

**PROJECT APPRAISAL PRACTICES AND PERFORMANCE OF COMMERCIAL
OFFICE SPACE PROJECTS IN NAIROBI COUNTY, KENYA.**

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**A Research Project Report Submitted In Partial Fulfillment Of The Requirements For The
Award Of Master Of Arts Degree In Project Planning And Management, University Of
Nairobi**

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DECLARATION

This research project report is my original work and has not been submitted for any other degree or award in any other university or college.



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This research project report has been submitted for examination with my approval as the university supervisor.



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Date 10/03/2023.....

DEDICATION

I dedicate this work to my loving husband, Kiita, for setting an academic bar. To my lovely kids, Mueni and Mumo, who gave me ample time to accomplish this work.

ACKNOWLEDGEMENTS

I wish to recognize the University of Nairobi for allowing me to access higher education. I also wish to thank my supervisor, Dr. John Mbugua, for his guidance, inspiration, and academic support throughout the study.

I categorically encourage the estate agents, valuers, project analysts, and future investors in the real estate sector to reflect on this work.

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LIST OF ABBREVIATIONS & ACRONYMS

GDP	Gross Domestic Product
CRE	Commercial Real Estate
EU	European Union
GOK	Government of Kenya
AKUH	Agha Khan University Hospital
CBD	Central Business District
Covid-19	Corona Virus
SQFT	Square feet
PMI	Project Management Institute
Mn	Million
Mohl	Ministry of Housing & lands
CEA	Cost-Effective-Analysis
CUA	Cost-Utility-Analysis
CBA	Cost-Benefit-Analysis
PBP	Payback Period
PI	Profit Index
ROCE	Return on Capital Employed
IRR	Internal Rate of Return
ARR	Accounting Rate of Return
NPV	Net Present Value
DALYs	Disability-Adjusted-Life-Years
QALYs	Quality-Adjusted-Life-Years (QALYs)
HBU	Highest & Best Use
EIA	Environmental Impact Assessment
ICER	Incremental Cost-Effectiveness Ratio
NG-CDF	National Government-Constituency Development Fund
KIIs	Key Informant Interviews
EA	Estate Agents
SEE	Standard Error of the Estimate

ABSTRACT

The purpose of conducting project appraisal in commercial office space projects is to determine its viability and compatibility regarding the financial, economic, market, and technical aspects. Commercial office projects contribute immensely to economic growth in Kenya. However, their performance has been affected by oversupply hence experiencing reduced occupancy and rental rates. The study investigated the influence of project appraisal practices on performance of commercial office space projects in Nairobi City County, Kenya. The study was guided by four objectives: to examine the influence of financial appraisal, economic appraisal, market appraisal, and technical analysis on performance of commercial office space projects. The study used a descriptive survey design to collect qualitative data using structured questionnaires and an interview guide. The target population was 344 registered estate agents operating in Nairobi County, of which 184 respondents were randomly selected to form the sample size. Face-to-face interviews were carried out with six key informants, experienced estate agents, to obtain detailed qualitative responses to the study objectives. Descriptive statistics revealed that financial appraisal and market appraisal had the highest influence on the performance of the dependent variable, whereas economic and technical analysis had the least influence. However, Spearman's Rank Order correlation analysis revealed that technical and economic appraisals had a positive and strong association at $r = 0.852$ and $r = 0.849$, respectively, with the dependent variable. Interestingly, financial ($r = 0.726$) and market appraisal ($r = 0.727$) were the least correlated. From the findings, we can thus conclude that the four types of project appraisals are statistically significant, to some extent, on performance of commercial office projects in Nairobi County. The study recommends that project analysts consider all types of appraisals but pay more attention to technical and economic appraisals since they are highly correlated to the dependent variable. Further studies should be conducted on the same topic once the property market has fully recovered from the effects of the Covid-19 pandemic.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The contribution of the real estate sector to economic growth cannot be overemphasized. Studies done in developed and developing countries have established a positive impact of the industry on economic growth. The sector's contribution to Gross Domestic Production (GDP) is enormous, rated as the most important and widely used performance indicator in macroeconomics as a measure of economic growth (Wabomba, Mutwiri, & Fredrick 2016). The growth in the sector is a result of increased economic development and massive investment in the construction industry that supports new developments in residential, commercial, and industrial buildings.

In Europe, for instance, a comparison study performed on 34 European countries, including the United States of America (USA) on Real Estate Investment (REI) revealed the sector's exemplary performance. The study, which was conducted in 2012, also indicated that for the last 50 years, Real Estate has boosted the countries' economy and performed far much better than Asian countries (Brounen & Koning 2012)

A study carried out by Sabitha (2020) in Asian Continent on different sectorial contributions to GDP indicates that among the three sectors, agriculture, construction, and manufacturing, the construction industry contributed 29.6% ahead of agriculture with 16% in 2019. The findings show the positive dependability of India's economy on the construction real estate sector.

From an Australian perspective, the sector's returns have registered positive growth since 2008, according to a report published in 2009 (Yong 2009). Similarly, the findings of Alkali, Sipan & Razali (2018) in Nigeria, Akinsomi (2018) in South Africa and Malaysia support a positive input of the sector to the growth of country's GDP.

Likewise, in Kenya, the real estate sector contributes to Gross Domestic Product (GDP), boosting economic growth over the years. A report by Baron (2021) highlighting the value added by the real estate sector to GDP from 2015-2019 shows a positive trajectory. In 2015 the value-

added was Kshs 474.3 billion, increasing to Kshs 675.3 billion in 2019. This trend is expected to continue with current market projections approximating the growth rate at 6.8 % per annum, to Kshs 714.3 billion by 2027 (Transparency, 2020). The sector also creates employment opportunities and provides infrastructure. Macharia (2017) and Ngumo (2017) have also noted a strong correlation between real estate and the economic growth of a country. The construction industry, besides agriculture, is among the key drivers of Kenya's economy. The sector is among the top four contributors to the economy. The Government of Kenya (GOK) plans to spend heavily on the construction industry by focusing on developing residential, industrial, and commercial buildings (Transparency, 2020).

Organizations today have recognized the importance of conducting appraisal in successful project implementation. Such awareness is an essential criterion for organizational performance (Macharia, 2017). Project appraisal involves analysis of the value and evaluation of project ideas. It should be done before the inception of a project, during its development, and after completion. In Commercial Real Estate (CRE), the process is called valuation. According to Aligula & Syagga (2007), investment appraisals are necessary because the period between the inception of a project and its completion usually takes several months or years hence the need to understand future market prices, the projected rate of return as well as the value of the proposed project. The project idea is investigated and analyzed, taking into account all levels of the appraisal. Nyonje, Kyalo, & Mulwa (2012) emphasize considering the stakeholders' views, relevance to problems, feasibility, and other issues on the project idea. Projects' value and viability concerning the organization's objectives are determined, with the main focus being on financial, economic, market, and technical analysis. Burg (2012) points out that a project appraisal is a vital tool in selecting, ranking, and prioritizing projects. A decision is made on whether to roll out a project or drop the idea. Project appraisal is thus used to assess, identify, avoid, manage, or mitigate project risk.

The construction industry has faced severe risks ranging from the collapse of buildings to oversupply and loss of market after spending billions of money. Whereas it is difficult to avoid all mistakes and potential dangers in property development, the number could be reduced and severity lessened (Aligula & Syagga, 2007). Therefore, risk assessment and management are

vital elements in determining construction projects' success which can be achieved through project appraisal analysis (Banaitiene & Audrius, 2012).

Commercial Real Estate (CRE) is a property that provides a space for income-generating activities and projects. Under this category are offices, shops, and car parks (Aligula & Syagga, 2007). Recent research and literature include industrial space under commercial property. The demand and supply of commercial properties are affected by GDP, demographic factors, interest levels, exchange rates and availability, and land cost for development. These factors dictate the performance of commercial properties in terms of occupancy rates, selling prices, and rental rates. Syagga (2018) asserts that commercial property location matters a lot. The study results concur with Kavinya (2018) that residential houses and student hostels near institutions of higher learning and towns recorded high occupancy rates and rent values.

The supply of commercial office properties in Kenya, especially in Nairobi County, has been increasing even though a good percentage of the existing commercial space is still vacant. The situation is worse in leading locations of Nairobi City, such as Upperhill, Kilimani and Westlands (Cytonn Real Estate, 2018). Syagga (2018) attributes the large voids in several office blocks in Nairobi City County to oversupply and the tendency of professional firms of architects, quantity surveyors, and engineers to purchase residential houses and convert them into offices. With the arrival of the Covid-19 pandemic in 2020, the situation has worsened since people were ordered to work from home. To date, many states across the globe have embraced e-commerce to avert the spread of the deadly coronavirus. In turn, commercial premises have been abandoned and many left vacant. Real estate investors are counting losses and a reduction in GDP, which has negatively affected economic growth. Therefore, there is a need to research the effect of project appraisal practices on the performance of commercial office properties in Kenya.

1.2 Statement of the problem

There has been a continuous supply of commercial space in Nairobi City County, Kenya. This is despite the fact that a good percentage of the existing commercial office space is still vacant due to oversupply and low demand. A recent report by Cytonn Real Estate (2018) noted that *“Commercial office in 2020, recorded a 0.5% points decline in average rental yields to 7.0%*

from 7.5% in 2019. Occupancy rates declined by 2.6% to 77.7% in 2020, from 80.3%, in 2019. Asking rents and prices declined by 3.0% and 2.8%, respectively to an average of Kshs 93 and Kshs 12,280 per SQFT in 2020 from Kshs 96 and Kshs 12,638 per SQFT, respectively, in 2019". Further, the firm observed that *"Commercial office theme was oversupplied by approximately 4.7 mn SQFT, average rental yields were 9.2% and occupancy of 83.2%, 4.8% points lower than the 88.0% recorded in 2016. We have a negative outlook for investment in commercial offices* (Cytonn Real Estate, 2018, pg. 19). The market research, which was conducted in 2017 and a report published in 2018, further observed that oversupply would continue to constrain rental yields and occupancy rates of commercial office leading to a sharp decline; hence the buyer's control the market as real estate investors rush to fill up office spaces (Cytonn Real Estate, 2018). Despite this observation, the supply of office space in Nairobi City County increased from 3.5 million square feet in 2017 to 4.3 million square feet in 2018, with Upperhill, Kilimani and Westlands areas having the largest supply of office space at 52 percent (Cytonn Real Estate, 2021):(Cytonn Real Estate, 2018). The subsequent report by Cytonn Real Estate, (2021) also indicates an increase in commercial office supply by approximately 6.3 mn SQFT.

In view of the above statistics, it is evident that performance of commercial office space has been declining for the last five years, 2020 being the worst year, partly due to continued oversupply. In 2016, commercial space oversupply was at 3.2 sqft, 2017 recorded 3.5 mn sqft, 2018 recorded 4.7 mn sqft, 2019 recorded 6.7 mn sqft and the decline may continue in future, if lockdown measures and remote working will still be in place. Occupancy rates have registered a decline from 88.0% in 2016, 2017 at 83.0%, 2019 at 80.3% to 77.7% in 2020. Similarly, rental rates and sale prices recorded a drop from 2016 at 9.2%, 2019 at 7.5% to 7.0 in 2020. (Cytonn Real Estate, 2021; Cytonn Real Estate, 2018; Knight Frank Kenya, 2020).

Syagga, (2018); Aligula & Syagga, (2007) point out that the large voids in several office blocks in Nairobi result from an oversupply of office accommodation and a tendency of professional firms and international organizations that buy residential houses and convert them to offices. The advent of Covid 19 in Kenya in March 2020 has only exacerbated the situation. Demand for commercial space has faced a drop of 47 percent while the average occupancy rate across commercial buildings has remained at 72 percent since 2020. The rental values have also

declined due to the effects of the Covid19 pandemic, unfavorable economic conditions, and oversupply of commercial space (Knight Frank Kenya, 2020).

There is no known local research that has studied the influence of project appraisal practices and performance of commercial office space projects in Kenya. The existing studies on investment appraisal practices in Kenya include; research on the effect of investment analysis techniques on the financial performance of Jua-Kali sector; Kisii Town by Kerubo, Muturi, & Mogwambo (2016) and the effect of project appraisal techniques on health care performance (Aga Khan Hospital), Kenya by Macharia (2017). Wambua (2018) investigated the influence of investment appraisal techniques (ARR, PBP, NPV and IRR) and the performance of small firms in Nairobi County, and found all four techniques to be important. There is a need to take a holistic study on all levels of project appraisal on commercial office projects to avoid dwelling on the financial aspect only.

From the previous discussion, it is obvious that the performance of commercial office space continues to dwindle. Yet, more commercial office properties are being constructed in Nairobi City County, raising a research interest. The existing research has not specifically investigated this problem, in addition to being outdated. This study will therefore assess the effect of project appraisal practices and performance of commercial office space projects in Kenya, using Nairobi County as the case study – the capital of Kenya and the commercial hub of East Africa.

1.3 Purpose of the Study

To examine the influence of project appraisal practices and performance of commercial office projects in Nairobi County.

1.4 Objectives of the Study

The objectives include:

1. To assess the influence of financial appraisal on performance of commercial office space projects in Nairobi City County.
2. To determine how economic appraisal influences performance of commercial office space projects in Nairobi County

3. To assess the influence of market appraisal on performance of commercial office space projects in Nairobi County
4. To establish the influence of technical appraisal on performance of commercial office space projects in Nairobi County.

1.5 Research Questions

1. How does financial appraisal influence performance of commercial office space projects in Nairobi County?
2. How does economic appraisal influence performance of commercial office space projects in Nairobi County?
3. How does market appraisal influence performance of commercial office space projects in Nairobi County?
4. How does technical appraisal influence performance of commercial office space projects in Nairobi County?

1.6 Significance of the Study

An all-inclusive appraisal may help investors to select the most viable project option, after analyzing all the relevant aspects of a project.

The findings of the research will add more knowledge and insights into project management towards improving the performance of commercial office property through the selection of the most viable project(s).

