



**A RISK MANAGEMENT MODEL FOR COMMERCIAL PROPERTY
DEVELOPMENT AND INVESTMENT IN GHANA**

RK ASIANOAH

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**A RISK MANAGEMENT MODEL FOR COMMERCIAL PROPERTY
DEVELOPMENT AND INVESTMENT IN GHANA**

BY

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APRIL 2023

DECLARATION

I, Rexford Kofi Asianoah (student number s212469169), hereby declare that the thesis for the qualification to be awarded is my own work and that it has not previously been submitted for assessment or completion of any postgraduate qualification to another university or for another qualification.

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ABSTRACT

Commercial property development and investment provide many benefits to individuals and governments around the globe; these include the generation of income for investors, employment, tax revenues, and contributions to a country's GDP. Yet commercial property development and investment projects involve construction, economic and management risks. A lack of effective risk assessment and management tools may lead to developers and investors incurring losses. To curtail such losses, this study sought to create a credible management model that can be used to assess and manage risks in Ghana's commercial property development and investment industry. An extensive literature review was done, covering all 12 identified study constructs: real estate trends and cycle, construction project management, outside advice/mentorship, spatial development, strategic factors, business management skills, PMBOK, PESTEL analysis, general management skills, governance structures, financial feasibility, professional feasibility, and risk management. Each construct was defined and operationalised. A positivistic philosophical approach was used, and quantitative approach was used to solicit data from the main respondents through the distribution of questionnaires to the target population sample. CB-SEM and SPSS version 24 were used to analyse data, SEM to test the positive relationships hypothesised between the identified variables and SPSS to analyse the demographic data. The major findings are that there is a lack of financial and professional feasibility analysis among respondents along the following factors: the PMBOK, real estate trends and cycles, general management, business management, strategic factors, spatial development, and PESTEL analysis. It was found that these factors have positive and favourable influences on CPDI projects. The study recommends that developers and investors do financial and professional feasibility studies before they embark on projects. This could improve project viability in commercial property development and investment. The study has contributed to the body of knowledge in CPDI sector by developing a new risk assessment/risk management model.

Keywords: commercial property development, investment, risk management.

DEDICATION

This study is dedicated to:

- My grandmother, the late Obaapanin Yaa Ahenkan Grace Peters, for her great empathy and motivation during my junior and secondary school education. Nana, I wish you were alive to witness this. May the Lord God bless you.
- The commercial property developers, investors and consultants in Ghana, especially the study respondents, for their assistance.

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LIST OF ACRONYMS

BIM:	Building Information Modeling
CPDI:	Commercial Property Development and Investment
CP:	Commercial Property
DCF:	Discount Cash Flow
CB:	Covariance-Based
CR:	Critical Ratio
CRE:	Commercial Real Estate
CM:	Complex Mortgage
CMs:	Construction Managers
EFA:	Exploratory Factor Analysis
FM:	Facility Management
GDP:	Gross Domestic Product
GREDA:	Ghana Real Estate Developers Association
GhIS:	Ghana Institution of Surveyors
HBU:	Highest and Best Use
HRM:	Human Resource Management
IRR:	Internal Rate of Returns
QM:	Quality Management
QSS:	Quantity Surveyors
NPV:	Net Present Value
PCA:	Principal Component Analysis
PCM:	Project Cost Management
PP:	Payback Period
PSM:	Project Scope Management
PMBOK:	Project Management Body of Knowledge
PESTEL:	Political Economic Social Technological Environment Legal
SEM:	Structural Equation Modeling
SPSS:	Statistical Package for the Social Sciences

CHAPTER ONE

ORIENTATION AND BACKGROUND OF THE RESEARCH

1.1 INTRODUCTION

Real estate investors continually seek to diversify their investment portfolios globally (Ling, Wang and Zhou, 2021: 295-296; Rogers and Koh, 2017: 1; Kauškale and Geipele, 2016: 49). Institutional and individual investors' views of real estate development and investment have significantly changed the global economy (Brounen and De Koning, 2014: 197-204; Caputo, 2013: 69). Benefits accruing from real estate investments constitute a large component of every country's macro-economic performance. For instance, Commercial Real Estate (CRE) sector's contributions to GDP in the U.S., UK, Germany and France ranged between 18% and 25% (Kongela, 2013: 35).

Botha (2013: 2-4) and Khan, Liew and Ghazali (2014: 502) found that property and construction are the most significant contributors to an economy's growth in terms of GDP and employment. Property development and investment performance is high in areas with effective and efficient infrastructural developments and structures. Examples of structures and infrastructural developments that promote Commercial Property Development and Investment (CPDI) are good governance structures, a stable economic climate, political stability and social amenities (Turcu, 2012: 121; Centre for Strategic and International Studies Report, 2011: 1).

Several reports such as the PricewaterhouseCoopers (PwC) Business and Investment (2018: 29-35) and the Cytonn Real Estate Report (2017: 14-17) indicated that there is a proportional correlation between property development and economic growth. Thirty-six economies that experienced a property development boom also showed improved aggregate economic performance (Crowe, Dell'Araccia, Igan and Rabanal, 2013: 300-304). Property development is crucial in emerging economies. For instance, property development and construction's contribution to Ghana's GDP increased from 10.8% in 2006 to 13.6% in 2011, and further surged to 17.8% in 2016, according to the Cytonn Real Estate Report (2017: 13-16). Kauškale and Geipele (2017: 507-509) found that Commercial Property (CP) development's economic significance and social importance are directly linked in a chain of

economic activities in construction, manufacturing, retail, professional services and other investments.

According to a 2017 PwC Real Estate Report (2017: 2), the real estate development megatrends in Africa are likely to change the industry landscape by 2023. Ghana is an African economy that has sought to encourage real estate development to boost its economic growth (PwC Report, 2018: 11; Kauškale and Geipele, 2017: 507-510; Kongela, 2013: 35-38).

The most common real estate development type that attracts the attention of both foreign and local investors in Ghana is CP development (Cytonn Real Estate Report, 2017: 25-28), owing to its ability to generate returns such as rentals over time. CP is generally defined as an income-producing property; it may also include residential properties purposely built for rentals. Further examples of CPs include shopping centres, office buildings, hotels, industrial parks and warehouses. Jinying and Jiawei (2011: 2) as well as Dauda (2017: 61-68) found that CPDI plays a significant role in economic development.

However, real estate developers in Ghana also face other challenges, including land regimes challenges, high cost of construction materials, and high financing costs (Mintah, Higgins and Callanan, 2018: 134-137; Cytonn Real Estate Report, 2017: 15-16). Major Banks in Ghana lend at interest rates as high as 30% to 35% (Property Now Magazine, 2016: 11). All these challenges are critical risks that counteract the sector's growth. Loizou and French (2012: 198-201) found that property development and investment risks include financing costs, land costs, time delays, construction costs, low rentals and other socio-economic issues.

Globally, the Covid-19 pandemic has also presented a temporal threat to the CPDI industry (Nuredini, 2020: 54-55), as it has shrunk the economy, creating high vacancies in hotels, office blocks and shopping malls. This has crippled the CRE industry (Ofori, Frimpong, Babah and Mensah, 2020: 40-41). However, the industry is expected to perform better as the infection rate is gradually declining owing to the observation of safety protocols (Alsharef, Banerjee, Uddin, Albert and Jaselskis, 2021: 1559) and vaccine roll-outs.

A primary driver of CPDI in Ghana is the 2007 discovery of oil and the country's continued political stability over the years (Ghana PwC Report, 2018: 11). However,

the real estate industry's potential was overestimated, leading to poor fiscal policies (Cytonn Real Estate Report, 2017: 14-16). This has burdened the economy, leading to a steep decline in the residential property and CP sectors in Ghana (Cytonn Real Estate Report, 2017: 14-16). Property investors in Ghana face challenges that require the allocation of scarce resources such as capital (Nkyi and Dinye, 2013: 35-38).

Given the above-mentioned, a view could be taken that the uncertainties surrounding revenue generation through property sales, rentals and capital growth are vital aspects, since they impact on investment profitability (Enz and Thompson, 2013: 6-8). Caution is especially important in property investment owing to its long-term horizon and capital-intensiveness. However, statistics indicate that the property market in Asia, for instance, has drawn more interest from investors seeking investment opportunities that offer risks and rewards, since property lies between more risky and the less risky investment segments (Thorsson, Lindberg, Björklund, Holmer and Rayner, 2011: 324; Lin and Lee, 2008: 352). Investment in CP is high-risk and has a long cycle, which demands that investors research carefully to mitigate the involved risks (Demong, Lu and Hussain, 2012: 608).

Risk can be defined as the chance of not obtaining what is expected from an investment. Zainudeen and Jeyamathan (2010: 33-34) defined risk management as the identification, evaluation, monitoring and reduction of the high economic costs of hazard, which threatens an organisation's assets and earnings. Risks pertaining to CPDI are defined as the level at which the investment outcomes diverge from the expected results, with the extent of divergence indicating an investment's volatility (Ibiyemi and Tella, 2013: 35). This happens when rental revenues and property sales are much lower than the expected value.

Some factors, including future demand and uncertainties, are critical in property development and investment (Wiegelmann, 2012: 25). A number of risks affect CPDI. Botha (2013: 258) mentions that the primary risks that affect property development are political, financial, construction, legal, time delays, interest rate, liquidity, business and costs. These cause property development and investment failures. Economic risks relate to market demands, revenue expectations and

vacancies (Ibiyemi and Tella, 2013: 32-35). Risks and uncertainties occur in all property development projects (Khumpaisal and Chen, 2010: 103-106).

Many authors – including Gunduz and Yahya (2018: 67-72) and Fisher (2005:158-161) – emphasise that risks occur in every business, and that risk-taking is imperative for the generation of returns in economic activities. Sources indicate that risk factors have an inverse link to the demand for and supply of a commodity (Aduda and Gitonga, 2011: 934-936). Activities and services resulting from having a negative effect on the generated income and expenditure could also be described as economic risks. Botha (2013: 38) supports the notion that a produced commodity such as a business property development provides a flow of benefits, including the provision of accommodation for revenue generation and capital value appreciation.

