practices, problem management practices, and access management practices whose influence on the IT service quality dimensions of reliability, responsiveness, and assurance was being assessed. Whereas some organizations begin by adopting a smaller set of processes and maturing them within the rest of the organization while deciding whether to add more or not, the study also noted that many organizations start with the above basics before adopting other ITIL processes. This study therefore recommends that IT service provider organizations strongly recognize the critical role of ITIL frameworks in improving the quality of IT services.

5.7 Areas for Further Research

While this research work focused on the influence of ITIL adopted practices on the IT service quality dimensions within the telecommunication companies in Kenya, it was established that all the ITIL practices considered by the study jointly accounted for 34.8% of the variation in IT service quality dimensions.

Further study should focus on a wide scope to explain the remaining 65.2% variation in IT service quality dimensions. The impact of ITIL framework adoption on IT service quality can be studied in organizations other than telecommunications companies. There is also potential research on how other ITSM frameworks apart from ITIL have contributed to the delivery of quality IT services.

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APPENDIX SECTION

RESEARCH SCHEDULE

ITEM	MILESTONE	START DATE	END DATE
1	Consultations and picking of project titles	8TH FEBRUARY 2021	12TH FEBRUARY 2021
2	Preparing the proposal	15TH FEBRUARY 2021	26TH MARCH 2021
3	Milestone One Presentation	29TH MARCH 2021	2ND APRIL 2021
4	Working towards milestone Two	5TH APRIL 2021	21ST MAY 2021
5	Milestone Two Presentation	28TH JUNE 2021	2ND JULY 2021
6	Working towards milestone Three	15TH JULY 2021	30TH JULY 2021
7	Milestone Three presentation	2ND AUGUST 2021	6TH AUGUST 2021

LETTER TO RESPONDENTS

SAMMY MUINDE MBEKA

P.O. BOX 30301

NAIROBI

00200

RE: INTRODUCTION LETTER

I am a student at the University of Nairobi in the Faculty of Science and Technology undertaking a degree of Master of Science in Information Technology Management. The research study is titled, **"Assessing the Influence of ITIL framework adoption on the IT Service Quality: A Case of Telecommunication Companies in Kenya."**

With this regard, kindly fill in the online questionnaire shared through a link sent to you over email or other media platform by making the appropriate selection and providing explanations where necessary. Information provided will be confidential and solely be used for the purposes of this research. Thank you in advance.

Yours Faithfully,

Sammy M. Mbeka

QUESTIONNAIRE

This questionnaire intends to collect data on ITIL adopted best practices and IT service quality dimensions among telecommunication companies in Kenya. Please provide your honest feedback by ticking () suitable responses and, where requested, providing brief comments in the space provided. The information you provide will be kept private and confidential and will only be used for the purposes of this research.

Name: _____ (Optional)

Company: _____

Email address: _____ (Optional)

Section A: General Information

a) Which Job Title best describes your role in the organization you are currently working for?   Tick (✓) to choose one
   1) IT Service Manager   ()
   2) IT Service Management agent   ()
   3) IT Process manager   ()
   4) Other (Specify) _____()

b) Please indicate the period you have worked with your current organization?   Tick (✓) to (choose one)
   (1.)   0 to 2 Years   ()
   (2.)   3 to 5 Years   ()
   (3.)   6 to 9 Years   ()
   (4.)   10 Years and above   ()

  2. What is the size of your IT department in terms of the number of staff?   Tick (✓) to choose one
   1) 1 to 20   ()
   2) 21 to 40   ()
   3) 41 to 60   ()
   4) 61 to 80   ()
   5) More than 80   ()

Section B: Information Technology Infrastructure Library (ITIL) Best Practices

3. Which ITIL practices has the IT department in your organization adopted and implemented?   *(Tick (√) to select all Applicable choices)*
   a. Service level management practices   []
   b. Change management practices   []
   c. Incident management practices   []
   d. Problem management practices   []
   e. Access management practices   []
   f. NOT APPLICABLE   []

4. On a scale of **1–5,** where 5 means "**Very Great Extent,"** 4-**Great Extent,** 3-**Moderate Extent,** 2-**Small Extent, and** 1 means "**Not at all,"** indicate the extent to which you agree with the use of the following ITIL best practices to improve the quality of IT services offered by the IT department in your organization.