The recommendations of the study may assist the government in coming up with appropriate policies and interventions to improve the efficiency of commercial office space.

The study findings are not restricted to office commercial properties only, but may also be applied in other areas of CRE such as industrial and residential development.

1.7 Delimitations of the Study

The aim of the study was to establish the relationship between project appraisal practices and performance of commercial office space projects. The study concentrated on studying the performance of commercial office premises in Nairobi County by analyzing their occupancy and

rental rates or values. The study also investigated the influence of financial analysis, economic analysis, market analysis, and technical analysis on performance of commercial office projects. The area of study was ideal for understanding performance of commercial properties because it forms the largest percentage of office supply, the capital city of Kenya and the commercial hub of East Africa, Cytonn Real Estate (2021). The target population was 344 estate agents(individuals) in Nairobi County who double up as investment appraisal analysts in construction projects and manage the completed buildings post-construction. Questionnaires and interview guides were designed to collect data.

1.8 Limitations of the Study

Major shortcomings occurred during data collection. With the arrival of Corona Virus in 2020, many people are working from home and through online platforms. Cessation of movement in various counties and enforcing social distance to avert the spread of the Virus has gained roots in Kenya; hence reaching the respondents was challenging.

In addition, the respondents were unwilling to reveal confidential information, particularly on financial matters.

1.9 Assumptions of the Study

The study findings were based on the assumption that data collected was true and honest. The study also assumed that the application of project appraisal is a guarantee to a successful project in commercial real estate. In addition, selecting the most viable project was directly linked to commercial properties' positive performance, which may not always be the case.

1.10 Definition of Significant Terms

The purpose of defining the terms used in this study is geared toward understanding the meaning of the words in the context used.

Financial Appraisal Practices: This is a process of determining the value of a construction project through analyzing the net cash flows and projected profits after the completion of the project, from the investor's viewpoint. It is done using methods such as NPV, IRR, ARR, and PI.

Market Appraisal Practices: These are techniques employed in interpreting market trends and factors that may affect the demand and supply of a commercial property product. It is done to identify and examine the market size in volume and value, customer segment and their purchasing patterns, competition analysis as well as a survey of the economic environment to identify barriers to entry and legal framework.

Economic Appraisal Practices: An economic appraisal is an evaluation tool applied to a project policy or program by considering its monetary cost and benefits of a comparable monetary value. It is a rational process that assesses the alternative use of resources by considering the investor's and society's interests.

Technical Appraisal Practices: This is an assessment of the availability of inputs such as land and labor, availability of infrastructure, and capacity (number of units). Generally, technical analysis focus on resources or factors of production used in an economy such as land, labor, capital, and entrepreneurship as the main inputs in commercial real estate.

Commercial office space: This is a premise that provides office space for business generating activities.

Performance of commercial office space: This refers to measuring performance of the commercial office space in terms of rental value or rate per square feet.

1.11 Organization of the Study

The study has five chapters;

Chapter one contains the background of the study, statement of the problem and purpose , research questions, research objectives, delimitations, assumptions, study limitation and the key terms used. Chapter two reviewed the existing works related to appraisals and investment and what other examiners have documented. Regarding this, written sources, unwritten sources, and electronic sources of information were visited. In addition, theoretical and conceptual frameworks were discussed, clearly highlighted the association between independent, moderating and dependent variables.

Chapter three entails the research methodology. The section presents detailed procedures of studying the topic. Chapter four outlines data analysis, interpretation, presentation and discussion, in line with the study's objectives. Chapter five contains summary of the main findings of the research, conclusions, recommendations and areas of further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter introduces the project appraisal practices, performance of commercial office space property, levels of project appraisal application in project management, theories underpinning the study, conceptual framework and knowledge gap

2.2 Performance of Commercial Office space

Commercial property is a premise that provides space for business activities. Aligula & Syagga, (2007) define it to include offices, shops, and car parks. From the previous definition, it is evident that commercial property includes office space, shops, and car parks. The focus of this study is on the commercial office spaces, which are usually categorized into three grades: grade A, B, and C. Grade A offices are thought to be superior and executive, with classic finishing, adequate car parks, good lighting, and spacious (100,001 - 300,000 SQFT). They have been described as pacesetters in establishing rent and occupancy rates. Grade B offices have relatively good features but are lower than Grade A. They have good finishing, car park spaces, and lighting and are less spacious (50,000 to 100,000 SQFT). Grade C office premises, however, are made up of old and worn out buildings, in need of renovation, less spacious and they may not have car parks. Rental charges are usually below average in Grade C (Cytonn Real Estate, 2021). Based on the features of each grade it is evident that grade A offers the best office space, and best rental rates followed by B and C. In terms of space, Grade A is more spacious than B and C. Therefore, this study will investigate mainly the grade A and B office space in the study area, the predominant office grades. The old office stock is mainly found in the Nairobi Central Business District (CBD).

The performance of individual commercial office space is usually measured in terms of occupancy rates, rental values or sale prices (Dabara, Gambo, Asa, Omotehinse, & Soladoye, 2020; XUmeh & Adilieme, 2020). Jointly, performance of office space is measured using commercial real estate indices - valuation-based, repeat sales, hedonic modeling indices and real

estate equity performance (Booth & Marcato, 2003). The location of the office features and services offered may affect the performance.

When the demand is good, for instance, the rental value or sale price will be attractive while occupancy rate would be at 100 percent but when the demand is low, the fewer the consumers and hence rental or sale rates would be low and less than 100 percent occupancy (Syagga, 2018). This study will measure the performance of commercial office space using rental values since most office premises in the study area are for rental.

Several studies, both internationally and locally, exist, outlining the factors affecting performance (occupancy rate, rental values or sale price) of commercial property. The trend and rental values in the commercial hub of Akure in Nigeria, for instance, were found to be attractive, specifically for the purpose-built office space (Iroham, Oluwunmi, Simon, & Akerele, 2013). Real GDP growth and vacancy rates were determined to be contributing about 83 percent of the rental value growth of office space in Minna City, Nigeria. Additionally, the trends in rental values in the Minna City were progressive (Udoekanem, Ighalo, & Nuhu, 2014). In Malaysia, both micro and macro factors influence rental values of commercial properties: transport, economic factors, energy efficiency, design requirements, and land use (Ping, Jemes, Fung, Yin, Maidin, & Rahman, 2019). Although real estate is heterogeneous, similar findings have been arrived at in Kenya. Kanyi (2019) established that location, cost of a lease, occupation incentives and tenant mix were significant determinants. Sales promotion has also influenced rental office space in Nairobi CBD (Konyimbih & Mbura, 2018). Other important variables influencing performance (price) of commercial real estate in Nairobi City include transport infrastructure, physical state of urban areas, increase in population, security and social amenities (Nduti & Wambugu, 2017; Oundo, 2008). Supply (expansion) of commercial properties in Kenya has been influenced by demographic characteristics, market demand, interest rates and GDP (Karimi, 2017).

In Asian-Pacific, the advent of the Covid19 pandemic influenced commercial real estate's performance negatively. The region's rental values declined by about 15 to 30 percent due to the pandemic (Allan, Liusman, Lu, & Tsang, 2021). Current research on the performance of commercial real estate in Lagos, Nigeria indicates poor performance - low and fluctuating total

returns (Umeh & Adilieme, 2020) while in Ibadan, shops outperformed office space between 2009 – 2018 (Dabara, Gambo, Asa, Omotehinse, & Soladoye, 2020).

Another study carried out in Southern Nigeria revealed that the risks of investment in offices are higher than shops (Effiong & Ogbuefi, 2021).

In Kenya, there has been an oversupply of offices, especially in the Nairobi Metropolitan Area, with Upperhill, Kilimani and Westlands locations leading with the supply of new office space, even though a good percentage of existing ones are still vacant (Cytonn Real Estate, 2021). The new supply is influenced by environmental changes, changes in building use, and the arrival of the Covid-19 pandemic. The performance of commercial offices has been declining for the last five years, 2020 being the worst year (Cytonn Real Estate, 2021). Depending on the facts, the decline in commercial performance may continue in future if lockdown measures and remote working are still in place.

2.3 Project Appraisal Practices in Commercial Office Projects

Commercial office projects face complex challenges today compared to the past. The situation calls for a holistic screening of potential projects in the sector to increase its performance. Shruti & Geetha (2019) support the idea of carrying out all levels of project appraisal, especially in the construction sector. The most and commonly appraisals in commercial property are financial, market, economic and technical. In most cases, the model of Highest and Best Use (HBU) is applied to determine a property's financial, economic, market, and technical analysis. The practices assist in ascertaining whether a commercial project will be maximally productive, legally permissible, financially feasible, and physically possible. Nevertheless, Syagga (2018), adds that appraisal and valuation in commercial investments are done for a specific purpose such as to ascertain the value of the project and hence help investors make informed decisions.

2.3.1 Financial appraisal and performance of commercial office space projects

The financial analysis aims to determine the viability of a project in monetary terms, which is done from the investor's standpoint. Consequently, it is used to evaluate and rank alternative projects. The commonly used methods of financial analysis include the Payback Period (PBP), the Accounting Rate of Return (ARR) or Return on Capital Employed (ROCE), the Net Present

Value (NPV), the Internal Rate of Return (IRR), and Profitability Index (PI). The methods are further classified into traditional (PBP and ARR) and time-adjusted methods (NPV, IRR, and PI), which employ the time value of money (Brealey, Myers, & Allen, 2011).

Financial appraisal and the performance of commercial office space are inseparable as a few studies carried out suggest. Internationally, a survey done in the UK by French (2018) on property valuation emphasized on the use of both explicit and implicit models in valuation, to deal with valuation complexities. His work was supported by Cimasi's (2014) findings, which recommended using the Discounted Cash Flow (DCF) approach to evaluate investment options. In most cases, valuers are encouraged to employ the time-adjusted methods such as NPV, IRR and PI, which employ the time value of money, central within financial decision theory. (Brealey, Myers, & Allen, 2011). Nevertheless, Dayananda (2002) asserts that a project should be evaluated using both the IRR and NPV to overcome the weakness of IRR. However, French (2018) notes the need to use the traditional methods (PBP and ARR) in financial analysis to provide a basis for comparison even though they ignore the time value for money and cash inflow outside the project life.

Similarly, Manyu (2015) on the financial evaluation of property development projects, revealed that using the cash flow method to conduct financial evaluation provided more accurate and reliable results. For better results, the study recommends conducting financial evaluation in every stage of the project cycle. In addition, the steps should be thoroughly examined from planning to evaluation to avoid wastage of resources.

Due to the drawbacks of the traditional methods, the study emphasizes the application of DCF methods which provide a realistic and objective basis for project appraisal.

The financial appraisal is not only crucial in evaluating commercial property but in analyzing other sectors such as banking, health and Jua kali. The studies undertaken in such areas reveal a moderate dependency on financial analysis as far as performance is concerned. Diana, Hidayat,

Rafikasari, Ibrahim, & Farida (2019) performed a study to establish the economic value of satellite remote sensing data in Indonesia using the NPV method and found that it was positive. A survey of investment appraisal techniques on the Jua Kali sector in Kisii town by Kerubo, Muturi & Mogwambo (2016) points out that many small manufacturing sectors such as tailoring, carpentry and welding firms used non-discounting methods while conducting financial analysis. The NPV (8%), PI(8%) and IRR(8%) were underutilized by all the firms, whereas PBP was employed mainly due to its simplicity in application and popularity as follows; tailoring (68%), carpentry (48%) and welding (27%). The study also found out that financial analysis had positive effect on SMEs performance in Kisii Town.

The findings by Kerubo, Muturi & Mogwambo (2016) concur with Von Horne (2006), who discovered that small firms largely used PBP due to limited resources as opposed to large firms. However, many of these small firms are known to collapse within three years of operation, partly attributed to the use of unpopular analysis methods. The ARR, the PBP, NPV and IRR were all found to be statistically significant in influencing financial performance of small firms in Nairobi County, (Wambua, 2018). Similar findings were established in South Africa (Nelson Mandela's Bay Metropolitan Area) by Olawale, Olumuyiwa, & George, (2010) who's findings proved that traditional investment appraisal techniques negatively affected the profitability of small enterprises. Correspondingly, Macharia (2017) established that Agha Khan Hospital departments that conducted financial appraisal (88%) in selecting their projects had observed high influence (75%) on the performance of the projects.

From the previous studies, DCF methods seem to satisfy many conditions for a good investment decision by ranking projects according to desirability and their applicability to any investment project. However, analysts should use the techniques with other methods to overcome the weakness of each other (Baker & Powell, 2011).

2.3.2 Economic appraisal and performance of office space projects

Real estate investments involve a lot of risks and therefore, it is crucial to evaluate any potential investment idea in commercial property. By carrying out economic analysis, an investor can justify implementing a project after considering its objectives, cost, and benefit hence ensuring value for money (Lorna & Virginia, 2011). Cost-Utility Analysis (CUA), Cost-Benefit Analysis (CBA) and Cost-Effective Analysis (CEA) are the methods used in economic analysis.

Globally, research on the influence of economic analysis on the construction industry is limited, but the results reveal a more significant influence and dependency between the two variables. For instance, a study conducted by Siddhart, Yateen, & Nikhil (2020) on the influence of economic analysis on the construction of a road project in India, using the Cost-Benefit Analysis (CBA), found that the project was maximally productive since the Economic Internal Rate of Return (EIRR) were more than 12%. The project's sustainability was established and the benefits to the society included ease of traffic jams, creation of job opportunities and provision of infrastructure. The findings concur with Burg (2012), who asserts that when the value of all societal benefits is greater than the value of societal costs, resulting in a positive net societal benefit, the project is considered economically viable and vice versa. Economic analysis is therefore different from financial analysis because the latter is done by looking at the cost-benefit to a particular investor while the former takes a societal viewpoint.

An intensive review of 23 studies carried out on the application of CBA at community level by Chadburn & Anderson, (2013) found out that the method was adding value in reducing climate and tragedy risk. In USA, a recent research has shown that the social benefits related to green affordable housing justify the initial cost of production (Yeganeh, McCoy, & Hankey, 2019).