Land is a key factor of production, and plays a central role in property development decision-making processes. Again, land use planning influences how cities grow and develop (Sustainable Development of South Africa Built Environment Report, 2012: 15; 2013: 14). Over the past decade, the demand for land resources has dramatically changed owing to changes in population size and income in relation to the growth rates of economic activities (Adendorff, 2011a). On the other hand, gathering information on the local conditions – which is often built through references – is paramount in establishing the spatial development distributions in cities (Rogers and Koh, 2017: 9-10).

Owing to seasons, investment variability in CPDI has diverse implications (Agboola, 2015: 412-417; Devaney and Scofield, 2015: 362). The season to acquire property and dispose of it is a critical decision investors must make owing to property's illiquidity (Agboola and Scofield, 2018: 412-417). However, Botha (2013: 282-285) believes that creative property developers can often satisfy an unmet demand and can thereby reap the economic benefits of a short-term monopoly, regardless of specific strategies. In other words, time to initiate, develop and run CPDI should match the demand trend for the identified location (Lerner *et al.*, 2014: 156; Costello and Preller, 2010: 174).

According to Adendorff (2011b), when a researcher analyses the future returns of an investment, he or she must look 20, 25 and 40 years ahead. The occupational demand impacts would be a result of the credit crunch, along with the economic

influences of actual variables (Adendorff, 2011b; Machiko, 2009: 4). Such variables include business operation performance, employment, customers' occupations, and the demand for CP. Interactions that emerge between such variables determine property income rental levels.

Demand and supply variations in a market and the resulting income rental trends provide feedback on price as well as decisions on development and investment markets (Ellis, 2008: 351-354; Adendorff, 2011a). When market conditions are stabilised, with increased certainty in the space demand-supply interplay, this reduces the real risk (Botha, Adendorff and Smallwood, 2014: 1012-1014). Changes in any market factors are expected to bring positive, neutral or negative performance to the property market in a spatial setting (Adebayo, Greenhalgh and Muldoon-Smith, 2019: 156). A directional change in population trend information helps one to assess the economic risks of a potential CPDI.

CPs such as shopping malls are used for retail activities. Retail operations remain a significant function in UK city centres (Adebayo, Greenhalgh and Muldoon-Smith, 2019: 158). Normally, the two main actors in retail are retailers and consumers. The transaction mode between consumers and retailers continues to change owing to technology advancement, institutional frameworks and other socio-economic factors (Adebayo *et al.*, 2019: 158-159). The retail property market performance indicators – such as vacancy rate, rental value and absorption rate – remain volatile (Vitalii and Lena, 2016: 143-146).

The zeal to invest in CP has surged in recent times, which calls for well-informed investment decisions by investors and developers (Vass, 2012: 10-11). CPDI in Ghana is no exception. The emerging property investment issues have needed efficient property development frameworks. Further, there has been a growing demand for more strategic and detailed risk management tools for property investment decisions (Gimpelevich, 2011: 117). Vass (2012: 14) called for such a detailed assessment tool due to the economic issues that have led many property development and investment projects to fail. In this light, Botha (2013: 122) argued that property development should balance people's economic, environmental and social needs.

This research seeks to assess risk factors that affect CP development and to develop a risk management model that can be used to measure CPDI projects in Ghana. The researcher examined and analysed major components that have relationships with the economic performance of CPDI, so as to develop a risk management model for CPDI projects. The proposed model may be used to assess and manage risks associated with CPDI projects in Ghana.

Some causes of construction development project failure may be linked to improper management practices such as poor working knowledge, inexperience, poor site management and ineffective communication (Yap and Shavarebi, 2019: 5-9). Maliene, Deveikis, Kirsten and Malys (2010: 35) stated that factors such as macro-economic, physical, institutional and neighbourhood play a key role in determining property value. External factors can influence property values, including economic, political and demographic trends as well as social factors (Hui and Lau, 2011: 485). Further, Botha *et al.* (2014: 1013) highlighted that the economic performance at both national and local levels directly influence property investment projects. Other internal factors – such as construction methodologies, which building finishes to use, and the maintenance approach – also significantly influence a property’s value.

On the other hand, project management is a key organisational capability in the building construction sector (Madter, Brookes, Bower and Hagan, 2012: 639). Botha *et al.* (2014: 92) pointed out that good governance forms part of sustainable property development. This implies that the above-mentioned causes and factors cannot be overlooked when developing a conceptual framework to assess economic risks (Liberati and Vacca, 2016: 115; Williamson, Enemark, Wallace and Rajabifard, 2010: 487) and risk management on CPDI.

..,Based on the above-mentioned literature, the researcher has adopted macro-economic, governance structures, project management and spatial development as the four pillars in setting the parameters for this research. Figure 1-1 shows the general conceptual research framework.

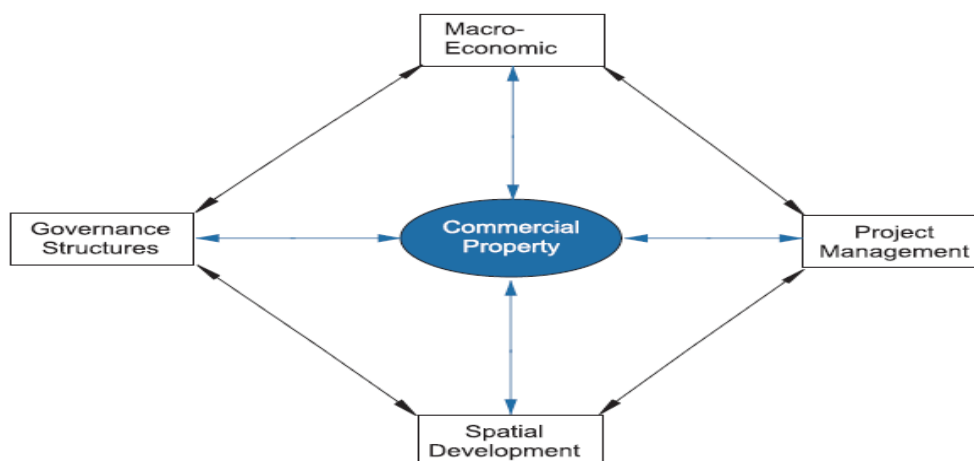


Figure 1-1 Research process flow rationale

The researcher has designed this general conceptual framework to provide a directional roadmap for the research and as a guide to showcase the extent to which data and references could be drawn for it.

1. 2 PROBLEM STATEMENT

The world economy has been undergoing a continuous series of strains and stresses in the current wave of globalisation (Christensen, 2017: 590; Machiko, 2009: 4). According to Christensen (2017: 590), the global financial crisis that led to the credit crunch brought about a loss of confidence in U.S. financiers owing to the mortgage liquidity crisis. The spill-over effects led to the global economic recession in (and since) 2007/8. This global economic downturn had significant negative impacts on properties, which increased vacancy rates, rent reductions, and reductions in capital values on retail consumption (Adebayo, Greenhalgh and Muldoon-Smith, 2019: 155).

Botha (2013: 10) asserted that property development projects sometimes do not achieve their anticipated results. The reasons could be a lack of adequate risk assessment by developers and investors throughout the development cycle. A lack of adequate, locally-friendly risk assessment and risk management measures by developers and investors measures could prevent them from achieving their investment objectives (Belás *et al.*, 2015: 47; Arias and Stern, 2011: 62-64).

Generally, owing to property investments' complexity and long-term return characteristics, investor-developers have risks in their operations (Mintah, Higgings and Callanan, 2018: 133-135). Based on the above-mentioned assertions, effective risk assessment and risk management measures are critical. Authors such as Belás *et al.* (2015: 47) as well as Khumpoisa and Chen (2010: 105-108) emphasised the need to develop a risk management model to manage every real estate investment.

This means that there should be extensive discussions to identify and address the risks that affect CRE development projects (Arias and Stern, 2011: 65-68). However, although Kobayashi, Takara, Sano, Tsumori and Sekii (2016: 145-136) proposed that a risk management model be developed for CP developers, this area has been largely overlooked and ignored by many researchers and commentators (Thilini and Wickramaarachchi, 2019: 429-433).

Risk management models such as continuous-risk management (CRM) and risk-based-correction-action (RBCA) have been designed to manage risks, so as to improve project management practices in various fields (Irizar and Borao, 2019: 25; Mullaly, 2014: 170-172; Kaur and Kaur, 2014: 27-28). These are presumed as universal project management risk models. While these models are generally valuable in certain industries, no model has been specifically developed to manage risks in Ghana's CPDI industry.

In spite of property development's structural significance, the academic research is limited concerning articulating a viable risk assessment and management model that could be suitable for CPDI projects in Ghana's real estate landscape. This means that the gap between practice and theory is risk assessment vis-à-vis risk management (Gimpelevich, 2011: 117). For instance, Liberati and Vacca (2016: 115) suggested a systematic risk management approach for effective commercial development, while Fowler (2014: 35) stated that risk control measures help to eliminate, prevent and reduce the likelihood of negative consequences occurring in property development projects.

The literature on CP development addresses several investment decisions, particularly on market analysis (Vass, 2012: 13-14) and general risk management in construction projects (Teller *et al.*, 2014: 68; Petit, 2012: 539-543; Koul *et al.*, 2018: 1722). However, Thilini and Wickramaarachchi (2019: 431-436) as well as Wiegmann (2012: 18) found very few studies on CRE risk management.

The researcher's observations as a professional property consultant have also confirmed that some CPs developed from 2012 to 2018 by CP developers and investors in Accra, Kumasi and elsewhere in Ghana have failed to achieve their projected economic benefits. This may be due to the lack of tenants, customers to patronise, and buyers for these properties.

The baseline problem is a lack of risk assessment and risk management for CPDI projects, which has led some CP investments to fail (Poku and Kissi, 2021: 2).

The research addresses this gap by developing a credible risk management model for CPDI projects in Ghana, thereby identifying and analysing risk variables that affect CRE industry throughout the development stages, such as planning, acquisition, construction, management and redevelopment stages. The research

also expects to provide insights on management measures to address the identified risk factors. The proposed model may be used by CP developers and investors in Ghana to assess, mitigate and manage risks associated with CPDI projects. We should not overlook the risks inherent in property development (Mintah *et al.*, 2017: 134).