a) **Application of Service Level Management practices**	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent
I. To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced reliability of IT services? (Dependability of Services)					
II. To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced responsiveness of IT services *(Timely provision of services)* to the business support needs?					
III. To what extent has adherence to SLAs, OLAs and IT underpinning contracts in your IT department enhanced trust and credibility of IT services (service assurance)?					

b) Application of Change Management practices	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent
IV. To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced reliability of IT services?					
V. To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced responsiveness of IT services *(Timely provision of services)* to the business support needs?					
VI. To what extent has the use of change management workflows in co-ordination of changes with minimal disruptions and accepted risks in your IT department enhanced trust and credibility of IT services (service assurance)?					

c) Application of Incident Management practices	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent
VII. To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced reliability of IT services?					
VIII. To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced responsiveness of IT services *(Timely provision of services)* to the business support needs?					
IX. To what extent has the use of incident management workflow to manage disruptions and restore critical IT services in your IT department enhanced trust and credibility of IT services (service assurance)?					

d) **Application of Problem Management practices**	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent
X. To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced reliability of IT services?					
XI. To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced responsiveness of IT services *(Timely provision of services)* to the business support needs?					
XII. To what extent has the use of problem management workflow for root-cause analysis and elimination of all future incidents in your IT department enhanced trust and credibility of IT services (service assurance)?					

e) **Application of Access Management practices**	Not At All	Small Extent	Moderate Extent	Great Extent	Very Great Extent
XIII. To what extent has the use of access controls to different IT services (*in order to maintain the confidentiality and integrity of information*) in your IT department enhanced reliability of IT services?					
XIV. To what extent has the use of access controls to different IT services (*in order to maintain the confidentiality and integrity of information*) in your IT department enhanced responsiveness of IT services *(Timely provision of services)* to the business support needs?					
XV. To what extent has the use of access controls to different IT services (*in order to maintain the confidentiality and integrity of information*) in your IT department enhanced trust and credibility of IT services (service assurance)?					

5. Please give your comments on how these ITIL adopted practices have affected the quality of IT services offered by the IT department in your organization. _____
_____

6. Please comment on which of the above ITIL practices implemented in your IT Department has the greatest impact on the quality of IT services in your organization.

Section C: ITIL Enablers /Success Factors

7. Using the scale of 1–5, where **5-Strongly Agree, 4-Agree, 3-Neutral**, **2-Disagree, and 1-Strongly Disagree,** indicate the level to which you agree with the following statements regarding the effect of ITIL enablers on the use of ITIL adopted practices to improve the quality of IT services offered by the IT department in your organization.

	ITIL Enablers /Success Factors	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Knowledge and skills related to IT Service Management (ITSM) frameworks in our organization have enhanced the use of ITIL best practices in improving the quality of IT Services offered by our IT department					
2	Availability of resources (such as tools and funding for projects and ongoing processes) in our organization have enhanced the use of ITIL best practices in improving the quality of IT Services offered by our IT department					

8. Please comment on the effect of above ITIL enablers / Success factors in question No.8, on the influence of the ITIL adopted practices on the quality of IT Services offered by the IT department in your organization_____
_____

Section D: Quality of IT Services

9. Owing to ITIL adopted best practices in your organization, to what extent do you agree or disagree with the achievement of the following IT service quality dimensions within the IT department in your organization where **1-Strongly Disagree, 2-Disagree, 3-Neutral 4- Agree and 5-Strongly Agree**

	IT Service Quality Dimensions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	The IT department in my organization has significantly achieved *consistency of performance* and offered *Dependable IT services* as a result of use of ITIL adopted best practices. (Service reliability)					
2	The IT department in my organization has significantly achieved *timely provision of IT services* as a result of use of ITIL adopted best practices. (Service responsiveness)					
3	There has been *Improved trust and credibility of services* offered by the IT department in my organization as a result of use of ITIL adopted best practices. (Service assurance)					

10. Mention and briefly explain any other IT service quality aspect influenced by the above ITIL adopted practices

_____
_____