From the practical point of view, CBA in commercial property projects is conducted by analyzing both the potential cost and benefit though not necessarily in monetary terms. Similarly, Macharia (2017) found out that economic analysis was rarely considered in the ranking of projects to be implemented in Agha Khan Hospital, Kenya. In total, 68 percent of the targeted respondents revealed that they often or sometimes employed the approach in their projects. Macharia, (2017) further observed that 57 percent of the respondents did not experience better performance after analyzing their projects using economic appraisal. Only about 43 percent of

the targeted respondents reported moderate influence of economic analysis on health project performance.

Environmental Impact Assessment (EIA), a tool used to identify both societal benefits and costs in commercial office projects, both in developed and third world countries, is not implemented keenly. Based on the opinions of valuers and estate agents, acts of corruption and mismanagement may be the cause of environmental degradation. Kiromo (2016) adds that lack of public participation in EIA, the relevance of EIA assessment, lack of budgetary allocation and inadequate monitoring and evaluation hamper its effectiveness. Consequently, Muhhamad (2003) proposes strict measures on full adherence and compliance of EIA on proposed commercial projects to ensure all the societal benefits and costs are considered.

The CBA applies to a wide range of projects, including public and private ones. Shruti & Geetha (2019) affirm this by noting that the method is mostly applied to government-funded projects to establish economic efficiency. CEA, however, is usually applicable when the economic cost and benefits of project alternatives differ. Therefore, it has been noted to be most applicable to public projects such as educational, scientific, and health sectors where it could be challenging to measure economic benefits in monetary terms due to the many potential societal benefits (Rima, 2012). The aim of CEA thus is to rank projects based on their cost-effectiveness (Barasa & English, 2011).

The third method used in economic analysis (CUA), is mainly applicable in the health sector. It evaluates projects by looking at economic costs in monetary terms and economic benefits in terms of usefulness. The economic benefits are therefore quantified in terms of Quality-Adjusted-Life-Years (QALYs) and Disability-Adjusted-Life-Years (DALYs) by considering the length of life lived and adding the number of years lost owing to the disease or disability respectively (Sassi, 2006); (Lorna & Virginia, 2011). An empirical study carried out by Round, Leurent, & Jones (2014) using CUA established that the incremental cost-effectiveness ratio (ICER) for rehabilitation service was £14,231 per QALY for people living with and beyond cancer. They concluded that increasing the treatment period to cancer patients reduced ICERs in all cases. Comparable findings were established by (Vanhook, 2007) whose study determined that use of CUA in evaluating nurses' interventions has positive association with DALYs.

However, some scholars have opposed the evaluation of projects using economic appraisal. CUA, for instance, where societal costs assume monetary value and benefits in utility terms, may introduce biases and subjectivity in the appraisal exercise (Mbothu, 2012). Similarly, Savvides (1990) contends that projects should be evaluated using market analysis to establish market demand hence avoiding project failure resulting from misleading cost-benefit analysis.

2.3.3 Market appraisal and performance of commercial office space projects

A market appraisal is conducted to identify and examine the market size in volume and value, customer segment, and purchasing patterns. It also covers competition analysis and a survey of the economic environment to identify barriers to entry and legal framework (Brown & Brown, 2008).

A study done by Born (1994) to determine the impact of market and property cycles on real estate investment showed that a disconnect between property market size and real estate investment might cause an irreversible loss to the investor. The report recommends that appraisers and analysts develop cash flow models to arrive at realistic present value estimates for sound valuation conclusions. In China, for instance, Cho, Hong, & Hyun (2009) found out that project characteristics are important in influencing performance of construction projects. Similar findings were established by Chen, Zhang, Liu, & Mo, (2012). In Kenya, Macharia (2017) established that market appraisal has high influence (39%) on health projects. He further found out that 53 percent of departments in Aga Khan Hospital, Nairobi used market appraisal while evaluating projects. In Kenyan educational sector, economies of scale and forming linkages with service providers were found to reduce operational time and costs hence increasing efficiency and influencing performance of public universities. Product or service, advertising, and personnel differentiation were also important in influencing performance (Sifuna, 2014). Similar observations were made by Muigai (2017), who noted that service differentiation and strategies influenced Strathmore University's performance in Kenya. Pricing or cost leadership was, however, determined to be insignificant in influencing performance of the University. Likewise, Njiru (2015) found that standard pricing, colors and market segmentation were influencing performance of the Express Connections Limited Company in Kenya. He therefore concluded that the quality of service and customer relations were the most important competitive strategies influencing the performance of the Company.

The supply (expansion) of commercial properties in Kenya has also been influenced by demographic characteristics and market demand (Karimi, 2017).

According to Shruti & Geetha (2019), commercial appraisal, especially in construction projects, should be supported by local and international research to assess the factors likely to influence the expected prices, sales, and volumes. Distribution channels, technology, and branding should be examined as well. These factors may bar new firms from entering the market hence affecting the product performance. Besides, the existing legal framework, including licensing and approvals as well as relevant legislation, should be assessed (Mooi & Sarstedt, 2011). A study conducted in South Africa established that project's participant's competition had negatively influenced performance of projects (Chitongo & Pretorius, 2020). Market barriers, imposed by competition and business environment were found to be influencing performance of firms in Massachusetts, USA (Karakaya & Parayitam, 2018). They established a strong positive effect of competitive advantage on firm productivity and a reasonable negative impact of business environment on firm's performance.

The commercial property market in Nairobi county is currently oversupplied by approximately 4.7 million square feet (Cytonn Real Estate, 2020; 2021). The office space is usually segmented into Grade A, B, and C with Grade A being the most superior, followed by B and C. Despite all the grades being oversupplied, Grade B performs better than A and C (Cytonn Real Estate, 2021). Therefore, an investor should differentiate their office product by offering either of the Grades and or furnishing/servicing their office space. However, there are no barriers to commercial property development in Kenya, save for the cost of inputs such as land and the existing land use planning regulations and requirements.

2.3.4 Technical appraisal and performance of commercial office space projects

The technical appraisal involves the assessment of the availability of inputs such as land and labour, availability of infrastructure, and capacity utilization. An investor may pay attention to financial, market, and economic analysis, but if they ignore technical analysis, the project may not go beyond paperwork (Khatua, 2011). Macharia (2017), who examined the influence of project appraisal approaches in the health sector in Kenya (Agha Khan University Hospital),

found that 68 percent of the hospital departments that did technical appraisals noted a high performance (39%). Overall, the study revealed that the four project appraisals (economic, market, technical and financial) had about 47 percent influence on project performance in Aga Khan Hospital. In the words of Shruti & Geetha (2019) technical appraisal involves technology and design, which need serious attention, especially in construction projects. They further add that in construction projects the design chosen should be readily available and already in use.

In Malaysia, transport, energy efficiency, and land use were determined to be significant factors influencing performance of commercial property (Ping, et al., 2019). Real GDP growth, which influences availability of capital, was found to influence rental value growth of office space in Minna City, Nigeria (Udoekanem, Ighalo, & Nuhu, 2014). Kanyi (2019) and Oundo (2008) established that location and high economic growth are significant determinants of commercial property values in Nairobi, Kenya. Additionally, transport infrastructure, GDP and social amenities influence commercial property performance (Karimi, 2017; Nduti & Wambugu, 2017; Oundo, 2008).

A study carried out by Sifuna (2014) established that capacity utilization positively influenced public universities' performance in Kenya. Capacity utilization had a negative but insignificant impact on production firms' performance in Nigeria because many firms were under utilizing their capacities (Okunade, 2018). Capacity utilization does not only affect performance of individual firms but also the economic growth of a country (Turhan, 2018). Infrastructure, in most cases, has a positive influence on performance of commercial office space, as evidenced by the existing research (Bujanda & Fullerton, 2018); Infrastructural facilities such as transport systems, social amenities, industrialization, expanded learning institutions and trading centers were found to influence commercial property prices in Meru County (Gatauwa & Murungi, 2015). On the contrary, a study in Anambra State, Nigeria found an inverse relationship between commercial office rental values and infrastructural facilities (Makata & Oladejo, 2019).

The existing research reveals that the presence of resources positively influence performance of projects. A study carried out by Songa (2020) found that technological resources, physical resources, labour resources and financial resources had 51%, 78%, 62% and 54% positive impact on performance of slum electrification projects in Kenya, respectively. Similarly, Rugiri & Njangiru (2018) found a positive correlation between availability of resources and performance of water projects sponsored by CDF in Nyeri County.

Technical appraisal cuts across all the sectors (Ribeiro, 2011). In the education field, similar findings in the health sector by Macharia (2017) were observed by Missiani (2016). On the influence of resources on educational projects, all these scholars agree that the availability of resources (human resource and labor) and good infrastructure is key to completing academic and non - academic projects. Aligula & Syagga (2007) note that the shortage of urban infrastructure services such as road and transport, water, sewerage, garbage collection, electricity, and telecommunication in major urban towns such as Nairobi and Mombasa are severe and this hurts the real property Market

Land is a factor of production that is scarce and whose supply and location are limited. It is central to the development of commercial office space. In line with the Industrial Location Theory, a branch of Location Theory and only applicable in land economics, Von Thunen (1826) quoted by King'oriah (2013) saw the significance of location and land use activities. He found that industries located nearer to large concentrations of people like townships or market places bear lower transportation costs and hence make more profits.

In commercial property development, both skilled and unskilled labor is necessary (King'oriah, 2013). Proper management and coordination of work may improve the performance of projects in terms of timely completion of projects, especially when the demand is high. Assessment of transport and communication channels to the site is essential as this may delay the implementation of projects and increase projects' costs due to poor infrastructure.

2.4 Project Cycle Theory

Warren C. Baum developed the project cycle theory in 1970. He outlined five project phases (identification phase, preparation stage, appraisal stage, negotiation stage, implementation and supervision) and organized them into a cycle. Later in 1978 he added evaluation to the cycle (Baum, 1970; 1978). A project cycle is, therefore a sequence of continuous events which a project follows (Nyonje, Kyalo, & Mulwa, 2012). A project idea must go through various stages before its implementation. This helps in screening for the best project idea. Different scholars and organizations have identified various stages in the project cycle. For instance, the World Bank project cycle 1994 outlines five stages namely project identification and formulation, appraisal, implementation and evaluation. Other cycle models include the European Union [EU]

(2004) model which highlights six stages and Ogula, (2002) which has five stages. Therefore, the project cycle theory applies to this study because it explains the project appraisal phase, among other cycles; the main focus of the title under study.

Appraisal in commercial property is done regarding the financial, economic, market, and technical analysis. Financial appraisal of a commercial office project is done to ascertain the project's financial feasibility in monetary terms. In the economic analysis of commercial projects, the appraisal is done to check the project's compatibility to society. If the benefits to the society are greater than the societal cost the project is said to be maximally productive. Market analysis of commercial property involves assessing the market size and volume, customer segmentation, competition analysis, barriers to entry, and legal frameworks. In determining the market size and volume, factors such as demand and supply, and demographics should be considered. When the supply of commercial buildings is high, the demand is low, leading to oversupply, a situation currently facing Nairobi County (Cytonn Real Estate, 2021).

Consequently, people's age, location, and income may affect the market size and volume of commercial property (Kavinya, 2018). In addition, customer preferences concerning commercial office Grade A, B, and C are studied to ensure the supply of the grade in demand. The valuer and estate agents should ensure compliance to land use planning and policies, planning regulations, infrastructure requirements, and land development applications and procedures to avoid risks, hence ensure the project is legally permissible. In technical analysis, the focus is to check the availability of infrastructure and resources. Concerning land, variables such as size, location, topography, and accessibility are taken into account since they may influence performance of the commercial office projects.

Scouting for labor and capital early in advance is vital to avoid delays. It is then concluded that the project is physically possible after considering all the relevant physical variables.

2.5 Project Appraisal Theory

John Weiss promoted the project appraisal theory in 1978 (Weiss, 1978). From the project cycle models, project appraisal appears in the initial stages (3rd stage) to help screen and analyze the viability of the project idea before serious steps are taken. This implies that project appraisal is

critical. Macharia (2017) contents that it is the most renowned stage in the project management cycle due to its role. The process begins with collecting relevant data, sorting, and analyzing the data using the appropriate method, and writing a report. In real estate, including commercial property appraisal, the valuers together with estate agents apply the HBU to check whether the proposed property is legally permissible, financially feasible (financial and market appraisal), physically possible (technical analysis), and maximally productive (economic appraisal) (The Appraisal of Real Estate).