1. 3 CONTRIBUTIONS TO KNOWLEDGE

Ghana's CPDI sector is growing and is making significant contributions to the economy, such as creating employment (Cytonn Real Estate Report, 2017: 13-14). CP investment is a complex type of investment that directly relates to a country's macro-economic development (Khan *et al.*, 2014: 502; Ibiyemi and Tella, 2013: 32-35). It is crucial to create a healthy, stable property market, because this will improve the investor attractiveness level. Nonetheless, in most developing countries, property investors and developers have failed to achieve success in their investments (Boamah, 2014), because the sector is exposed to many risk factors such as macro-economic risks, governance structure risks, and construction project management risks (Mintah, Higgings and Callianan, 2018: 133; Bennett and Dearden, 2014: 96; Arias and Ster, 2011: 63). These risk factors' effects work against CP developers and investors achieving their investment objectives.

Koul, Rai and Ahuja (2018: 1723-1724) as well as Chen and Khumpaisal (2009: 249-250) posited that there is a need for an idealistic risk assessment model to analyse the impacts of risks on real estate investments. Modelling uncertainties in risk assessment and risk management are key components of decision-making processes (Arunraj, Mandal and Maiti, 2013: 243).

This study sought to develop an innovative and credible risk management model that can be used to manage the risks that affect CPDI projects in Ghana. Using the model may help CP developers and investors to employ effective risk assessment and risk management measures in their operations. Fowler (2014: 35-38) agreed that using an effective risk management model could help reduce losses.

Since the study findings are intended to provide insights into the key risk factors that influence CPDI projects, the findings could increase awareness of the risks faced by CP developers and investors. The study is expected to contribute to the CPDI body

of knowledge and also to provide deeper understanding to risk management as far as CP development is concerned

The research would demonstrate how knowledge from various fields such as macro-economic factors, governance structures, and construction project management could be integrated, to solve risk management challenges in CP development. It could also create a new growth path for other researchers to further investigate the risks faced by property developers and investors in other emerging economies. In practice, CP developers, investors and other property professionals and advisors would find the research results to be useful guides for property development and investment decisions. Further, the results could be applied and used in other developing countries with similar socio-economic characteristics to Ghana.

1. 4 AIM AND OBJECTIVES

The research seeks to develop a risk assessment/risk management model that may be used by CP developers and investors in Ghana to manage CPDI projects. The research objectives have been categorised into primary and secondary, so as to guide the researcher in achieving the research aim.

1. 4.1 Primary objectives

The primary objectives were to identify factors that influence CPDI projects' viability and to develop a model for assessing and managing CPDI projects' risks.

1. 4.2 Secondary objectives

To achieve these primary objectives, six secondary objectives were set:

- to identify factors that influence financial feasibility and practical viability considerations in CPDI projects;
- to identify factors that are necessary for professional feasibility and viability reporting for CPDI projects;
- to analyse the best practices that have significant relationships with risk management strategies in CPDI;
- to find out the business skills and strategies that property development managers usually employ when managing risks;

- to investigate some existing risk management models used by CPDI professionals when assessing and managing risks; and
- to develop a theoretical model that may be used to conduct risk assessment and risk management for CPDI projects.

1. 5 RESEARCH QUESTIONS

Research questions seek to guide researchers to conduct effective and efficient research. Six investigative questions drive this research:

- What are the factors that may influence CPDI's viability?
- Which available business skills and strategies could development managers use in attempts to manage risks throughout the development cycle?
- Which governance structures contribute to CPDI project risks?
- Which existing related risk assessment and risk management models do CP developers and investors use to evaluate CPDI projects?
- Which practices could CP developers use to manage risks in CPDI projects?
- What synergies exist between risk assessment and risk management vis-à-vis the perceived success for CPDI?

1. 6 HYPOTHESES

To address the research objectives, 23 hypotheses (H_1 to H_{23}) were formulated for testing:

H_1 : There is a positive relationship between real estate trends/cycles and financial feasibility/practical viability considerations.

H_2 : There is a positive relationship between real estate trends/cycles and professional feasibility/viability reporting.

H_3 : There is a positive relationship between PESTEL analysis and financial feasibility/practical viability considerations.

H_4 : There is a positive relationship between PESTEL analysis and professional feasibility/viability reporting.

H_5 : There is a positive relationship between good governance structural factors and financial feasibility/practical viability considerations.

H_6 : There is a positive relationship between good governance structural factors and professional feasibility/viability reporting.

- H₇**: There is a positive relationship between outside advice/mentoring and financial feasibility/practical viability considerations.
- H₈**: There is a positive relationship between outside advice/mentoring and professional feasibility/viability reporting.
- H₉**: There is a positive relationship between spatial development analysis and financial feasibility/practical viability considerations.
- H₁₀**: There is a positive relationship between spatial development analysis and professional feasibility/viability reporting.
- H₁₁**: There is a positive relationship between strategic factors and financial feasibility/practical viability considerations.
- H₁₂**: There is a positive relationship between strategic factors and professional feasibility/viability reporting.
- H₁₃**: There is a positive relationship between business skills acquisition and financial feasibility/practical viability considerations.
- H₁₄**: There is a positive relationship between business skills acquisition and professional feasibility/viability reporting.
- H₁₅**: There is a positive relationship between the acquisition of general management skills and financial feasibility/practical viability considerations.
- H₁₆**: There is a positive relationship between the acquisition of general management skills and professional feasibility/viability reporting.
- H₁₇**: There is a positive relationship between the application of PMBOK and financial feasibility/practical viability considerations.
- H₁₈**: There is a positive relationship between the application of PMBOK and professional feasibility/viability reporting.
- H₁₉**: There is a positive relationship between effective construction project management delivery and financial feasibility/practical viability considerations.
- H₂₀**: There is a positive relationship between effective construction project management delivery and professional feasibility/viability reporting.
- H₂₁**: There is a positive relationship between financial feasibility/practical viability considerations and professional feasibility/viability reporting.
- H₂₂**: There is a positive relationship between financial feasibility/practical viability considerations and perceived successful risk assessment/risk management for CPDI projects.

H₂₃: There is a positive relationship between professional feasibility/viability reporting and perceived successful risk assessment/risk management for CPDI projects.

These hypothesised relationships are represented in Figure 1-2.

The hypothetical relationships stated above are represented in a chart representation (Figure 1-2).

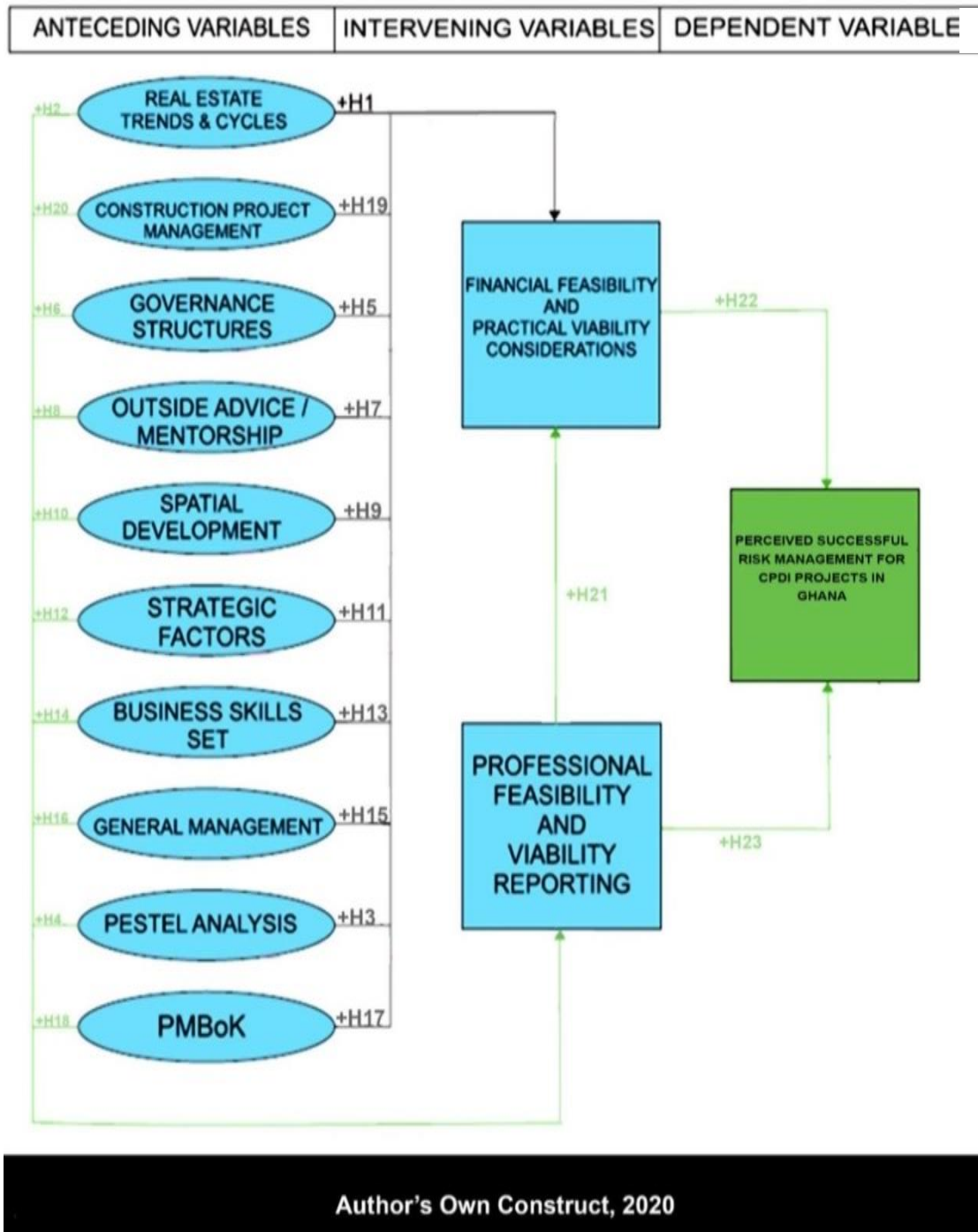


Figure 1-2 Conceptual Model of Perceived Successful Risk management for CPDI Projects.