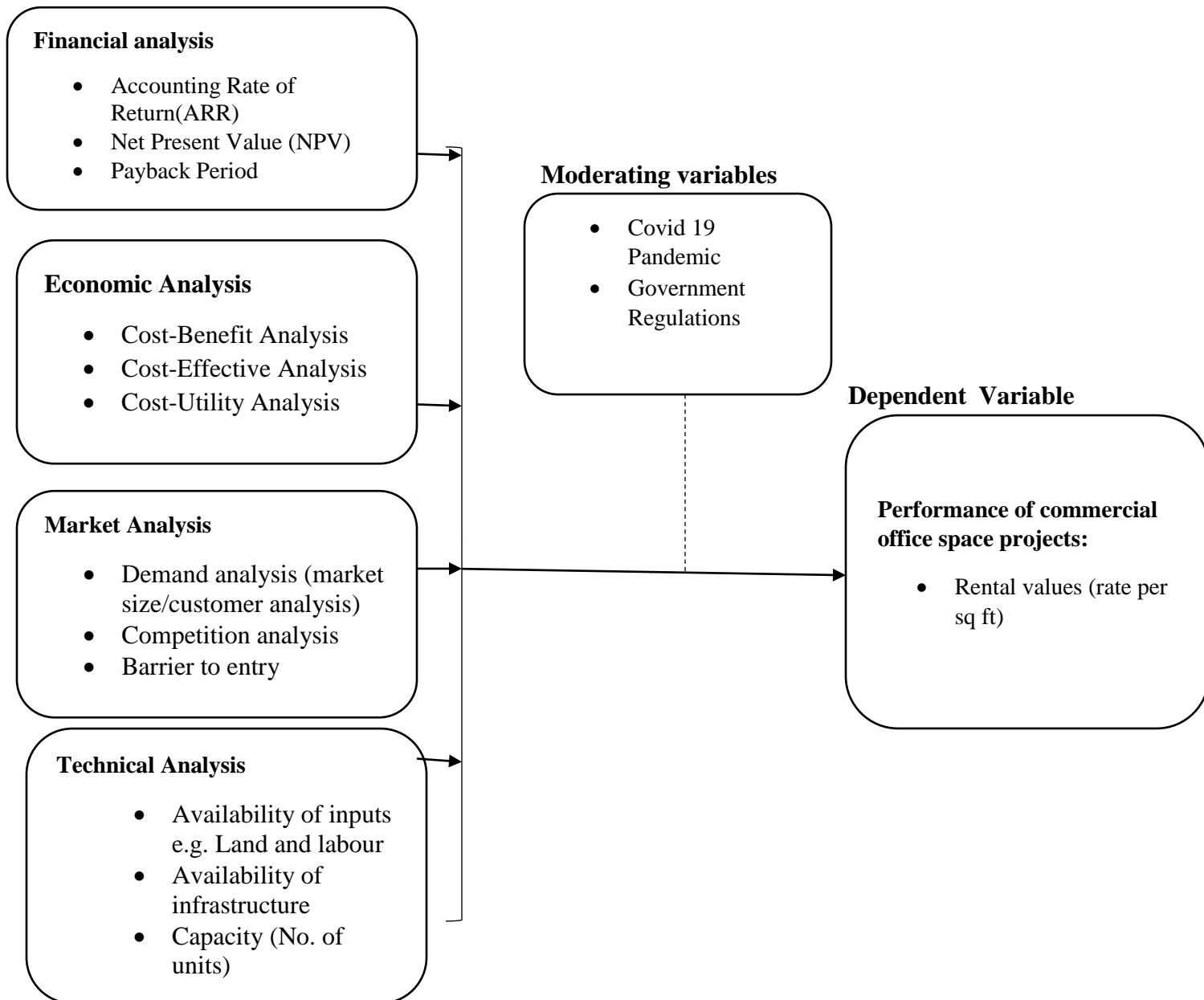
Nyonje, Kyalo, & Mulwa (2012) suggest a thorough studying of the project idea, putting into consideration stakeholders' opinions, conducting a feasibility study, and relevance to problems. Boddy (2002) argues that ignoring any of the appraisals may paralyze the whole project. There is a need to conduct a holistic appraisal rather than a partial or a specific purpose analysis of commercial property investment for a bigger and broader insight into the investment.

2.6 Conceptual Framework

Real estate investments depend heavily on the analysis made on potential project to ascertain the viability of the idea. The appraisal practices may affect the performance of the project negatively or positively. Performance of commercial office space projects is the dependent variable whereas the independent variables include the financial analysis, market analysis, technical analysis, and economic analysis. In addition, the Covid-19 pandemic and government regulations were taken as moderating variables. The association between the moderating, independent and dependent variables is illustrated in **Fig. 1**

Fig. 1: Conceptual Framework

Independent variables



Source: Author's Construct, 2022

2.7 Knowledge Gap

It is evident that several pieces of research have been carried out to evaluate project appraisal practices and performance in various sectors and organizations. The empirical investigations, however, in commercial real estate are quite limited and that much of the theory is not sufficiently precise. This issue is multiplied by the fact that, of the research done in this area, no known research has been documented on the influence of project appraisal practices and the performance of commercial office space projects. In addition, a few of the past research conducted in the developed countries and Kenya, have not taken a holistic analysis approach. The existing research has focused on health and finance sectors, and none has focused on commercial office space. This study, therefore, provides a step-by-step procedure of conducting a holistic project appraisal towards improving the performance of commercial office space. The most relevant existing researches are analyzed in Table 1, clearly showing the knowledge gap the current study will fill.

Table 1: Knowledge gap

Author	Year of study	Title of the Study	Key Findings	Knowledge Gap
Macharia, D. N.	2017	Influence of project appraisal approaches on an organization's performance: A case of AKUH	The overall influence of the four project appraisal approaches (economic, market, technical and financial) on performance of health projects was at 47%.	<p>The current study's focus is on commercial real estate, not health sector.</p> <p>Macharia's research is outdated (6 years old), yet a lot of changes have occurred since 2017, such as the advent of Covid19 pandemic.</p> <p>The current study has utilized statistical techniques (descriptive and inferential) to analyse data unlike Macharia's who used descriptive statistics only.</p>
Kerubo, Muturi, & Mogwambo.	2016	Influence of investment appraisal techniques on financial performance of small manufacturing firms in Kenya. A survey of Jua-Kali sector in Kisii Town.	The small manufacturing firms in the study area mainly used non-discounting investment appraisal methods in evaluating their projects. The investment appraisal techniques had positive relationship with financial performance of the firms.	<p>The current research will investigate the influence of economic, technical, market and financial (investment) appraisal on performance of commercial office space in Nairobi – not just investment/financial appraisal only.</p> <p>The study areas, and sectors are different.</p> <p>The existing study is 7 years old.</p>
Wambua, P. M.	2018	Investment appraisal techniques and financial performance of small and medium enterprises in Nairobi City County, Kenya.	The ARR, PBP, NPV and IRR positively affect financial performance of SMEs in the study area.	<p>The current research will investigate the influence of economic, technical, market and financial (investment) appraisal on performance of commercial office space in Nairobi – not just investment/financial appraisal only.</p> <p>The sectors are different.</p> <p>The existing study is 5 years old.</p>

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights detailed procedures for studying the topic. The research design, target population, sample size, sampling techniques, research instruments, pilot study, measurement of reliability and validity, methods used in collecting and analyzing data, operationalization of study variables and ethical standards shall be discussed in details.

3.2 Research Design

In a move to understand the influence of project appraisal practices and performance of commercial office space projects, descriptive survey design was adopted. The use of this design was influenced by the type of the data required. The qualitative data was collected using structured questionnaires and Key Informant Interviews (KIIs). For this study, the purpose was to find out the influence of project appraisal practices (independent variables) and performance of commercial office space (dependent variable), in Nairobi County. Therefore, this design presented a good chance in evaluating this problem in a widely holistic way.

Further, Kothari (2004) recommends using this design for research studies whose aim is to determine the association between two variables. The design assisted in answering questions on what is the target population, what is the sample size, where to collect data, how the data was collected, and which style of data presentation to use. Kothari (2004) and Mugenda & Mugenda (2012) add that descriptive survey design involves the use of probability sampling methods in choosing sample size.

3.3 Target Population

This study used a finite population that included all the estate agents registered by the Estate Agents Registration Board (EARB) and gazetted in Kenya's Daily Nation and operating in Nairobi County, as of 25th March 2021. The target population comprised 344 estate agents (individuals) who triple up as investment analysts and property managers of commercial buildings on behalf of the investors/owners. According to the Estate Agents Registration Board (EARB), Estate agents act on behalf of an investor by negotiating the selling and buying process as well as managing commercial property.

Table 3.1: Target Population

Target Population	Number
Individual Registered Estate Agents	344

Source: (RoK, 2022)

3.4 Sample Size and Sampling Techniques

The section covers the procedures used in determining the sample size and procedures used in sampling procedures

3.4.1 Sample size

A sample is defined as a representative of the total population (Rukwaro, 2016). The sample size was used to make general conclusions regarding the total population. The use of finite population in this study informed the application of the Yamane (1967) formula in calculating sample size. This method has also been used by Macharia, (2017).

$$n = \frac{N}{1 + N(e)^2}$$

Whereas n = the sample size

N = total population

e = expected error of 0.05.

95% of confidence level and a precision of 0.5 were considered.

Therefore, the sample size for estate agents was calculated as follows;

$$n = \frac{344}{1 + 344(0.05)^2}$$

$n = 184$ Estate Agents

Table 3.2: Sample size

Sample Size	Number
Individual Registered Estate Agents	184

3.4.2 Sampling Techniques

This study employed simple random sampling technique on the sampled registered estate agents operating in Nairobi County, where each agent stood a chance to be selected. The entire sampling frame was presented in Microsoft Excel program and a sample size of 184 was selected randomly using the excel random function. Mugenda & Mugenda, (2012) content that sampling assists a researcher to reduce the cost of data collection and avoid errors.

3.5 Research instruments

The study used structured questionnaires and an interview guide since the respondents are literate and due to their busy schedules. However, six Key Informant Interviews (KIIs) were conducted on 6 highly experienced estate agents, with over 20 years of experience as recommended by Guest, Bunce, & Johnson, (2006). Further, the questionnaires were emailed to the respondents. E-mails were largely used due to the remote working currently being embraced to avert the spread of the Covid-19 virus. The purpose of preparing these instruments was to determine the reliability of the collected data and avoid being biased. A well-thought-out tool for data collection is recommended especially when the research is descriptive or has some descriptive aspects (Rukwaro, 2016). He further adds that the quality of data captured depends argely on the

type and number of tools engaged. A pre-test was conducted on the research tools before being applied to the actual study as proposed by Mugenda & Mugenda (2012).

3.6 Pilot study

A pre-test study was conducted on the research tool to establish its relevance and effectiveness. The questionnaire was presented to a sample with similar features to the items of the actual sample size. The test was conducted on 18 respondents operating in Nairobi County, using Microsoft Excel random sampling technique, which is 10 percent of the actual sample size as suggested by Mugenda & Mugenda (2003). This method involved listing all the 184 sampling frame in MS Excel where all the items were randomized and given an equal chance to be selected.

The results aided in assessing whether the research tool is capable of collecting the data required. This concurs with Kothari, (2004) who explains that a pre-test is a rehearsal that reveals the limitations and weakness of an instrument, if any. Further, the process revealed the practicability of the questionnaire and if the respondents understand the questions. Necessary adjustments were made to improve its reliability and validity. Thereafter, appropriate amendments were made concerning the content, quantity, and quality of data needed.

3.7 Validity of the Research Instruments

The questionnaire was designed to cover the subject of the study at large to ensure content validity. Further, experts' views such as a supervisor were used to verify content validity. Criterion validity of the questionnaire was also done to ascertain the questionnaire relevance, level of bias, reliability, and availability while construct validity was applied to check the degree to which the questionnaire substantiates the existing theories underpinning the study. The questionnaire was reviewed by the supervisor and piloted to ensure the validity of the tools. The aim of measuring validity is to examine whether the instrument has attained what it has been designed to measure (Kothari, 2004). Further, the validity of interview guide was checked during the interview process since the interviewer had a chance to clarify and verify the questions.

3.8 Reliability of the Research Instruments

A pilot survey was conducted on the questionnaire before being subjected to the main survey. The study was carried out on 18 respondents selected from the target group which represents 10% of the sampled population. The internal consistency method of administering the same questionnaire only once to the respondents was applied to test reliability. The coefficient or Cronbach's alpha was applied to check the internal consistency of the research questionnaire. The questionnaire was considered reliable since the alpha values for the variables were above 70% (0.7), as recommended by Tavakol & Dennick, (2011).

Table 3.3 Reliability analysis

Variables	Cronbach's alpha (N = 18)
Extent of use of financial appraisal	0.768
Extent of use of market appraisal	0.812
Extent of use of economic appraisal	0.812
Extent of use of technical appraisal	0.938
Performance of commercial office projects	0.837

The stability of the tool was attained by ensuring that the same tool produced repeated measurements when used severally by the same person. Equivalence on the other hand, was achieved by comparing observations made by investigators or experts as proposed by Kothari, (2004) . Further, the study tried to minimize variations in different strata.

3.9 Data Collection Techniques

Data collection exercise began by obtaining approval letter from the National Commission for Science, Technology and Innovation (NACOSTI) and the Department of Management and Science, University of Nairobi. A total of 184 questionnaires were emailed to the respondents. The respondents filled the questionnaire and emailed them back. A note was attached to guide the respondents on how to answer each question appropriately. Clarification, was done by use of sending an email. In total, 184 questionnaires were disseminated to the sampled estate agents in different Real Estate firms in Nairobi County to fill out. Key Informant Interviews (KIIs) were

conducted on 6 estate agents with an experience of over 20 years, as recommended by Muellmann & Jurgens, (2021). Later on, the tools were collected for sorting and analysis.

3.10 Data Analysis Techniques

Descriptive and inferential statistics was adopted to assess the influence of the two variables. Independent variables such as financial, economic, technical, and market analysis was examined using descriptive statistics including frequencies, percentages, mean scores and standard deviations. The responses were obtained from the likert scale used, then compared to establish the extent to which they were applied on commercial property buildings. The overall aim of the research; Project appraisal practices and the performance of commercial office space projects, was measured using descriptive statistics (frequencies, percentages, mean scores and standard deviation) and inferential statistics (correlation analysis). A Likert scale, indicating range of average rental rates per square feet, was used to determine the performance of commercial office space. The raw data was analyzed using the Microsoft Excel Program and Statistical Package for Social Sciences (SPSS) Program. Spearman's Rank Order Correlation analysis, at 95% confidence level, $p = 0.05$) was employed to ascertain whether there exists a significant association between technical, economic, market, and financial appraisals and the performance of commercial office space. The analyzed data was then presented by means of tables.

3.11 Ethical Considerations

Upholding ethical standards in a research study is crucial. Interactions between a researcher and a respondent was treated with dignity. Honesty, trust, openness, and integrity being the core values in ethics were promoted and practiced throughout the study period. Ethical issues range from legal to wrongs committed. Collecting data without permission from the relevant authorities such as NACOSTI and learning institutions is an offense. Deception, plagiarism, violating respondents' rights, exposing personal information, and using data collected for other purposes are all unprofessional research practices.

Before collecting data, permits were sought from NACOSTI and the University of Nairobi. The respondents were respected irrespective of their willingness to fill out the questionnaire or not.

Personal details such as names and telephone numbers were optional and treated with a lot of confidentiality, and as permitted by the respondents. The introduction letters from the relevant authorities were an assurance that the data gathered was for academic use only. The researcher did not influence the respondents in any way neither manipulate the data nor coerce them.

3.12 Operationalizing study variables.

This section outlines how to measure variables guided by the study objectives, performance indicators, units of measurement, data collection methods, scale, data analysis techniques, and tools for data analysis. According to Rukwaro (2016), operationalization of study variables is the interpretation of a variable in a manner that makes its measurement possible. Project appraisal practices form the independent variable whereas the performance of commercial office space is the dependent variable.

Table 1: Operationalizing study variables

Objectives	Operationalizing study variables					
	Study variables	Performance indicators	value of measurement	Scale	Data collection tools	Data analysis technique
1. To assess the influence of financial analysis on performance of commercial office space in Nairobi County.	<i>Independent variable:</i> Financial analysis	Estate agents using financial analysis practices in selecting commercial office projects. Ranking of commercial office projects using financial analysis methods such as the NPV, ARR and PBP	Likert scale to measure the extent at which financial analysis practices are used in selecting the most viable commercial office projects.	Ordinal	Questionnaire Interview guide	Frequencies, percentages, mean scores, standard deviation and Spearman's Rank Order correlation.
2. To determine how market analysis influences performance of commercial office space in Nairobi County	<i>Independent variable:</i> Market analysis	-Number of new commercial office space. -Number of different office grades offered -Competition analysis	Likert scale to determine the extent to which market analysis practices are used in selecting commercial office projects	Ordinal	Questionnaire Interview guide	Frequencies, percentages, mean scores, standard deviation Spearman's Rank Order correlation.
3. To assess the influence of technical analysis on performance of commercial office space in Nairobi County	<i>Independent variable:</i> Technical analysis	-How frequently is technical analysis practice used in determining the viability of commercial office projects. -Ranking of commercial office projects using components of technical analysis such as availability of inputs, infrastructure, and capacity	Likert scale to establish the extent of use and application of technical analysis in selecting commercial office projects.	Ordinal	Questionnaire Interview guide	Frequencies, percentages, mean scores, standard deviation and Spearman's Rank Order correlation
4. To establish the influence of economic analysis on performance of commercial office space in Nairobi County.	<i>Independent variable:</i> Economic analysis	-Application of economic analysis practice in selecting commercial office projects -Checking the viability of commercial office projects using CBA and CEA.	Likert scale to measure the extent to which economic analysis practices are used in ranking commercial office projects.	Ordinal	Questionnaire Interview guide	Frequencies, percentages, mean scores, standard deviation and Spearman's Rank Order

						correlation
The overall purpose of the study was to examine the influence of project appraisal practices on performance of commercial office projects.	<p><u>Dependent variable:</u></p> <p>Performance of commercial office space.</p> <p><u>Independent variables:</u></p> <p>Financial analysis, Market analysis, technical analysis, and economic analysis.</p>	<p><u>Dependent variable:</u></p> <p>-The extent of influence on rental value per square foot</p> <p><u>Independent variables:</u></p> <p>Overall mean score for each independent variable from objective 1-4 above</p>	<p><u>Dependent variable:</u></p> <p>Likert scale to measure the extent of influence on rental rates per square foot</p> <p><u>Independent variables:</u></p> <p>Same as 1-4 above.</p>	ordinal	<p>Questionnaire</p> <p>Interview guide</p>	<p>Frequencies, percentages, mean scores, standard deviation and Spearman's Rank Order correlation</p>

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter outlines data analysis, presentation, interpretation and discussion of the findings to fulfill the objectives of the study: to assess the influence of financial, economic, market and technical appraisals on performance of commercial office space projects in Nairobi City County. However, the chapter starts by analyzing the survey response rate and discussing the demographic data of respondents.

4.2 Questionnaire Return Rate

In total, 184 questionnaires were issued to individual registered estate agents practicing in Nairobi City County and 132 questionnaires were fully filled out, giving a survey return rate of 72 percent. This return rate is deemed adequate as various scholars have opined, including Mugenda & Mugenda, (2003). The responses of the 132 estate agents practicing in Nairobi City County are presented in the preceding section of this chapter.

4.3 Demographic Data of Respondents

The study aimed at establishing the demographic data of respondents regarding their gender, age, level of education and experience as estate agents. This was necessary to understand the respondents and gauge whether their responses could be replicated and generalized.

4.3.1 Gender of Respondents

Table 4.1 demonstrates the distribution of respondents by gender. Out of 132 respondents, 89 (67%) were the majority representing male while female were 43 (33%). From this distribution, the study can conclude that the responses are representative of the total population (all the estate agents in Kenya), since the third-gender rule has been observed.

Table 4.1 Gender of Respondents

Gender of respondents	Frequency	Percentage (%)
Male	89	67.42%
Female	43	32.58%
Total	132	100

However, it is imperative to note that the estate agency industry in Kenya is actually male-dominated, probably due to its physical activities required to carry out the business, for instance, in taking potential clients around to view listed properties and in lease administration.

4.3.2 Age of respondents

The respondent's age is important since it may have a positive correlation with their experience and skills in project appraisal practices. It is expected that a mature estate agent is likely to have more experience in appraisal of commercial office projects hence their responses would be more valuable. The reverse may also be correct. The findings shown in Table 4.2 indicate that majority 38 (28.79%) of the respondents were between the age of 36-40 years, followed by 31-35 year-olds. at 28 (21.21%), 41-45 years at 24(18.18%), 26-30 years at 19 (14.39%), 20-25 years and 46-50 years tied at 8(6.06%) and none was below 20 years. Suffice to note that the respondents aged above 30 years were 79.54% of the total respondents, indicating that the majority of the targeted respondents were sufficiently mature and experienced in estate agency practice.

Table 4.2: Age of Respondents

Age bracket of respondent (years)	Frequency	Percentage (%)
Below 20	0	0.00
20-25	8	6.06
26-30	19	14.39
31-35	28	21.21
36-40	38	28.79
41-45	24	18.18
46-50	8	6.06

Above 50	7	5.30
Total	132	100

4.3.3 Highest Level of Education of Respondents

Academic qualifications appeared to be a major determining factor in conducting project appraisal practices. It is believed that a positive trajectory exists between the level of education and skills. Table 4.3 show the level of academic qualification of the respondent's.

Table 4.3: Level of Education

Level of Education	Frequency	Percentage
Certificate	5	3.7%
Diploma	19	14.6%
Graduate	68	51.5%
Postgraduate	40	30.3%
Total	132	100

From the findings diploma holders were 19 (14.6%), graduate were 68 (51.5%), postgraduate 40 (34.0%), while 5(3.7%) had certificate. Graduates were the majority (68 respondents) a suggestion that majority of estate agents were capable of carrying out project appraisals with great understanding of the subject and professionalism. Apart from certificate (5 respondent's) and diploma (19) respondent's who stood at 18.3% , 81.7% (graduate and postgraduate) indicate that the respondents had higher education qualifications as preferred by the industry due to nature and the complexity of the assignments. Thus, the diploma course was treated as an entry point to the industry.

4.3.4 Experience as an estate agent

The study sought to establish the experience of the respondents because the more experienced they are then the better the responses due to their vast experience on the topic. The result are presented in Table 4.4. Majority of the respondents 51 (38.6%) had an experience of 11 years and above.

Table 4.4: Experience of the estate agents (respondents)

Experience in Years	Frequency	Percentage (%)
0 – 5 years	15	11.4
6 – 10 years	27	20.5
11 – 15 years	51	38.6
16 – 20 years	28	21.2
Above 20 years	11	8.3
Total	132	100

4.4. Project Appraisal Practices in Commercial Office Projects

The main aim of the study was to determine the influence of project appraisal practices on performance of commercial office projects. In line with the study’s objectives, the research sought to find out whether the investors employ the appraisal practices to determine the most viable project in regard to financial, market, economic and technical analysis. Further, the study’s intention was to reveal the degree to which the appraisals influence the ranking of the commercial projects as well as the methods and criteria used. The responses from this section helped to gauge the extent to which these appraisal practices influence performance of commercial office space projects as stated by Kavadias & Loch, (2012) that a successful project is a product of the best selected projects using the four levels of appraisals.

4.4.1 Financial Appraisal Practice and performance of commercial office space projects

In regard to this objective, the study intended to find out whether the estate agents applied financial appraisal while ranking commercial office project to ascertain the financial feasibility of the proposed idea. The responses are illustrated in Table 4.5

Table 4.5 : Responses on the application of financial appraisal practices

Application of financial appraisal practices	Frequency	Percentage
Yes	128	96.96%
No	4	3.0%
Total	132	100

The responses given from the table indicate that out of 132 respondent's 128 (96.96%) used financial appraisal in ranking commercial office projects against 4 who didn't consider the appraisal.

This confirms the findings of (Aligula & Syagga, 2007) that financial and market appraisal are the mostly preferred appraisals in selecting the most viable commercial office project.

Further, Table 4.6 reveal the extent at which the financial appraisal was applied in selecting commercial office space projects .

Table 4.6: Extent on the Application of financial appraisal practices

Extent on the application of financial appraisal practices	Frequency	Percentages
Not used at all	3	2.3%
Less extent	9	6.8%
Moderate extent	42	31.8%
Large extent	78	59.09%
Total	132	100

From the findings, 78 (59.09%) respondent's largely used financial appraisal as a tool for ranking projects, followed by 42 (31.8%) respondents who moderately used the appraisal, 9 (6.8%) less extent against 3 (2.3) who did not use it all. Out of 132 respondent's, 120 (3/4) respodents largely and moderately applied financial appraisal an indication that the latter is crucial in checking the viability of projects.

The study further, sought to find out the financial methods used to determine the viability of commercial projects and ascertain the extent to which they are applied. Tables 4.7 show the results.

Table 4.7 : Extent to which financial methods are used

Extent to which financial methods are used	Not used at all	Less extent	Moderate extent	Very large extent	Total
Net present Value is used to determine viability of projects	23(17.4)	49(37.1)	41(31.0)	19(14.4)	132(100%)
Accounting Rate of Return is applied to determine viability of projects	29(30)	64(48.5)	22(16.7)	17(13)	132(100%)
Payback Period is applied to determine viability of projects	7(5.3)	11(8.3)	50(38)	50(38)	132(100%)

The findings from Table.4.7 illustrates the degree of use of various methods of financial appraisal in selecting the most viable commercial office project. It is evident that all methods were employed regardless of the extent to which it was used. According to the responses, the mostly used method was the Payback Period (PBP) which attracted 64 (48.5%) responses (very large extent) and 50 (38%) responses (moderate extent) against 7 (5.3%) respondents who did not use it at all. Perhaps, the method is popular and widely used because of its simplicity in application. (Kerubo, Muturi, & Mogwambo, 2016) also found out that Payback method was commonly used by Small Manufacturing Enterprises (SME) by the fact that it is a non-discounting method compared to discounted methods which were more complex. Out of 132 respondent's, 19 (14.4%) respondents felt that Net Present Value (NPV) was applied largely in selecting projects, 41 (31.0%) respondent's gave it a moderate use, 49 (37.1%) responses read less extent and 23 (17.4%) respondent's did not use it at all. On the use of Accounting Rate of Rate (ARR) 17 (13%) respondents admitted to using the method to a very large extent, followed by 22 (16.7%) who felt that it was moderately applied, 64 (48.5%) less extent and 29 (30%) espondent's never used it. From the foregoing discussion, it is clear that NPV and ARR are less preferred by the estate agents while carrying out appraisals. Both NPV and ARR attracted more responses from the less extent and not used at all scale. This concurs with the findings of

(Kerubo, Muturi, & Mogwambo, 2016) that discounting methods are complex and time consuming. However, some responses expressed mixed reactions pointing out that NPV and ARR considered the time value for money and were more accurate than PBP (Dayananda, 2002).

In order to understand the influence of financial appraisal on performance of commercial office space projects, the respondents were requested to explain their arguments further using structured questions. Majority of the respondent's maintained that the use of financial appraisal in construction industry was paramount. According to them, financial consideration is the most important aspect of a feasibility study of a project and it helps in ranking investment project alternatives. Many argued that the investors goal is to make profits and therefore the analysis helped the investor to choose a maximally productive project. Others who largely and moderately supported the use of the analysis penned that it gives a speculative future idea of Return on Investment(ROI) and shows different financial dynamics. In addition, the analysis was reported to be accurate, reliable and straight forward. Besides, predicting future profits, it was seen as a strategy to avoid losses and risks in commercial office projects. However, 4 respondents out of 132 respondents reported less or no use of financial appraisal at all in scouting the most profitable commercial office space project. The analysis was likened to market and economic analysis.

In an attempt to conclusively answer the first research question of this study, the respondents were asked to show the degree to which application of financial appraisal influences performance of proposed commercial office projects. The responses are displayed in Table 4.8 indicating that a greater percentage of the respondents 91 (68.9%) believe that financial appraisal influences performance of commercial office space, measured in rental rates per square foot, to a very large extent. This revelation is plausible because the major goal of any private investor in CRE is to maximize profits hence a proposed project with promising financial returns would always be prioritized. A total of 36 (27.3%) reported that financial appraisal influences performance of commercial office projects to a moderate extent, probably due to the fact that performance of any business, including CRE, is influenced by many and diverse variables some of which are beyond the control of an investor such as macroeconomic factors like economy, inflation, pandemics, political stability and acts of nature. Consequently, the fact that a proposed

CRE project may seem appealing on paper, after financial appraisal, may not actually be attractive tomorrow due to unexpected adverse exogenous variables.

Table 4.8: The influence of financial appraisal on performance of commercial office space

Influence of financial appraisal on performance of commercial office projects	Frequency (N=132)	Percentage (%)
No influence	2	1.5%
Less extent	3	2.3%
Moderate extent	36	27.3%
Very large extent	91	68.9%
Total	132	100

A negligible number of respondents 2 (1.5%) indicated that financial appraisal has no influence on performance of commercial office space. Similarly, 3 respondents (2.3%) revealed that financial appraisal influences performance of commercial office space to a less extent. These responses may be an indication of lack of experience in project appraisal practices on part of some of the respondents.