1. 7 RESEARCH DESIGN AND METHODOLOGY

Research methodology is how a research study is designed to outline the procedures by which data can be collected and analysed to acquire new knowledge and understanding about a phenomenon (Rahi, 2017: 1-3). There are many research philosophies one may adopt when conducting research. These include but are not limited to positivism, realism, interpretivism, postmodernism and pragmatism (Saunders, Lewis, Thornhill and Bristow, 2015: 135). Amaratunga, Baldry, Sarshar and Newton (2002: 17-31) consider the positivism approach to be an effective and efficient approach to steer scientific research. The positivism approach links to the uses of quantitative and experimental methods where hypotheses and causal relationships can be formulated. This approach provides unambiguous and accurate data that may be free from bias, according to Saunders *et al.* (2015: 136).

However, Gummesson (2003: 483) stated that the discussion of interpretivism is closely connected to qualitative methodology. Richards and Morse (2012: 23) further noted that the selection of a qualitative approach can be based on the research questions and the purpose, rather than any researcher preference. From the above-mentioned explanations, it can be deduced that a research design should not be chosen in isolation. Rather, one should consider the nature and purpose of the research at hand. The positivist philosophy approach may be adopted for this research. Examples of research designs include quasi-experiments, experiments, case studies and surveys. Data collection methods include a questionnaire survey and focus group discussion (Grim, Gromis and Harmon, 2006: 516). Almalki (2016: 288-291) posited that understanding the thoroughness and reliability of research methodology is important when gathering data. On the other hand, data gathering must meet the benchmark appropriateness concerning reliability and validity, according to Davidov *et al.* (2014: 56) and Heaton (2008: 34).

Quantitative research starts by identifying an issue of interest, narrowing it into specific questions to be addressed in the research, carefully reviewing literatures, and developing hypotheses that perhaps come from social science theories (Choy, 2014: 99; Neuman, 2014: 14). Further, according to Creswell and Creswell (2017), quantitative methodology tests the object theory by explaining the relationships between the chosen constructs.

A quantitative approach will allow for the development of constructs and provides prospects to evaluate study topics that have a lower response rate or in certain situations where traditional data sourcing is challenging (Williams and Shepherd, 2017: 269-271). According to Brewer and Hunter (2006: 15), quantitative method provides firmer empirical base results and juxtapose the theoretical scope for research problems.

In achieving the objectives of this research, a quantitative approach was adopted based on the topic. A quantitative approach was adopted as the main methodology to collect large volumes of data from the respondents (directors and managers working in the real estate development organisations) using a questionnaire survey with both open and close-ended questions.

However a pilot study was conducted by inviting some selected property investment advisors and property developers at the initial stage to interview. This helped the researcher gain in-depth knowledge about the research from field professionals to deepen his understanding of finding solutions. The researcher was also able to gather cross-referencing data in addition to a literature review to update the conceptual framework and the questionnaire survey.

1. 7.1 Population and sample size

The target population consists of directors and managers in various property development organisations in Ghana. The managers include construction managers, project managers, facility/property managers, project coordinators and project supervisors.

Based on the list of 250 organisations received from GREDA's head office in Accra, this population comprises around 500 respondents, based on the assumption that every institution has at least two directors/managers.

Drawing up a sample size from the target population was critical, since it can influence the confidence in the research. According to Antonellis and Berry (2017: 46), a sample size between 300 and 500 at 5% confidence level may be appropriate for research studies. Krejcie and Morgan's sampling table indicated that a population of 500 should have a sample size of 201, while Neuman (2014: 15) and Choy (2014:

99-104) argued that a population of 550 should have a sample size of 226 in order to achieve a true reflection of the data.

Based on Krejcie and Morgan's sampling table analysis, a sample size of around 201 (40.2% of the population size) is appropriate for the study population. This implies that 201 respondents were recruited for this study.

1.7.2 Measurement and administration of procedures

The questionnaire instrument was prepared based on the research objectives. It contained both closed and open-ended questions. The closed questions include five-point Likert-type scale statements, while the open-ended questions are as short as possible to save respondents time and to minimise ambiguities. The questionnaires were distributed to the respondents through random probability selection with the help of the registered list obtained from GREDA's head office.

In the pilot study period (the initial stage of the study), a mini-focus group discussion was organised to collect data from a few selected property professionals through a conference call platform. This was recorded. As stated, the information received assisted the researcher in amending the proposed conceptual framework to reshape the study focus. It also provided room for additions to the questionnaire survey prepared for the study.

High levels of reliability, validity and accuracy in the data collection were ensured during the data collection process.

The researcher followed NMU's ethical research principles in conducting this research to prevent any legal, human, environmental, social and economic damage that may have emerged in the course of this research.

Covid-19 safety protocols were strictly adhered to during the data collection.

1.7.3 Statistical data analysis

Statistical tools help researchers to interpret the information received from the respondents. The factors to consider in choosing appropriate tools include the nature of the data and the research questions (Rahi, 2017: 1-3). Against this backdrop, the data from the answers to the questionnaires were analysed using descriptive statistics (frequencies with percentages and mean scores with standard deviation),

EFA and SEM, specifically using CB-SEM. SPSS version 24 was used to analyse the demographic data, reliability test (Cronbach's alpha and EFA, while Amos 28 was used to estimate the CB-SEM.

SEM generally has been found over the years to be one of the most powerful, advanced and popular statistical tools to analyse scientific and social science research data in the areas of engineering and economics (Thirupathi and Vinodh, 2016: 6663-6664; Dragan and Topolšek, 2014: 1). SEM also equips a researcher to comprehensively assess the identified variables in an attempt to establish their relationships and influences on the perceived dependent variable (Botha, 2013: 20; Hair, Sarstedt, Ringle and Mena, 2012: 415-418; Anderson and Gerbing, 1988: 411).

Based on the above, using SEM to analyse the variables shown in Figure 1-3 as a proposed conceptual framework was a good fit. SEM is important – as elaborated by Oke, Ogunsami and Ogunlana (2012: 90-93) as well as Hair, Ringle and Sarstedt (2012: 313-314) – because it holds benefits for an integrative function the programme, classification of the research hypotheses, and reliability of construct operationalisation.

Further, SEM has been proven to be a valuable tool for survey research, cross-sectional studies, and to test for hypotheses across groups and institutional contexts (Henseler, 2012: 402-404; Hair *et al.*, 2012: 4116). Other authors such as Sharma and Singh (2012:35) as well as Richter, Cepeda-Carrión, Roldán Salgueiro and Ringle (2016: 592-593) consider SEM to be an advanced and multivariate tool for the assessment of the multiple dependence relationships between measured and latent variables. These facts strengthened the researcher's intent to use SEM to analyse the quantitative data for this research.

1. 8 ETHICAL CONSIDERATIONS FOR THE RESEARCH

This research is conducted in conformity with the NMU's ethical research policy. NMU Policy 404.02 serves as guidelines to set ethical parameters within which the research is conducted, which helped the researcher to identify (non-)applicable practices concerning ethical considerations. The collaborators such as field data collectors and statisticians were asked to also follow this NMU research policy.

Adherence to this policy also helps to minimise the likelihood of legal, human and economic risks throughout the research process. In short, cultural respect, consent, and the respondents' confidential information were strictly protected. Measures were put in place to minimise conflicts of interest and subjectivity in the research process.

1. 8.1 Research ethics, validity and reliability

Ethics, validity and reliability are crucial when conducting research. Maintaining ethics in research is dependent on the researcher's attitude toward the respondents (Sutrisna, 2009: 56). The results' validity and reliability determine how credible research is. According to Leedy and Ormrod (2015: 101), high ethical research standards should be set to guide researchers. The researcher adhered to ethical standards, including seeking respondents' consent, respecting their right to privacy, protecting their confidentiality, and maintaining honesty in collecting and interpreting data.

According to Sutrisna (2009: 55-56), validity could be extended to whether the responders' responses are able to produce the expected outcomes and the level to which the findings can be interpreted beyond the research environment. Validity covers whether the methodologies, techniques and approaches adopted by the researcher are truthfully reflected in the measurement of the research questions raised from the problem statement. David and Sutton (2004: 173) asserted that validity is determined by how the sample representation signifies, how appropriate the sample size becomes, and how the findings are deduced.

This research was structured to conform to the above-mentioned ethical, validity and reliability standards. According to Yin (2013: 45), reliability usually guarantees the same results and same conclusions for research even if an independent researcher does the same research using the same equipment and procedures.

The research project was conducted in compliance with the NMU Code of Conduct regarding research ethics policy (Code of Conduct for Researchers at NMU, 2012; NMU Policy on Research Ethics), which identifies practices considered (un)ethical during research. It also helped to minimise likely legal, social and environmental issues during the research.

1. 9 SCOPE OF THE RESEARCH

This research was structured to cover risk factors that influence CPDI projects in Ghana. These include macro-economic factors, governance structures, spatial development and construction management factors. This helped the researcher to establish a holistic overview in drawing relevant data for this study.

The research further analyses some of the existing related risk management frameworks, including PESTEL. The PMBOK principle was also examined for the purpose of drawing relationships between the variables in each component of the framework. This helped determine the key components that could be used to develop a credible risk management model for CPDI projects. Using the model can ensure efficiency in Ghana's CRE industry.

The research regards feasibility and viability as key determinants in an attempt to develop a successful risk management model for CPDI projects. What follows is a brief description of feasibility and viability.

1.9.1 Feasibility

Feasibility describes the capability and suitability of a business idea and is an investigative tool (Lohrey, 2016). Georgakellos and Marcis (2009: 231-236) highlighted that business feasibility studies seek to objectively uncover the strengths and weaknesses of a business. It addresses opportunities and threats in the business environment. One should consider a business's historical background, product variables, accounting records, operation details, financial data, and legal and tax obligations when undertaking feasibility studies (Georgakellos and Marcis, 2009: 238). According to Botha (2013: 28), feasibility analysis is a fundamental stage in project implementation.

Nasir, Rahman, Eves and Yusof (2012: 35-52) proposed that there is economic feasibility when indications show that the market value of a project, upon completion, exceeds all the production costs. According to Poon and Brownlow (2014: 256-258), analysing the highest and best use of a development that is physically possible, legally permissible and financially feasible results in the highest value. Thus, the main focus area for feasibility is to discover whether there are enough demand and market opportunities for the proposed business.

Botha (2013: 28) further noted that property practitioners often do market research to establish the best location in an area, and that it is appropriate to test for alternative uses. Property practitioners are usually required to do feasibility studies before applying for a building permit (Botha, 2013: 28). This implies that feasibility is the initial step in the property development business (Velmurugan and Vijataraj, 2011: 347). Professionally, it can be suggested that developer-investors should limit risks by paying attention to the achievement of investment objectives and goals (Costello and Preller, 2010: 174-177). The planning stage of a development includes the evaluation of proprietary applications (Boyed, 2015: 179).

1.9.2 Viability

Botha (2013: 29) defined viability analysis as an in-depth investigation conducted on the profitability of a business idea that can be converted into a business entity. In short, viability analysis is the investigation of an existing or proposed business to verify whether it would be profitable and sustainable in the market. It is the first level of business planning. It is strongly advised to establish whether a business venture could be viable (Botha, 2013: 29).

Viability deals with economic measures and strategies that can make a business flourish and be sustainable. Viability studies in CP development are imperative, since the ultimate objective of developers and investors is to recoup substantial profit from their development. Economic dynamics usually affect the CRE industry. Conducting viability analysis for a potential property investment may be cumbersome (Kołodziejczyk, Mielcarz and Osiichuk, 2019: 301-304).

Every business venture requires initial viability study, to establish whether it could be profitable. Profit generation in CRE investment can be obtained when the anticipated income exceed production cost (Nasir, Rahman, Eves and Yusof, 2012: 35-52) over time. Viability studies seek to make better profitability projections to reach an informed decision regarding the likelihood of financial success for the development project (Boyed, 2015: 181). Botha (2013: 47) argues that, for a business idea to be viable, it must be marketable, manageable and sustainable. This can be achieved first by establishing who the customers are and what their needs are.

Viability studies address profitability assessment, which leads to the expected income cash flow. The outcomes of such calculations help the project initiator to establish whether the proposed project can be profitable over the medium and long terms. Financial viability is an economic exercise to create a stable income to expenditure ratio before the production process commences (Koleda and Oganisjana, 2015: 196). Real pricing is a method to provide adequate alternatives to assess project viability in terms of its economic value and to figure out a potential profit or loss (Hui and Lau, 2011: 22-24).

1.10 DELIMITATION OF THE RESEARCH

This research addresses and evaluates factors that influence CPDI projects' success and explores the development of a framework model for risk management from a conceptual perspective. The empirical investigation and data collection were limited to the CRE developers registered with GREDA, property consultants registered with the Ghana Institution of Surveyors (GhIS), and the property investment advisers with consulting firms in Ghana. This helped solicit the different views and approaches needed to propose and develop an actionable model.

The attempt to solicit participation from these professionals enhanced the researcher's aim of developing a risk management model for CPDI projects. Further, owing to the lack of studies on Ghana's CPDI risk assessment vis-à-vis CP risk management strategies, the researcher explored studies from macro-economics, construction project management best practices, the business management field, general risk management and other property development and management practices that relate to property assessment and risk management reporting standards.

1.11 ASSUMPTIONS OF THE RESEARCH

Assumptions are conditions that are considered as presumptions and are therefore taken as accurate with no proof (Leedy and Ormrod, 2015: 66). Stochastic assumption helps form research decisions (Salisbury and Feinberg, 2010: 1-3) and can be rebutted. Five assumptions provided direction for the research conceptualisation:

- macro-economic factors such as inflation rate and interest rate influence every country's CP development projects;
- best practices adopted by the CP development project team can serve as risk management strategies;
- best business skills and strategies adopted and used by the property development managers serve as tools in managing CPDI projects' risk;
- land issues in Ghana contribute to CP development projects' high costs. Thus land litigation and land grabbing due to the lack of proper land registration; and
- the respondents are well informed to provide correct and accurate feedback.

1.12 BRIEF LITERATURE REVIEW

Real estate investment plays a major role in every country's economic development. For instance, in 2015, the residential real estate sales alone contributed 7.28 trillion yuan to China's annual economic growth (Li, Ji, Guo and Chen, 2018: 2). Such improved economic growth enables a country to achieve major developmental goals (Kumo, 2012:5). According to a European Commission report (2010), countries need proper sanitation, a good transport system, energy efficiency and effective communication systems to develop and provide their populations with adequate living standards. The report indicates that Africa and other emerging economies are the key destinations property investors could consider investing in in the 21st century.

There is a growing demand for CP development in African countries, fuelled by the gradual GDP growth and increased democratisation (Kusiluka, Kongela and Schulte, 2017: 71-75; Africa Direct Property Development Fund Document Report, 2008: 8). Emerging economies are growing exponentially (Martin, 2012-2013). Economic activities affect the demand for CP (Oni, 2009: 17). Property investment is closely linked to the liquidity cycle dynamics that reflect monetary policy (Stringer, 2001: 430-433). More importantly, interest rates and inflation rates are the primary economic factors that influence property returns. Negative sensitivity indicates that property values decline in business cycle downturns (Peng, 2016: 555).

The Investment Property Fund (IPF) Research Programme Report (2011) outlined these economic outcomes in relation to property investment:

1. The best scenario for property investment is the high growth and low inflation associated with the constant expansion of non-inflation mechanisms.
2. A high inflation and low growth (stagflation) scenario is usually bad for property investment.
3. High GDP growth is usually beneficial to property investment, unless high growth is accompanied by competition for resources.
4. Property investment is preferred to equities if low inflation is expected.

According to Collins and Ghyoot (2012: 12), pride in ownership, a measure of control, capital security, leverages and inflation protector are characteristics of real estate investment.

Others state that CP development relates to the variation of macro-economic factors (Chan, 2011: 2). Evidence in the literature suggests the existence of positive relationships between infrastructure development and employment (Kumo, 2012: 7). Although real estate investment is characterised as a large lot size, visible, heterogeneous and illiquid asset class, it is typically circumscribed by legislation and government policies (Responsible Property Investment, 2009: 2). Investors should consider at least four primary investments attributes – safety, return rate, liquidity and duration – before taking a sound decision for investment (Ricciardi and Rice, 2014: 327-328).

Investors should consider the fundamental investment attributes that impact on a property's demand and supply factors prior to an investment. In the Knight Frank Citi-bank Report, Bailey (2012) stated that political and economic risks intertwine concerning the performance of prime residential property and CP markets. The economic costs of risks relate to both the losses and the cost of uncertainty, even if losses don't occur (Botha, 2013: 259).

A downturn in the property industry can occur owing to increased interest rates, cyclical movement in the CRE market, and depressed economic conditions, which normally result in lower property values (Taylor and Yardney, 2013). Social changes such as immigration shifts and a smaller household size turn prone properties into a severe economic risk in the locality. The most significant factors for property

developers to remember are the movement cycles in the market, which fundamentally drive boom and bust periods (Taylor and Yardney, 2013). In other words, property developers should turn on their economic antenna.

When an investment's future is uncertain, the decision to invest should first be assessed (Banzato, Canesi and D'Alpaos, 2017: 319). Risk management in the CRE industry is an important step to protect investors from monetary losses. Risks could affect every property development stage; for instance, the conceptual, project feasibility analysis, design, planning, bidding, tendering, construction, execution and hand-over stages (Khumpaisal and Chen, 2010: 109-111).

Risk management is the systematic process of evaluating potential risks associated with an investment and finding mechanisms to address them accordingly. According to Khumpaisal and Chen (2010: 110-112), there is a need for risk management techniques to evaluate property development projects. Investors and financial analysts require a more scientific approach to understand risk and volatility in real estate markets. Korah, Cobbinah and Nunbogu (2017: 361-362) as well as Nsibande and Boshoff (2017) have made many contributions toward understanding changes in the market performance and occupation of CRE.

The common approach by property valuers to reflect risk in property valuation is to increase the discount rate using the risk-adjusted discount factor approach (Ibiyemi and Tella, 2013: 38). The general rule is that the more risky an investment is, the greater its expected return should be. DCF analysis is a method used for real estate valuation (D'Amato and Anghel, 2012: 765-776). It has gained recognition in the past 50 years (Psunder and Cirman, 2011: 562). Growth in DCF use has been recorded in the UK (Klammer and Walker, 1984: 137-139).

Preliminary studies adopted the various strategies and developed models to explain the changes in the CRE market for many cities (Brunes, Hermansson, Song and Wilhelmsson, 2016: 4; Astbury and Thurstain-Goodwin, 2014: 301). Such studies provided insightful changes in retail property market variables. Models and theories that investors and analysts use to assess potential investment risks include the probability model (PM), discounted cash flow (DCF), and fuzzy logic theory (FLT).

According to Psunder and Cirman (2011: 562), the rapid spread of DCF methods is undoubtedly attributed to the development of technologies such as computers and

software. Regressed DCF seeks to show the mathematical relationships between inputs and outputs of DCF (D'Amato and Anghel, 2012: 765-776). The use of DCF to evaluate property investment and development projects produces figures for economic interpretations in simple terms.

1.13 COVID-19'S EFFECTS ON COMMERCIAL PROPERTY DEVELOPMENT AND INVESTMENT

Globally, Covid-19 has affected the real estate industry in many ways (Nuredini, 2020: 55). Statistics indicate that the pandemic has claimed 1,963,169 lives with 90,759,370 confirmed active cases worldwide; 2,210 137 confirmed cases have been reported for Africa alone, according to the Weekly Operational Update on Covid-19 as at 11 January 2021 (World Health Organisation Report, 2021: 1). The pandemic and lockdowns are causing disruption in almost all dimensions of human lives and is threatening humanity's existence (Kontis, Bennett, Rashid, Parks, Pearson-Stuttard, Guillot, Asaria, Zhou, Battaglini, Corsetti and McKee, 2020: 2-4). This has had devastating effects on many sectors of the economy, including CPDI. Economic commentators have projected Africa's growth in 2020 at 3.9%, lowered by 0.4%, which may adversely affect general growth in 2022 and after if proper measures are not put in place to address the menace (Lone and Ahmad, 2020: 25-28).