The results of KIIs also reveal that financial appraisal has very high influence on performance of commercial office projects. EA3, for instance, opined that “*financial appraisal is the backbone of any investment project appraisal because the key private investors’ motivation is profits. Any proposed investment project should thus be financially viable to make it attractive*”. These sentiments were also echoed by EA5 who pointed out that “*if an investment project is not financially feasible then no investor would commit their money in it no matter how economically, and technically attractive it may be. Financial appraisal thus has a huge influence on performance of commercial office projects in Nairobi County*”.

4.4.2: Economic Appraisal Practice and performance of commercial office space projects

The aim of the objective was to establish whether the respondents applied economic appraisal practices to determine the value of a proposed project. Table 4.9 displays the responses.

Table 4.9: Responses on the application of economic appraisal

Application of economic appraisal	Frequency	Percentage
Yes	85	64.4%
No	47	35.6%
Total	132	100

The responses elicited mixed reactions on the use of economic appraisal. A bigger percentage 85(64.4%) agreed that the analysis was useful in making informed decision in the construction industry while 47(35.5%) dismissed its use.

When asked the degree at which the economic appraisal is used in analysis commercial office space projects, the respondent's reaction were registered in Table 4.10

Table 4.10: Frequency of application of economic appraisal practice

Frequency on Application of Economic Appraisal Practice	Frequency	Percentage
Not Used at All	45	34.1%
Less Extent	60	45.5%
Moderate extent	23	17.4%
Very large extent	4	3.0%
Total	132	100

The results reveal a negative influence of the economic appraisal in choosing commercial office projects. The highest percentage of the responses reported a less extent of use 60(45.5%) and those who never used it at 45(34.1%). This confirms that 105 respondents rarely used or ignored the analysis. Interestingly, 4 respondents and 23 others used the method largely and moderately.

Further, the study sought after establishing the economic appraisal methods used to scrutinize projects. The respondents were expected to show the extent of use of the various methods using the scale provided. Table 4.11 demonstrates the findings.

Table 4.11: Extent to which economic methods were used

Economic Appraisal Practices	Not Used at All	Less Extent	Moderate Extent	Very Large Extent	Total
Cost-Benefit Analysis	20(1.5%)	50(3.8%)	48(36.3%)	14(10.6%)	132(100%)
Cost-Effective Analysis	88(66.7%)	34(25.8%)	10(7.6%)	0(0.0%)	132(100%)
Cost Utility Analysis	132(100%)	0(0.0%)	0(0.0%)	0(0.0%)	132(100%)

Going by the tabulations, three methods were used in carrying out economic appraisals to determine viability and practicability of commercial office space project. When ranked according to their effectiveness, Cost-Benefit analysis (CBA) took the lead followed by Cost-Effectiveness Analysis (CEA) and Cost-Utility Analysis (CUA). The findings show that CBA was the most preferred method in the industry. Out of 132 responses 14(10.6%) respondents reported that the method was highly used while 48(36.3%) respondents expressed lukewarm use. However, 20(1.5%) respondents felt that it was not used at all while 50 (3.8%) registered a less application of the method. For instance, a study conducted by (Siddhart, Yateen, & Nikhil, 2020) on the influence of economic analysis on the construction of a road project in India, using the Cost-Benefit Analysis (CBA), found that the project was maximally productive since the Economic Internal Rate of Return (EIRR) were more than 12%. The project's sustainability was established and the benefits to the society included ease of traffic jams, creation of job opportunities and provision of infrastructure. The rule is, if the proposed project benefits to the society are greater

than the cost, then the project is desirable and the reverse is true (Burg, 2012). Therefore the industry conducts the Environmental Impact Assessment (EIA), a tool used to identify both societal benefits and costs in commercial office projects. As for CEA, from the ascending order, 88 respondents never used the method, 34 respondents used it sparingly, 10 expressed a moderate use, while none used it largely. Therefore, it has been noted to be most applicable to public projects such as educational, scientific, and health sectors where it could be challenging to measure economic benefits in monetary terms due to the many potential societal benefits (Rima, 2012). Shruti & Geetha (2019) affirm this by noting that the method is mostly applied to government-funded projects to establish economic efficiency .cost-effectiveness. The third method used in economic analysis (CUA), is mainly applicable in the health sector. This explains why all respondents indicated that it is not used at all.

Using the open-ended questions the respondents gave further clarifications on the use of economic analysis in construction industry. Some respondents argued that CBA helps in determining the most profitable commercial office construction projects based on its financial viability by determining its cost and benefits. The method also established the likely lead time for the uptake of the office space and its impact on cost of funds, profitability and payback period. Factors such as the volatility of the economy, the factors of sustenance and production reduced its application to the industry. Others argued that private investors are mainly concerned about financial viability unlike public/government investments whose main aim is to offer services to the citizens.

The respondents were then asked to rate the influence of economic appraisal on performance of commercial office projects in the study area. The responses to this question are shown in Table 4.12 which indicate that, in ascending order: 40 (30.3%) of the respondents economic appraisal has no influence on performance of commercial office projects, 61(46.3%) less extent, 28 (21.2%) moderate extent and 3 (2.3%) has very large extent.

Table 4.12: The influence of economic appraisal on performance of commercial office space

Influence of economic appraisal on performance of commercial office projects	Frequency (N=132)	Percentage (%)
No influence	40	30.3%
Less extent	61	46.3%
Moderate extent	28	21.2%
Very large extent	3	2.3%
Total	132	100

The statistics presented in Table 4.12 reinforces the earlier observation that private investors are usually interested in private gains, not societal ones hence their focus is on financial returns. Consequently, even the use of CBA is usually limited to the financial costs and benefits, sometimes to the detriment of the society particularly when a private investment has negative externalities on the society/environment. The nexus between private investments and the society is usually not apparent to the private investor but the truth of the matter is that the two are intertwined. The findings were echoed by EA1 and EA2 that economic analysis is rarely conducted.

4.4.3: Market Appraisal Practices and performance of Commercial Office Space Project

In an attempt to understand the relationship between market appraisal practices and commercial office space project, it was necessary to ask the respondents whether they use market analysis in determining the worth of a project. Their responses were registered in Table 4.13

Table 4.13: Responses on the application of market appraisal

Application of market appraisal	Frequency	Percentage
Yes	132	100%
Total	132	100

The findings pointed out that market appraisal practices was widely applied by the respondents. Interestingly, all the respondents were opined that the appraisal is one of the commonly applied method in valuing projects.

Further, the study did enquires on the extent to which market appraisal was used to choose the most viable commercial office project. Table 4.14 illustrates the findings.

Table 4.14: Frequency on the Application of market appraisal practices

Extent on the application of market appraisal practices	Frequency	Frequency
Not used at all	0	0%
Less used	7	5.3%
Moderate extent	33	25%
Large extent	92	69.7%
Total	132	100

In a descending order, the results in Table 4.14 reveal that majority of the respondents 92 (69.7) widely used market appraisal in appraising projects. Out of 132 respondents 33 (25%) applied the method moderately while 7 (5.3%) felt that the appraisal had a limited application. None confessed lack of use of market appraisal. This confirms the work of (Syagga, 2018) that market appraisal is commonly used in the industry. Macharia, (2017) also found out that 94.1% of the respondents used market appraisal to rank projects for implementation. It is therefore treated as an abnormality if a feasibility study lacks market appraisal.

The research went further to determine the degree at which the market appraisal approaches were used. The respondents were provided with three indicators used to gauge the appraisal usage. These were demand analysis, competitive analysis and barriers to entry into the industry. The respondents reactions were illustrated using Table 4.15

Table 4.15: Extent to which market methods were used

Market Appraisal Practices	Not Used at All	Less Extent	Moderate Extent	Very Large Extent	Total
Demand Analysis	4(3.0)	7(5.3)	46(34.8)	75(56.8)	132 (100%)
Competitive Analysis	3(2.3)	13(9.8)	57(43.2)	59(44.7)	132 (100%)
Barriers to Entry in the Industry	15(11.4)	25(18.9)	46(34.8)	46(34.8)	132 (100%)

Using the responses provided in Table 4.15, demand analysis had the highest consideration where 75(56.8%) respondents agreed that they apply it largely, 46 (34.8%) respondents used it moderately, 7 (5.3%) others pointed that the appraisal was sparingly used while 4 (3.0%) respondents rarely used it. Similarly, competitive analysis received a fair treatment where 59 (44.7%) respondents reported a widely use of the indicator, 57 (43.2%) respondents used it moderately, 13(9.8%) respondents registered a less application and 3(2.3%) never used it all. For the last 4 years, demand of commercial office space has faced a drop due to oversupply influenced by arrival of Covid-19 pandemic, changes in building use and environmental changes. (Knight Frank Kenya, 2020). A report by Cytonn Real Estate, (2021) revealed that commercial office space market size in Nairobi county as at 2021 is oversupplied by approximately 6.3mn SQFT. Despite this observation, a stiff competition exists among the investors who are in a race to put up new and modern building in Nairobi county, with Upperhill and Westland location having the largest supply of the office space at 52% Cytonn Real Estate, (2021). Pertaining to the competitive analysis, Grade A and B offices are more preferred than C particularly in Nairobi County (Cytonn Real Estate, 2021). Grade A and B are thought to be modern and executive, with green lighting, furnished and have adequate parking. Based on the features, grade A and B offers the best office space and rental rates. Therefore, it is upto the investors to align themselves in order to remain relevant in the industry in Nairobi County, especially in Upperhill and Westlands. Grade B offices are in demand compared to old office blocks found in Nairobi Central Business Centre (CBD) (Knight Frank Kenya, 2020). In ensuring adherence to the industry's legal framework, majority of the respondents expressed the same sentiments. There was a tie between those who highly considered barriers to entry in the industry and moderate users.

However, 25(18.9%) respondents noted a less compliance to the law unlike 15 (11.4%) who never thought of it. It is important to note that there is no law prohibiting investment to commercial property development in Kenya, save for the cost of inputs such as land and the existing land use planning regulations and requirements.

More information on the influence of market appraisal and commercial office space projects was drawn from the comment section that required the respondents to expound widely on their views. All the respondents opined that the appraisal helps to examine the market size in volume and value, customer segment and purchasing pattern. They added that market appraisal is an instrument that guides the investor to know what to offer, when to and to whom. Further, they mentioned usefulness of the appraisal in determining the demand and supply of office space, to establish whether the new project would be viable by attracting customers. Finally, risks involved in commercial investment are severe and the projects consume billions of money, hence the appraisal was a strategy used to avoid and mitigate such. When we sampled all the comments it was concluded that a feasibility report without market appraisal is meaningless.

The responses on the influence of market appraisal on performance of commercial office projects are presented in Table 4.15 showing that minority of the respondents 4(3%) opined that market appraisal has no influence while 9(6.8%) indicated that it affects performance to a less extent. However, most of the respondents 73(55.3%) revealed that market appraisal influences performance of commercial office projects to a very large extent. A further 46(34.8%) reported that market appraisal influences performance of commercial office projects moderately.

Table 4.16: The influence of market appraisal on performance of commercial office space

Influence of market appraisal on performance of commercial office projects	Frequency (N=132)	Percentage (%)
No influence	4	3.0%

Less extent	9	6.8%
Moderate extent	46	34.8%
Very large extent	73	55.3%
Total	132	100%

The responses in Table 4.16 buttresses the fact that financial appraisal and market appraisal are very critical in evaluating and projecting future performance of CRE. Demand and competition analyses are especially important in determining performance of commercial office projects. From the KIIs, EA2 affirmed that market analysis is equally important as financial analysis.

4.4.4: Technical Appraisal and Performance of Commercial Office Space Projects

The purpose of this objective was to establish the application of technical appraisal in selecting the most profitable commercial office projects. The respondents were asked to indicate whether they use technical appraisal in evaluating commercial office projects. Table 4.17 demonstrates their responses which reveal that most of the respondents 121(91.7%) responded in the affirmative while a party 11(8.3%) revealed that they do not use technical appraisal in their project appraisal.

Table 4.17: Responses on the application of technical appraisal

Application of Technical appraisal	Frequency (N=132)	Percentage
Yes	121	91.7%
No	11	8.3%
Total	132	100

Perhaps the respondents who indicated that they do not use technical appraisal in evaluating proposed commercial office projects could be inexperienced estate agents who may not have much hands-on experience in project appraisal practice. Additionally, such respondents may not appreciate that evaluation of key construction inputs, infrastructure and capacity are part of technical appraisal.

The next question sought to establish the extent of use of technical appraisal in ranking the viability of proposed commercial office projects in the study area. The responses to this question are presented in Table 4.18 revealing that the appraisal is used to a moderate extent by most of the respondents 65(49.2%) while 26(19.7%) use technical appraisal to a very large extent. Only a small number of the respondents 5(3.8%) reported that they do not use technical appraisal at all probably because they had reported earlier that they do not to use technical appraisal in evaluation of proposed commercial office projects. The rest of the respondents 36(27.3%) revealed that they use technical appraisal to a less extent in their project appraisal practice.

Table 4.18: Frequency on the Application of technical appraisal practices

Extent on the application of technical appraisal practices	Frequency (N=132)	Percentage (%)
Not used at all	5	3.8
Less extent	36	27.3
Moderate extent	65	49.2
Large extent	26	19.7
Total	132	100

In order to gain more understanding on the use of technical appraisal in evaluation of proposed commercial office projects, the respondents were requested to rank the extent of use of the main technical appraisal parameters: availability of inputs, availability of infrastructure and capacity/number of existing commercial office space. The respondent's replies regarding this indicator are shown in Table 4.19.