In fact, Covid-19 has created a unique environment (Lokhandwala and Gautam, 2020: 3) for the CRE industry. Many business ventures were closed or stunted, which has caused some CRE property tenants to struggle to pay their rent. This has trickled down into the non-payment of Commercial Real Estate Mortgage Securities (CREMSs) to financial institutions. Many CRE properties – such as restaurants, office buildings and stadiums – were temporarily closed (Ofori, Frimpong, Babah and Mensah, 2020: 39-40).

In Ghana, partial lockdowns and social distancing measures – including the temporary closure of hotels, shops and restaurants – sought to minimise the spread of the virus. This made CRE investors unable to get their revenues, owing to the high vacancy rates caused by the pandemic (Ofori, Frimpong, Babah and Mensah, 2020: 40-41). CRE owners and managers are concerned about how to keep the value from

dropping while facing Covid-19 safety requirements to ensure that facilities are safe and clean for users (Nuredini, 2020: 55).

Unfortunately, most of the pandemic relief policies introduced by Ghana's government were mainly for social intervention purposes, such as the provision of free six-month water bills and the halving of electricity bill payments for tenants, and excluded any subsidy or grant to support affected CP investors. In the U.S., the Coronavirus, Relief, and Economic Security Act (CARES Act; 116-136) tied many benefits to residential mortgage reliefs through federal government support (Lone and Ahmad, 2020: 8) in order to minimise the economic challenges the pandemic has brought to the real estate industry. Thus, Covid-19 has caused serious, never-dreamt-of risks for CRE industry investors.

Considering the other social challenges caused by the pandemic in our daily lives (Ofori *et al.*, 2020: 45), researchers should ensure safety precautions in research, including the data collection period. The researcher sought to adhere to Covid-19 safety protocols such as wearing masks, social distancing, keeping rooms well ventilated, and avoiding crowds during data collection, so as to avoid or minimise the virus's spread. Such protocols served to protect the researcher and the respondents.

1. 14 STRUCTURE OF THE RESEARCH

This research was structured into eight chapters:

Chapter one presented the research orientation by providing the background introduction, stating the problem, outlining research objectives and questions, and the hypothetical variables. A theoretical research framework and brief research design was developed. Further, it provided the limitations as the guiding principles for the research and outlined the chapters.

Chapter two reviews the literature on the assessment of factors that influence CP development projects' viability. It provides insights into both external and internal factors that influence the performance of property development and investment generally. It explores how such factors could pose risks to successful CPDI projects.

Chapter three serves as a follow-up a literature review on risk management models in commercial development projects. It includes the various professional practices

and strategic business management approaches that CP development teams could employ to minimise CPDI projects' risks.

Chapter four covers the operationalisation of conceptual variables of the research framework. It helps define all the conceptual variables necessary for the formulation of the research theory.

Chapter five elaborates on the research designs employed by the researcher to collect data, along with their justifications. Sampling techniques and procedures used to contact the target respondents are outlined, and sequential data analysis procedures are provided, to ensure validity and reliability.

Chapter six presents the data collected from the activities conducted in chapter five and analyses them chronologically to bring out details of results to show what happens in the CPDI industry based on the study constructs.

Chapter seven discusses findings and provides interpretations based on the study constructs.

Chapter eight presents a summary, conclusions and contributions of the study.

1.15 SUMMARY OF THE CHAPTER

This chapter has provided an overview over the research. It systematically described the general perspectives of the research by clearly providing a general introduction, defining the problem, and stating the research rationale, aim and objectives. Further, it presented hypotheses based on the research objectives and briefly explained the research design methodologies. Limitations and a brief literature review were provided. The research structure was outlined.

CHAPTER TWO

FACTORS THAT INFLUENCE COMMERCIAL PROPERTY DEVELOPMENT AND INVESTMENT VIABILITY

2.1 INTRODUCTION

While chapter one outlined the general insights of the introduction and orientation to the research, this chapter discusses the factors that influence commercial property development and investment viability. Viability assessment is a valuable prerequisite needed by the stakeholders – such as financiers, corporate partners and property developers – who are interested in committing resources to any project that may yield returns (Onuoha, Aliagha and Rahman, 2018: 814-819; Zavadskas, Vilutienė, Turskis and Šaparauskas, 2014: 114-117). A potential project is viable if the feasibility studies show that it could achieve a profitable return, to ensure the timely payment of interest and the principal investment amount (Delmon, 2017).

Macro-economics is the branch of economics that deals with the behaviours and performance of the whole economy (Asamoah, Adjasi and Alhassan, 2016: 612-615). Financial feasibilities analyse all the macro-economic indicators that influence property development and the investment sector generally. Aziz and Azmi (2017: 61-65) as well as Pillaiyan (2015: 67) note that GDP, interest rate (IR), inflation rate (IR) and money supply (MS) constitute macro-economic drivers. In other words, these drivers – together with other critical factors such as macro-economic stabilisation, economic equity distribution, quality of employment and the adequacy of living standards – are interrelated (Zmija, 2017).

Property development and investment projects are influenced by the economic fundamentals such as the supply and demand dynamics of the local market (Aziz and Azmi, 2017: 61-65; Pillaiyan, 2015: 119). Thus, an increase in property prices goes beyond what is sometimes expected, which may lead to a property bubble. When it eventually bursts, such a bubble results into a sharp drop in property prices (Pillaiyan, 2015: 119). This scenario was experienced in the U.S. housing market during the 2007 financial year; the spill-over of the bubble led to the 2008 global financial crisis.

On the other hand, governance structures and strategic decision-making processes are usually concentrated among exclusive groups, particularly in the corporate hierarchies of transnational corporations (Ebers and Oerlemans, 2016: 1491-1493; Cowling and Tomlinson, 2011: 831-852). Government bodies are mandated by law to formulate developmental policies and seek their implementation. Such structures may have detrimental effects on commercial real estate development and its growth. For instance, in every country, the National Building Regulations (NBRs) and Municipal Regulation Requirements (MRRs) in cities and townships development are the few legal structures that influence commercial property development activities.

Halbert, Henneberry and Mouzakis (2014: 421-424) asserted that efficient spatial development influences the competition between places and the processes concerning national and international urban regional development. In light of this, Aiken, Clifford and Ellis (2013: 208-214) argued that commercial property supply and its fundamental role in urban and regional development have for many decades received little attention owing to the lack of efficient regional development analysis.

Location and how commercial properties are built in regional settlements are important, because they influence profitability outcomes. According to Halbert *et al.* (2014: 421-422), the main factor that affects commercial or business properties is the rent relations to the development. In the property brokerage market, for instance, the potential for a property to yield good rentals is associated with its form, location and ability to meet the users' functional needs (Wang and Cao, 2019: 114-117; Halbert *et al.*, 2014: 421-422).

PESTEL analysis (political, economic, social, technological, environmental and legal factors) is a framework that is used to analyse the macro-environmental factors that affect business, including commercial property development and investment opportunities. According to Johnson *et al.* (2011: 50), PESTEL fully elaborates a comprehensive list of factors that influence the possible success or failure of business development. This implies that it can be used to examine the extent of viability of a potential commercial property development and investment.

Financial feasibility analysis refers to both market analysis and viability reporting; the two are sometimes differentiated and sometimes used interchangeably (Costello and Preller, 2010: 175), depending on the angle from which one looks at them. These

two analysis types overlap in practice, and their results indicate whether or not a potential project is viable. These analyses are referred to *project feasibility analysis* (Archibong and Ogunba, 2018). Market analysis is not only a report that considers the future economic prospects of a development, but also continually re-examines the possibilities and the likelihood of the property development process being affected (Archibong and Ogunba, 2018: 96; Costello and Preller, 2010: 175). A comprehensive financial feasibility analysis may be critical in making investment decisions.

This chapter covers the following subheadings: feasibility considerations on macro-economic factors, property governance structures, spatial land development, location and neighbourhood assessment, population and dynamic trend analysis, PESTEL analysis and viability reporting. These factors may influence commercial property development and investment projects in various ways. The discussion analyses these in some detail.

2.2 MACRO-ECONOMIC FACTORS INFLUENCING FEASIBILITY STUDIES

Macro-economic environment in Ghana was considered weak and unstable, and that it had a negative influence on the development of the housing market (Boamah, 2014:35). It is believed that the performance of the macro-economic factors has an influence on property development and investment projects. Economic growth occurs as a result of an increase in the number of goods and services produced in a country's economy for a given period (Cruzand and Sabillon, 2018: 469).

Ofori and Asumadu (2018: 29) suggested that the simplest definition for economic growth can be viewed as the increase in a country's GDP. Hence, the GDP is identified as one of the key factors in evaluating the economic growth of a particular country. However, there are other factors that play a major role in the macro-economic paradigm. These include living standards of the people and employment opportunities, and that economic stability increases investments and consumer consumption (D'alpaos and Canesi, 2014:370).

The strong connection between domestic economic growth and the global financial markets continues to generate interest among researchers, investment practitioners, and economic regulators on evaluating models for financial risk (Zmija, 2017: 2). A

continued process by researchers to investigate the phenomenon of financial and economic risk can be important in finding steps to curb risk associated with investment in general and property investment in particular.

The economic and financial conditions in a country are mostly determined by the monetary policies the Central Bank (CB) implements (Ahiabor, 2013: 83-85). The CB in Ghana is known as the Bank of Ghana (BoG). According to section 3 of the Banks and Specialised Deposit Taking Act (2016), the main role of the BoG is to supervise and regulate the activities of the rest of the Banks and other financial institutions within the jurisdiction of Ghana.

Muli (2013: 12) realised that the key factors which affect the growth of property development and investment in Kenya are GDP growth, interest rate, inflation and population growth. San Ong, (2013: 67) proclaimed that housing price, for example, can be determined by the macro-economic forces such as inflation, interest rate, GDP and the cost of construction. Factors such as irregular income levels, lack of risk management on infrastructure, and unstable economy are largely underpinned by erratic movements in inflation, interest rates, and exchange rates (CAHF, 2013). According to Ahmad, Rehman and Raof (2010:146-150), interest rate and foreign exchange rates are the major determinant factors in any economy. These factors can not be underestimated when it comes to property development and investment as affirmed by Muli (2013:12) and San Ong (2013: 67-72).