Table 4.19: Extent to which technical indicators are used**Frequency (N=132)**

Technical Appraisal Practices	Not Used at All	Less Extent	Moderate Extent	Very Large Extent	Total
Availability of inputs	5 (3.8%)	20 (15.2%)	58 (43.9%)	49 (37.1%)	132 (100%)
Availability of infrastructure	7 (5.3%)	31 (23.5%)	66 (50%)	28 (21.2%)	132 (100%)
Capacity/existing units	8 (6.1%)	30 (22.7%)	64 (48.5%)	30 (22.7%)	132 (100%)

The results presented in Table 4.19 show that most of the technical appraisal indicators are used moderately with evaluation of key inputs, infrastructure and capacity scoring 58(43.9%), 66(50%) and 64(48.5%), respectively. The respondents also revealed that the availability of inputs, infrastructure and capacity are evaluated to a large extent as shown by their respective responses at 49(37.1%), 28(21.2%) and 30(22.7%). Very few respondents indicated that they evaluate availability of inputs, infrastructure and capacity to a less extent since this question was scored 20(15.2%), 31(23.5%) and 30(22.7%), respectively while a mere 5(3.8%), 7(5.3%) and 8(6.1%) of the respondents indicated that they do not evaluate these technical appraisal indicators at all.

Upon evaluation of three technical indicators, availability of inputs was ranked as a major determinant in commercial property development. Among the four major inputs: land, labour, resources and management, the latter and its attributes play a vital role. A number of respondents opined that location of land positively influenced the performance of commercial office projects by cutting down the cost of construction. According to the industry-location Theory, distance to the industry affected transportation cost. Similarly, lack of good roads, water and sewerage facilities impacted negatively on commercial office projects (Aligula & Syagga, 2007). Further, infrastructural services influenced the accessibility and demand for the proposed development. These statistics confirm the pivotal role played by technical appraisal techniques in selecting and ranking proposed commercial office projects in the Nairobi County since it is acknowledged that without key inputs and infrastructure, no production can take place as

evidenced by the presence of old and uncompleted buildings in Nairobi County, while others were built on paperwork. An omission or an error of technical appraisal at this stage could explain the current state of affairs in Nairobi County where many commercial office buildings are vacant due to oversupply yet more office space is being supplied to the market without due regard to the existing capacity.

The study, further, intended to found out the influence of technical appraisal on performance of commercial office projects and the findings are shown in Table 4.20 indicating that majority of the respondents 73(55.3%) reported that technical appraisal has moderate influence while 28(21.2%) believe that it influences performance to a very large extent.

Table 4.20: The influence of technical appraisal on performance of commercial office space

Influence of technical appraisal on performance of commercial office projects	Frequency (N=132)	Percentage (%)
No Influence	7	5.3%
Less Extent	24	18.2%
Moderate extent	73	55.3%
Very large extent	28	21.2%
Total	132	100%

Technical parameters of a CRE project may hinder both production/construction of office space. Failure to evaluate key inputs would be detrimental especially during the construction phase of the project while erroneous analysis of infrastructure may impact the project negatively during the operation phase of CRE due to suppressed demand arising from, for instance, inaccessibility.

Interestingly, all the six (EA1, EA2, EA3, EA4, EA5 and EA6) interviewees were of the opinion that availability of inputs and infrastructure are key to a successful construction project. They added that absence of the inputs may cause delay in completion of the project and affect its market.

4.4.5: Project Appraisal Practices and Performance of Commercial Office Space Projects.

In order to gain further understanding of the four project appraisal analyses (financial, economic, market and technical) and their influence on performance of commercial office projects, the four independent variables are combined in this section to determine and rank their influence on the dependent variable. However, descriptive statistics are first presented to enhance comprehension of the both dependent and independent variables.

4.4.5.1: Descriptive statistics on project appraisal practices and performance of commercial office space projects.

Table 4.21 presents the descriptive statistics of the dependent and independent variables. It shows the frequencies, mean and standard deviation of the variables.

Table 4.21: Descriptive statistics of independent and dependent variables

Independent and dependent variables	N	Mean	Std.Dev
Extent of influence of financial analysis on performance	132	3.58	0.678
Extent of influence of economic analysis on performance	132	2.01	0.843
Extent of influence of market analysis on performance	132	3.47	0.756
Extent of influence of technical analysis on performance	132	2.95	0.799
Performance of commercial office projects (dependent variable)	132	1.98	0.682

The dependent variable, performance of commercial office projects, has a $\bar{x} = 1.98$, corresponding to an average rental rate of Kes. 91 – 100 per square feet per month in the study area. This finding concurs with the existing research by Cytonn Real Estate, (2021) who observed in their survey that “*asking rents and prices declined by 3.0% and 2.8% respectively to an average of Kshs 93 and Kshs 12,280 per SQFT in 2020 from Kshs 96 and Kshs 12,638 per SQFT, respectively in 2019*”. It would appear that the rental values of commercial office space continues to be depressed, even after the pandemic.

Using the mean scores in Table 4.21, we can now rank the four independent variables, in descending order, on their influence on performance of commercial office projects: financial appraisal ($\bar{x} = 3.58$), market appraisal ($\bar{x} = 3.47$), technical appraisal ($\bar{x} = 2.95$) and economic appraisal ($\bar{x} = 2.01$). In the opinions of the respondents, we can infer from the descriptive statistics that financial appraisal and market appraisal both have a very large influence on performance of commercial office projects in the study area while technical appraisal has moderate influence. However, economic appraisal has less influence on performance of commercial office projects in Nairobi County.

If we compare the statistical means of the independent variables with the population mean [$\mu = (1+2+3+4)/4 = 2.5$], we can thus conclude that any independent variable whose mean is equal to or greater than the population mean ($\mu=2.5$) has a statistically significant influence on the performance of commercial office projects. Therefore, using this criteria, financial appraisal ($\bar{x} = 3.58$), market appraisal ($\bar{x} = 3.47$) and technical appraisal ($\bar{x} = 2.95$) have statistically significant influence while economic appraisal has less influence.

4.4.5.2 Spearman’s Rank Order Correlation analysis on project appraisal practices and performance of commercial office space projects

For us to arrive at a conclusive and verifiable decision on the influence of the four project appraisal practices on performance of commercial office projects in the study area, the confidence level was set at 95% hence p value = 0.05. The results of correlation are presented in Table 4.22.

Table 4.22 Spearman’s Rank Order Correlation analysis between independent variables and dependent variable

Independent variables	Dependent variable	Correlation coefficient (N=132)
Extent of use of economic appraisal	Performance of commercial office projects (rental rates per square foot per month)	$r = 0.849^{**}$ $p = 0.000$

Extent of use of technical appraisal	Performance of commercial office projects (rental rates per square foot per month)	$r = 0.852^{**}$ $p = 0.000$
Extent of use of financial appraisal	Performance of commercial office projects (rental rates per square foot per month)	$r = 0.726^{**}$ $p = 0.000$
Extent of use of market appraisal	Performance of commercial office projects (rental rates per square foot per month)	$r = 0.727^{**}$ $P = 0.000$

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

The results of correlation analysis indicate that technical appraisal has the greatest association with the performance of commercial office projects ($r = 0.852$, $p = 0.000$), followed by economic appraisal ($r = 0.849$, $p = 0.000$), both are positively and strongly correlated to the dependent variable. Market appraisal is the third most correlated to performance of commercial office projects ($r = 0.727$, $p = 0.000$) followed by financial appraisal ($r = 0.726$, $p = 0.000$) as the least correlated to the dependent variable. Both financial and market appraisals are positively and moderately associated to performance of commercial office projects.

All the independent variables are statistically significant in influencing the performance of commercial office projects in the study area ($p = 0.000$), meaning that all of them should be considered by investors and project analysts while evaluating proposed investments in commercial office projects.

Interestingly, technical appraisal is the most positively and strongly correlated to the performance of commercial office projects yet it was ranked the second least and statistically insignificant variable in influencing the dependent variable using the mean score ranking ($\bar{x} = 2.95$). Using the mean score ranking, financial appraisal was ranked as the most important factor influencing the performance of commercial office projects ($\bar{x} = 3.58$), yet the results of correlations analysis ranks financial appraisal as the least statistically significant variable in influencing the dependent variable. These statistics may explain why there has been continued supply of commercial office spaces in the study area (Nairobi County) yet their performance is dwindling over the years. The results clearly show that overreliance on financial and market

analyses with less emphasis on economic and technical analyses could actually be misleading the investors and projects analysts in their decision making process hence the current state of affairs. The results may also act as further testimony that the society (economic analysis) and private investment (financial analysis) are intertwined and inseparable. Consequently, the assumption by investors and project analysts that financial analysis is the most important factor influencing performance of commercial office projects could be biased.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section presents a summary of the main findings particularly based on the inferential statistics (spearman's Rank Order correlation). The chapter also presents the conclusions based on the key research findings. Recommendations are also made depending on the study conclusions. Lastly, the chapter outlines researchable areas of further study that will provide more insights and fill the knowledge gaps identified in CRE.

5.2 Summary of the findings

The summary of findings is organized and guided by the four main study objectives. These include; to examine the influence of financial, market, economic and technical appraisals on performance of commercial office space projects. In the preceding section, the conclusions of the study were informed by the key findings highlighted in this section.

5.2.1 Financial appraisal practice and performance of commercial office space projects

The study revealed that financial appraisal is used to a very large extent (59.1%), with NPV and ARR being used to a less extent at 37.1% and 48.5%, respectively while the PBP was being used to a very large extent at 48.5%. Overall, the respondents revealed that financial appraisal had a very large influence on performance of commercial office projects (68.9%) hence ranked the variable as the most significant factor ($\bar{x} = 3.58$).

However, using inferential statistics, Spearman's Rank Order Correlation, financial appraisal was found to have positive but least association with the performance of commercial office projects ($r = 0.726$, $p = 0.000$), making it the fourth most significant factor influencing the performance of commercial office projects in the study area.

5.2.2 Economic appraisal practices and performance of commercial office projects

In a summary, the key findings of the study have shown that economic appraisal is used to a less extent (45.5%) in evaluation of commercial office projects in Nairobi County. The CBA is used to a less extent (37.9%) while CEA (moderately used) and CUA not used at all at 66.7% and 100%, respectively. In addition, the respondents revealed that economic appraisal has less influence on performance of commercial office projects (46.3%) hence they ranked the factor as the least significant ($\bar{x} = 2.01$).

Conversely, using the Spearman's Rank Order Correlation, the study revealed that economic appraisal is the second most significant factor influencing the performance of commercial office projects ($r = 0.849$, $p = 0.000$).

5.2.3 Market appraisal and performance of commercial office space projects.

Using descriptive statistics, the study revealed that market appraisal is used to a large extent (69.7%) with both demand and competition analyses being used to a very large extent at 56.8% and 44.7%, respectively while barrier to entry analysis was being done to a moderate extent (34.8%). The respondents revealed that market appraisal has a very large influence on the performance of commercial office projects (55.3%) thus ranking the factor as the second most important at $\bar{x} = 3.47$.

The results of inferential statistics, however, have shown that market appraisal is the second least significant factor influencing the performance of commercial office projects in the study area ($r = 0.727$, $p = 0.000$).

5.2.4 Technical appraisal practice and performance of commercial office space projects.

Finally, the descriptive statistics have revealed that technical appraisal is used to a moderate extent (49.2%) with availability of inputs, infrastructure, barrier to entry analyses all being used to a moderate extent at 43.9%, 50% and 48.5% respectively. Overall, technical appraisal was ranked by respondents as having moderate influence on performance of commercial office projects (55.3%), with a mean score of $\bar{x} = 2.95$, hence making it the third most important variable.

However, the results of the Spearman's Rank Order correlation have shown that indeed technical appraisal is the most significant factor influencing the performance of commercial office projects ($r = 0.852$, $p = 0.000$)

5.3 Conclusion

The purpose of the study was to establish the influence of project appraisal practices on the performance of commercial office projects in Nairobi County.

5.3.1 Financial appraisal practice and performance of commercial office space projects

In the opinion of the respondents, as well as using the Likert scale, financial analysis was ranked the highest. Using descriptive statistics results financial appraisal registered the highest mean score of ($\bar{x} = 3.58$). Interestingly, correlation analysis revealed that financial ($r = 0.726$, $p = 0.000$) was the second least correlated to the dependent variable.

5.3.2 Economic appraisal practices and performance of commercial office projects

Majority of the respondents, the likert scale as well as descriptive statistics revealed that the variable had a weak influence on the dependent variable with a mean score of ($\bar{x} = 2.95$). Although, correlation analysis indicate that economic appraisal ($r = 0.849$, $p = 0.000$) had a very strong influence on the dependent variable.

5.3.3 Market appraisal and performance of commercial office space projects

Majority of the respondents ranked market analysis. These findings matched with descriptive statistics results where market appraisal registered the highest mean score ($\bar{x} = 3.47$), ahead of economic and technical appraisals with ($\bar{x} = 2.01$ and ($\bar{x} = 2.95$), respectively. However, correlation analysis indicate that market analysis ($r = 0.727$, $p = 0.000$) was the least correlated to the dependent variable.

5.3.4 Technical appraisal practice and performance of commercial office space projects

Descriptive analysis indicate that technical analysis had the least influence with a mean score of ($\bar{x} = 2.01$). Interestingly, the variable had a very strong influence on the dependent variable with ($r = 0.852$, $p = 0.000$).

Using the mean score and correlation analysis we can thus conclude that all the four types of project appraisals (financial, market, economic and technical analyses) are statistically significant in influencing performance of commercial office projects in Nairobi County. However, in the order of their significance, investors and project analysts should focus on technical, economic, financial and technical analyses to ensure successful and effective evaluation of proposed commercial office projects.

The finding that the four project appraisals (financial, market, technical and economic analyses) are all important in influencing projects concurs with Macharia's (2017) who established that the four appraisals when combined had moderate to very high influence (100%) on performance of health projects in Aga Khan Hospital in Nairobi. Similarly, financial appraisal had been found to be either commonly or used at all times (67%) and with very high influence on performance of health projects (75%) when considered alone while economic appraisal was often or sometimes used in evaluation projects (69%) and with low to moderate influence on performance of projects (57%) (Macharia, 2017). Market appraisal was commonly or used at all times (73%) with high to very high influence on performance of health projects (59%) while technical appraisal was often or commonly used (67%) with moderate to high influence on performance of health projects (65%) (Macharia, 2017). A plethora of the existing studies have also come to the same conclusions, see for example: Chadburn & Anderson, (2013); Kerubo, Muturi, & Mogwambo, (2016); Shruti & Geetha, (2019); Songa, (2020), amongst other scholars.

The bias by project analysts towards financial and market analyses over economic and technical analyses seems to cut across all the sectors. However, the existing research and the findings of this study confirm that a holistic evaluation (financial, market, economic and technical analyses) of projects is important as all of them influence their performance. The misleading bias and erroneous assumption could therefore explain the current state of affairs where the demand for and performance of commercial office space is declining yet more commercial office buildings are being erected despite the glut.

5.4 Recommendations

Therefore, from the key findings, the study recommends that:

1. Project analysts should pay more attention to technical appraisal since it had the highest influence on performance of commercial office space.
2. Similarly, project analysts should also consider economic appraisal since it was ranked the second most significant in influencing the performance of commercial office space.
3. In addition, market and financial appraisals should also be taken into account by project evaluators because were also found to be important.
4. Therefore, project analysts should conduct a holistic project appraisal rather than partial evaluation since all the four levels of appraisal were found to be significant, to some extent, on the performance of commercial office space.

5.5 Areas Of Further Study

In executing its mandate, the study identified some areas for further research and investigation.

1. A study on the influence of project appraisal practices on performance of residential houses.
2. A study on project appraisal practices on the performance of commercial office space projects in other counties in Kenya.
3. Further study can also be conducted on the same topic after the commercial property market has fully recovered from the effects of Covid-19 pandemic.

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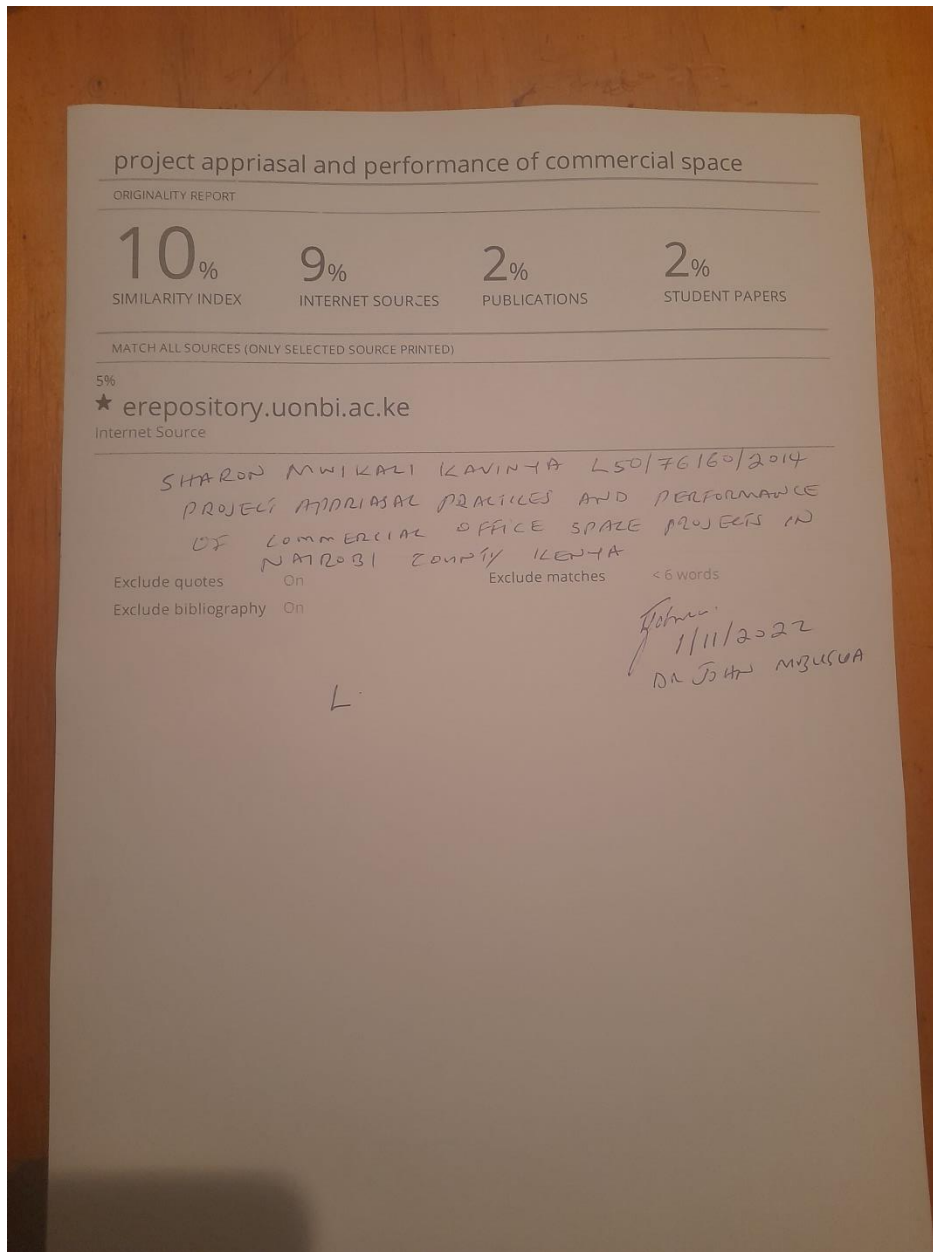
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Summary of Turnitin Report



APPENDIX 1: Introductory Letter



UNIVERSITY OF NAIROBI

FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

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Our Ref: **L50/76160/2014**

August 22, 2022

National Commission for Science, Technology and Innovation
NACOSTI Headquarters
Upper Kabete, Off Waiyaki Way
P. O. Box 30623- 00100
NAIROBI

RE: INTRODUCTION LETTER: SHARON MWIKALI KAVINYA

The above named is a registered Masters of Arts In Project Planning And Management candidate at the University of Nairobi, Faculty of Business and Management Sciences. She is conducting research on "***Project Appraisal Practices And Performance Of Commercial Office Space Projects In Nairobi City County , Kenya...***".

The purpose of this letter is to kindly request you to assist and facilitate the student with necessary data which forms an integral part of the Project.

The information and data required is needed for academic purposes only and will be treated in **Strict-Confidence**.

Your co-operation will be highly appreciated.






Dean's Office
University of Nairobi
Faculty of Business
and Management Science
P.O. Box 30197-00100, Nairobi

PROF. JAMES NJIHIA
DEAN, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

JN/pgr

APPENDIX II: Research License

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION.
Ref No: 771511	Date of Issue: 25/August/2022
RESEARCH LICENSE	
	
This is to Certify that Miss.. Sharon mwikali Kavinya of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: Project Appraisal Practices and Performance of Commercial office space project in Nairobi County, Kenya, for the period ending : 25/August/2023.	
License No: NACOSTI/P/22/19969	
771511 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
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Website: www.nacosti.go.ke

APPENDIX III: Questionnaire to Estate Agents

SECTION A: GENERAL INFORMATION OF RESPONDENTS

1. Kindly tick your gender

Male []

Female []

2. Please show your age bracket

Below 20 []

20-25 []

26-30 []

31-35 []

36-40 []

41-45 []

46- 50 []

Above 50 []

3. Tick your highest level of education

Secondary education []

Diploma []

Undergraduate []

Postgraduate []

Doctorate []

Others (kindly specify) []-----

4. Please tick the number of years of experience as an estate agent?

0-5 []

6-10 []

11-15 []

16-20 []

Above 20 []

SECTION B: PROJECT APPRAISAL PRACTICES IN COMMERCIAL OFFICE PROJECTS.

This section seeks to collect data on the project appraisal practices done on commercial office projects in Nairobi City County, Kenya.

Part I: Financial Appraisal Practices

5. Do you normally carry out a financial appraisal in analyzing commercial office projects?

Yes [] No []

6. To what extent do you use financial appraisal in determining the viability of a commercial office project? (Use a scale range of 1 to 4; whereas 1= Not used at all, 2= less extent, 3= moderate extent, 4= very large extent).

Not used at all [1]

Less extent [2]

Moderate extent [3]

Large extent [4]

7. Please indicate the degree to which the following financial appraisal techniques/methods are used to determine the viability of a commercial office projects. (Use a scale range of 1 to 4; where as 1= Not used at all, 2= less extent, 3= moderate extent, 4= very large extent).

Financial Analysis Practices	1	2	3	4
NPV is used to determine the viability of commercial office projects				
ARR is used to determine the viability of commercial office projects				
The payback period is used in determining the viability of commercial				

12. In your opinion, do you think economic appraisal helps you in selecting the most profitable commercial construction project? Give at least two reasons for your answer.

.....

PART III: Market Appraisal Practices

13. Do you usually carry out a market appraisal in analyzing and selecting commercial office projects?

Yes []

No []

14. To what extent do you carry out a market appraisal in ranking the viability of commercial office projects. (Use a scale range of 1 to 4; where 1= Not used at all, 2= less extent, 3= moderate extent, 4= very large extent).

Not used at all [1]

Less extent [2]

Moderate extent [3]

Large extent [4]

15. Kindly tick the extent to which market appraisal techniques are used in ranking commercial office projects. (Use a scale range of 1 to 4; where 1= Not used at all, 2= less extent, 3= moderate extent, 4= very large extent).

Market Analysis Techniques	1	2	3	4
Demand assessment/analysis is used to determine the most profitable commercial office project				
Competitive analysis is used in selecting suitable commercial office project				
Barriers to entry determine the viability of a commercial office project				

16. In your opinion, do you think the market analysis is useful in ranking commercial office projects? Give at least two reasons for your answer.

.....

PART IV. Technical Analysis Practices

17. Do you normally carry out a technical appraisal in analyzing and selecting commercial office projects?

Yes []

No []

18. To what extent do you carry out a technical appraisal in ranking the viability of commercial office projects. (Use a scale range of 1 to 4; whereas 1= No extent, 2= less extent, 3= moderate extent, 4= very large extent).

Not used at all [1]

Less extent [2]

Moderate extent [3]

Large extent [4]

19. Please show the extent to which technical appraisal analyses are used in ranking commercial office projects. (Use a scale range of 1 to 4; whereas 1= Not used at all, 2= less extent, 3= moderate extent, 4= very large extent).

Technical Analysis Analyses	1	2	3	4
Availability of inputs are evaluated in determining the viability of commercial office projects				
Availability of infrastructure is analyzed in selecting commercial office projects				
Capacity (No. of existing units) influence commercial office projects				

20. In your opinion, do you think that technical appraisal practices help in ranking commercial office projects? Give at least two reasons for your answer.

.....

.....

.....

.....

PART V: Performance of Commercial Office Projects .

21. As an estate agent, please show the degree at which project appraisal practices have influenced the performance (rental rates per square feet per month) of commercial office projects in Nairobi County, Kenya. Use a scale of 1 to 4 to measure project appraisal practices, where [1]=No influence; [2]=Less extent; [3]=Moderate extent; and [4]= Very large extent.

Extent of project appraisal Practices	[1] No influence	[2] Less extent	[3] Moderate extent	[4] Very large extent
The application of financial analysis/ appraisal practice has affected the performance of commercial office projects.				
The application of economic analysis practice has affected the performance of office projects.				
The application of market analysis practice has affected the performance of commercial office projects.				
The use of technical appraisal practice has influenced the performance of commercial office projects.				

22. If you have other relevant observations on the influence of economic, technical, market and financial appraisals and the performance of commercial office space in

Nairobi County, please indicate in the spaces provided below.....

.....

.....

.....

APPENDIX IV: Interview Guide Questions

Introduction

My name is Sharon Kavinya, a student at the University of Nairobi taking a Master of Arts in Project Planning and Management Degree course. I am currently researching the influence of project appraisal practices on the performance of commercial office space in Nairobi City County, Kenya. Due to the nature of the study and the data required, you have been recognized as a key informant in this research. I guarantee that the information that you provide will be solely used for educational/academic purposes. I promise to keep any personal information private and confidential. Your participation in this survey is voluntary. The interview will only take about 15 minutes. Thank you for your participation.

Project appraisal practices and the performance of commercial office space in Nairobi City County, Kenya

1. For how many years have you practiced as an estate agent in Nairobi County?
2. Do you normally carry out a financial appraisal in analyzing commercial office projects?
3. To what extent do you use financial appraisal in determining the viability of a commercial office project?
4. How does financial appraisal influence the performance of commercial office projects in Nairobi County?
5. Do you normally carry out a market appraisal in analyzing commercial office projects?
6. To what extent do you use market appraisal in determining the viability of a commercial office project?
7. How does market appraisal influence the performance of commercial office projects in Nairobi County?
8. Do you normally carry out a technical appraisal in analyzing commercial office projects?
9. To what extent do you use technical appraisal in determining the viability of a commercial office project?
10. How does technical appraisal influence the performance of commercial office projects in Nairobi County?
11. Do you normally carry out economic appraisal in analyzing commercial office projects?

12. To what extent do you use economic appraisal in determining the viability of a commercial office project?
13. How does economic appraisal influence the performance of commercial office projects in Nairobi County?
14. To what extent do you use (jointly) financial, market, technical and economic appraisals in determining the viability of a commercial office space?
15. How do these appraisals jointly influence the performance of commercial office projects in Nairobi County?

**THANK YOU FOR SPARING YOUR TIME TO FILL OUT THIS QUESTIONNAIRE
AND THE INTERVIEW GUIDE.**

APPENDIX V: The supply of new buildings per location in Nairobi City County, 2020

Major office developments in 2020			
S/No	Office development	Location	Size
1	Millennium Business Park	Lang'ata	23,000
2	Templeton House	Westlands	33,132
3	Majani House	CBD	54551
4	Capital Square	Westlands	101,000
5	Delta Chambers	Westlands	132,979
6	Upperhill Chambers	Upperhill	270,000
7	Central Bank Pension Building	CBD	180,000

Source: Cytonn Real Estate, (2021)