The discussion in this section provides a coherent analysis to evaluate some of the macro-economic factors that influence commercial property development and investment projects. The section further throws more light on how the identified macro-economic factor relationally poses an economic risk to the commercial property development industry. The identified macro-economic factors are as follows:

2.2.1 Inflation Rate and Dollarization

Inflation is measured as an annual rate of increase in the average level of commodity prices (Vermeulen, 2015: 1-2; Wilson 2006: 609-612). It yields the following outcomes in the economy; reduces the value of money and the monetary obligations for the future. According to Payne (2008:75) and Wilson (2006: 614-620), inflation uncertainty reduces the level of investment and economic activities and can also be

a primary factor influencing business cycles. Because commercial property development and investment are considered as a business class asset, inflation affects its operations.

The general increase of goods and services such as building materials and labour causes the prices of real estate products to increase (Amos, Gadzekpo, and Amankwah, 2015: 66-75). This poses a high price risk to real estate products in both medium and long term periods. Mmasi (2013:145) realised that inflation could lead to economic risk for potential property investment projects. Inflation could impact the nominal interest rates charged on a mortgage and the value of the mortgage payments (Boama, 2011: 13). This may expose lenders to risk, and that can affect the demand and supply of housing credit. Danlami (2020:29) established that there is a significant association between average inflation rate and exchange rate effect. This exists across regions and countries and the effect can be felt much through export and import transactions.

Pillaiyan (2015: 55) indicated that inflation is the main driver of house prices with special reference to several industrialised economies. Haji Togok, Isa and Zainuddin (2014:50-53) find a long term relationship between inflation and Malaysian house prices. However, Pillaiyan (2015) claimed that there is no significant relationship between inflation and the Malaysian house prices. The reason for these two different views could be that San Ong used Consumer Price Index (CPI) as a measure of inflation for his study.



Source: <https://tradingeconomics.com/ghana/inflation-cpi>

Figure 2-1: Ghana inflation Rate from January 2017 to October 2017

Figure 2-1 depicts how Ghana's inflation rates performed in Ghana in 2017. Inflation is influenced by many factors such as interest and exchange rate policies that the Central Banks apply and the money supply growth they strategise (Crowley, 2010: 92). In addition, other factors such as food prices, political certainty and industrialisation also contribute to how inflation can be managed locally. It is not hard to note that the 'come-back' inflation rate to minimum levels in June 2017, July 2017 and October 2017, as shown in Figure 2-1, coincided with a sharp increase in food production, energy stability and political stability in Ghana experienced at those periods (IMF Report, 2018:15).

The recent publication made by the Ghana Statistical Service (2020) on inflation performance is shown in Figure 2-2.

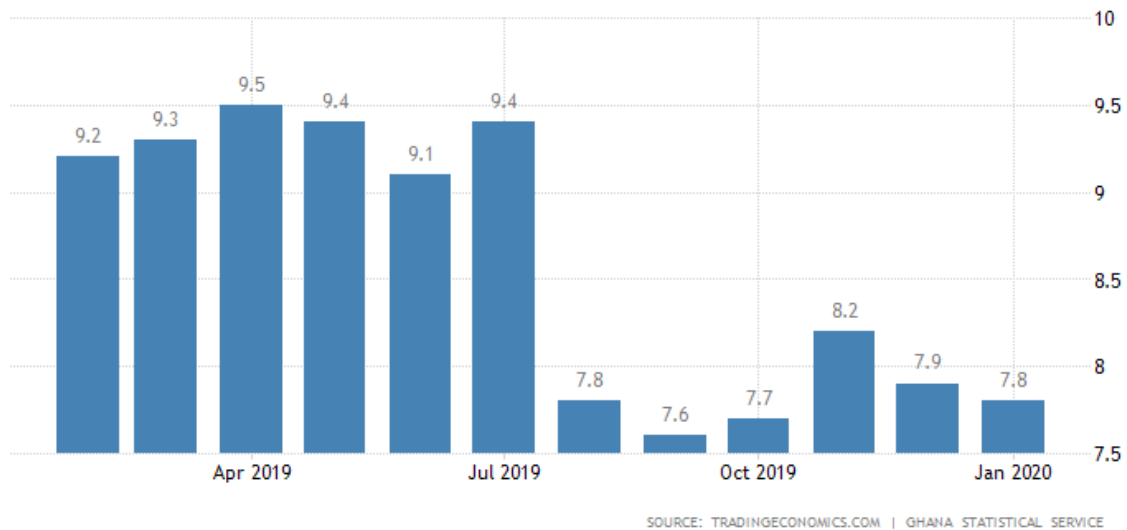


Figure 2-2: Ghana’s Inflation Rate from February 2019 to January 2020

The annual inflation rate in Ghana edged down to 7.8% in January 2020 from 7.9% in December 2019 aiming to maintain the stability of the cedi (Ghana’s currency), projecting the housing and utility industry to grow from 7.6% to 10.5% (Ghana Statistical Service Report, 2020: 5).

Inflationary trends in developing countries usually experiences structural rigidities, market imperfection and social tension in relation to inelasticity of resources such as food supply and exchange rate constraints (Olatunji, Omotesho, Ayinde and Ayinde, 2010: 14-18). This implies that when food prices soar, it is likely to affect other resources prices and, in effect, affect the price of factors of production such as labour and land. The cost of labour, land and building materials are critical components in the building development and construction industry (Owoo and Lambon-Quayefio, 2018) and, they can be drastically affected by inflation.

The reasonability in commercial property investment is that rents are driven by the general economic factors, including inflation and interest rates and that economic uncertainty can not be overlooked when assessing commercial property investment risks (Leung, 2010: 95-98). Rents charge on the retail property sector is often based on the turnover, whether explicitly in lease agreements and indirectly via the demand for retail tenancies (Vimpari, 2018: 32; Leung, 2010: 97-105). However in the developing countries like Ghana, such rental agreement on retail and office development is rare.

In an attempt to curb the challenges outlined above, some countries have decided to employ an inflation targeting strategy mechanism. For example, according to Harjes and Ricci (2010: 35-39), South Africa adopted an inflation targeting regime in 2000 and implemented it in 2002 with a target parameter within the low-moderate zone (thus from 3% to 6%). The regime served South Africa well. Other countries in Latin America and Eastern Europe succeeded in bringing inflation from triple-digit levels to single digits and maintained price stability from 2000 to 2005 by making good use of the inflation targeting mechanism concept (Crowley, 2010: 87).

Turkey's economy, for instance, experienced high inflation volatility for more than three decades without running into hyper-inflation because the Central Bank of Turkey adopted a free-fall exchange and inflation rate as economic policy tools (Berument and Dincer, 2008: 83-110). However, many African countries could employ such economic policy to boost their production operations. Ha, Kose and Ohnsorge (2019: 54) bring it to light that the global economy experienced a remarkable decline in inflation over the past four to five decades. They further argued that the decrease in inflation had lowered the median annual consumer price from a peak of 17% in 1974 to 1.7 % in 2015, respectively.

Although inflation is a serious threat to economic growth however countries that adopt an inflation targeting framework experience good economic performance (Cúrdia and Woodford, 2009), countries that adopted inflation targeting have resulted in the reduction of inflation rate and inflation expectations beyond the level that would have occurred in the absence of the policy framework. A critique on the inflation targeting framework by Vermeulen (2015: 1) shows that inflation targeting leads to slower economic growth and lower employment growth. The question is, will it be necessary for Ghana to adopt and implement an inflation targeting tool as its major device in addressing inflation challenges? The answer to the question raised is one of the areas this study endeavoured to cover.

Karadam and Özmen (2014:132-135) opined that exchange rate volatility is also one of the significant determinants of dollarization. The practicality of this significant determination is associated with the parallel increase in the extent of dollarization and exchange rate depreciation by deriving the long run currency ratio from an optimizing model. A study conducted by Lindenberg and Westermann (2012: 147-

166) support that exchange rate shocks are a decisive factor for dollarization. Subsequent studies on dollarization and inflation appear to be in duplication with similarity of results. However, Shi and Xu (2010: 109-121) find that the determining factor for firms' decision to dollarize is the exchange policy. Hence identifying the determinants of foreign currency holdings from utility maximization may draw similar conclusions in developing countries. Debt dollarization at a wider level is driven by the size and magnitude of firms' exposure to foreign competition (Fuentes, 2009:458-487). Raheem and Asongu (2018: 110-112) and Fuentes (2009:458-487) further indicate that the openness and size of the production sectors is a major factor for dollarization practises.

Karacal (2005), on the other hand, posits that weak institutional agency operations can also be considered as a source of dollarization. For instance, failing to institute, implement and monitor monetary and fiscal policies by the Central Bank (CB) could give a leeway to allow the growth of dollarization trade. As Yusuf and Abdurrahman (2009: 42-57) state that poor supervision of the local currency by the government could give way to the long run of dollarization trade. Caballero and Krishnamurthy (2004) view that debt dollarization in emerging economies is triggered by limited financial development. Bean, Broda, Itō and Kroszner (2015: 16-19) argues that if inflation and inflation expectations are at their desired rates and in the absence of cost shocks, keeping inflation target requires the CB to set a favourable policy rate so that aggregate demand would be equal to the natural level of output.

2.2.2 Interest Rate

Interest rate is defined as the price of borrowing money, and it plays a significant role in an economy (Ahmad, Rehman and Raof, 2010: 148-150). Generally, interest rate is the payment charged on the use of money as expressed in percentage for the amount borrowed. Thus, it signifies the cost of borrowing money. Muhammad, Lakhan, Zafar and Noman, (2013:91-99) allude that there are two types of interest rates; thus short-term and long-term interest rates. The variability of the two is a prominent characteristic in the economy (Eregba, 2010: 41).

Economic events, including domestic and international financial market crises, changes in prospects for long term growth, and inflation movements, cause changes

in interest rates response. Obamuyi (2009: 93) conducted a study on the relationship between interest rate and economic growth in Nigeria, and it was evident that lending rate has a significant effect on economic growth. The study suggested that investment-friendly interest rate policies are necessary to be instituted in order to encourage economic growth in Nigeria. The same study could be encouraged in Ghana's economy since the two countries shares similar economic challenges in West Africa.

Investment is a classical accumulation of resources in an attempt to yield returns in the future term. Kropp and Power (2016: 151-160) observe that the investment demand curve is always a backward-bending function of the interest rate in a model with non-convex adjustment costs. This may mean that an increase in the rule of return aggregate increases at low interest rates durations (Eregha, 2010: 41).

Many authors have done extensive work on the relationship between investment and interest rates. For example, Obamuyi (2009: 93) studied trends in the interest rate, investment and GDP growth in Romania's economy. The study opines that the behaviour of the national economy and the interest rate relative to the investment relationship converges. This section of the research explores how interest rates influence commercial property investment in developing economies.

Major monetary policies have changed after the 2008 financial crisis (Hahn, Keil, Wiegmann and Bienert, 2016: 118-119), affecting the real estate industry dynamics. The transmission of monetary policy impulse shows a calculated model to cater for general economic downturns (Abbassi, Fecht, Bräuning and Peydró, 2014: 57-59). However, interest rate interaction, credit demand, lack of possible alternative investments and the high liquidity in the market led to a boost in the property market (Hahn *et al.*, 2016). Cavallari and d'Addona (2013:2603-2610) suggest that the aggregate effect of interest rate volatility is an open proposition for empirical research. Interest rates in a broader perspective also influence commercial property development projects. Because the majority of the developers borrow money from the financial institutions, and pay back the loans with the prevailing interest rates.

Bank lending could influence the housing price through liquidity effects; the housing price is like the value of any property, and it can be calculated by using the discounted expected future stream for cash flows (Sang-Ong, 2013). Interest rate is

known as one of the classical elements to consider in using the discount cash flow model to determine asset value. For instance, the residential property market over the last decade in Malaysia has experienced a significant price expansion involving higher rates and most people, including property practitioners are wondering about such a high annual increase in house prices (San-Ong, 2013).

Dabale and Jagero (2013:42-47) declare that a high interest rate decreases returns on investment in the real sector and perpetuates trading in financial instruments. This suggests that property investors get affected when the interest rate begins to soar. Baldwin and Teulings (2014: 12-15) outlined and explained the negative significance of low real interest rates as follows;

One, if real rates become low in normal times, adverse macro-economic shocks are more likely to require negative real rates in an attempt to restore a full-employment investment and savings balance. Two, low real interest rates undermine financial stability since the action slows growth. The two facts above indicate that low real interest rates play a linch-pin role in the stagnation of interest rates.

Beyer and Wieland (2019: 1-7) reversionary mention the following channels through which low-interest rates can foster instability; they increase risk-taking by investors for yield; they promote irresponsible lending as coupon obligations, and make Ponzi financial structures more attractive. This means that any decline in the propensity to invest could also create downward pressure on the natural demand for and supply of money (Bean, Broda, Itō and Kroszner, 2015).

Leduc and Rudebusch (2014:65-69) pose a question on whether slower growth leads to lower interest rates, but their studies proved little evidence on such a link. Standard economic theory also emphasises that a slower growth pushes down the level of the natural rate of interest. The natural rate is also known as the neutral or equilibrium real interest rate, and it is the risk-free short-term interest rate adjustment for inflation (Orphanides and Williams, 2011). In addition, a decline in the natural rate of interest tends to lower other real and nominal interest rates in the economy (Leduc and Rudebusch, 2014).

The implication of interest rates on private investment was first recognised in an investment equation formulated by Shah and Ahmed (2002:807-810). He derived the desired stock of capital as a function of real output and the opportunity cost of

capital. The approach was known as the neoclassical approach, and the firms used it to maximize their present value for future cash flows. According to Mehrara and Sadr (2011: 12-18), the desired capital stock is directly related to output and inversely related to the cost of capital. Therefore, it can be deduced that the decrease in interest rate reduces the opportunity cost of capital, and that raises the desired capital stock and investment.

To deepen the understanding link between economic growth and the natural rate, it is essential to forecast all the various types of interest rates in an economy (Leduc and Rudebusch, 2014). Furthermore, forecasting the various interest rates available may help property developers and investors to make a better choice of interest rate they can borrow and tire their investment returns on.

Fry (1998) took the view that many developing countries' financial markets are highly unorganized, dependent on external financial grants and spatially fragmented. According to Donkor-Hyiaman and Owusu-Manu (2016), housing in Africa is usually financed on an informal basis, and it accounts for over 90% of acquisitions by self-help approaches of incremental steps. However, commercial property development is quite the opposite to that of low-cost housing development since more finance is needed for its implementation. This calls for borrowing from the affordable interest rate source to undertake commercial property development projects. Mensah and Okyere (2015) mention that interest rate is one of the macro-economic growth factors whose fluctuation movement; up and down volatility is closely linked with inflation rates. This makes it expensive to raise huge amounts of capital to undertake commercial property development projects in such situations.

Volatility in its normal sense breeds uncertainty (Aliyu, 2012:427). An unexpected increase in volatility in today's terms leads to the increased revision of future expected volatility due to risk premium, which further leads to discounting of future expected cash flows (Chou, 1988). Investors and other practitioners often perceive that volatility is a source of risk (Aliyu, 2012:427). For the property investor to minimise volatility risk, he has to conduct several enquiries among many Banks to find one with low borrowing interest rate and borrow from such source(s).

The real estate industry in Ghana is currently experiencing market saturation because there are many vacancies that have not been rented in the retail property

sector, and some of the residential flats purposely built for sale within the city of Accra are not sailing as expected. Property commentators attribute such a non-performance market to the high interest rates and high unemployment rate. These prohibitive reasons tend to create and magnify affordability problems (Donkor-Hyiaman and Owusu-Manu, 2016). Li (2014) argues that in any instance where there is a slow growth rate of real income and a substantial rise in interest rate, it could also cause housing values to fall.



Source: <https://tradingeconomics.com/ghana/inflation-cpi>

Figure 2-3: Ghana Interest Rate April 2019 to October 2019

Figure 2-3 shows how the interest rate performed from April to October 2019. Again, the downward interest rate trend indicates the economy is ready to support investments making borrowing risk level minimal.

De Francesco and Hartigan (2009) emphasised that risk rises with rising gearing levels and that risk-adjusted return falls with rising gearing. Moreover, the gearing risk phenomenon is influenced by the interdependency between ungeared returns and the cost of debt structure as well as interest rates (Reddy and Wong, 2018: 85-89). Generally, higher economic growth increases demand for commercial properties, improve occupancy rates and rental income. Hence rental yields and inflationary expectations may offset any increase in the cost of borrowings, flowing as higher distributions to investors (Reddy and Wong, 2018: 85-89).

Property assets cash flows are sensitive to movements in the discount rates (MacGregor, Nanthakumaran and Orr, 2012:123-126), and the interest rate influences the discount rate. According to MacGregor, Nanthakumaran and Orr, (2012: 126-129), when the net income paid to a landlord is equal to the net market rent, the property is said to be a 'fully let freehold'. Therefore, in determining any commercial property's return (profit or lose) from the mathematical formula perspective, the interest rate factor plays a key role. Bartram, Brown and Stulz (2012: 1359-1362) based his duration formula on the conventional equivalent yield model to derive an equation to capture the volatility of UK commercial property relative to the market index.

Changes in the discount rate result in changes in the property investment value, which which is an important consideration for institutional investors (MacGregor, Nanthakumaran and Orr, 2012: 126-129). Hamelink, MacGregor, Nanthakumaran and Orr (2002) found from their comparative equity and property duration study that convexity combined with duration gives a complete measure of the sensitivity of a property's value to the change in interest rates. In other words, one can proclaim that interest rate cannot be taken out from the equation when calculating for property yield.

In addressing interest rates challenges, changes in short term interest rates on US and Japan Real Estate Investment Trust (REIT) was examined by Su, Huang and Pai (2010:77-81), and it was evident that an increase and decrease in interest rates have limited influence on REIT prices. In Australia, for example, a study on REITs performance relative to changes in interest rates was conducted, and the results agreed the same. Another study conducted by Ratcliffe, Dimovski and Keneley (2017: 855-860) shows that REITs have a significant negative relationship with long term interest rates but an insignificant relationship with short term movements in interest rates.

Yong and Singh (2015: 77-82) assert that the negative impact of interest rate risk only affects REITs during stable and expanding market conditions. For the REIT sector, a low-interest rate environment means a low cost of debt, and it is driven by earnings which make the sector looks more attractive than stocks and bonds (Reddy

and Wong, 2018: 85-89). Such an environment encourages real estate investment due to the fact that the cost of borrowing becomes affordable.

The European Central Bank (ECB) adopts different measures to check the conventional monetary policy effectiveness in prime rate levels. The most common one is known as quantitative easing (Roth and Nowak-Lehmann, 2014:303-320; Hahn, Jang and Kim, 2017: 118-122). It aims to achieve lending stability and ensure economic growth (Pegkas, 2018:10; (Buckley, Clegg, Cross, Liu, Voss and Zheng, 2010: 81-88)). Property developers do not have control over lending rates; however they can do extensive search among the financial institutions to obtain modest borrowing. This can be achieved depending on the developer's financial knowledge and experience in the financial fraternity.

2.2.3 Foreign Exchange Rate

A foreign exchange is the rate at which one currency can be converted into another currency (Ahmad, Rehman and Raof, 2010:146-149). Interestingly, the capital flow has increased globally and has therefore increased Banks exposure to financial risks. Several studies indicate that Banks are exposed to exchange and interest rate movements (Adcock, Hua, Mazouz and Yin, 2017). The free-floating exchange rate system resulting from capital market liberalization makes emerging economies more susceptible to currency crises (Sung, Park and Park, 2014). Cady and Gonzalez-Garcia (2007) used exchange rate as the dependent variable in examining the determinants of volatility. An empirical analysis performed by Lanne and Vesala (2010) provides evidence that a transaction tax is positively related to volatility in foreign exchange markets.

Menkhoff *et al.* (2012) point out that the high returns from the currency speculation approach can be understood as an inter-temporal risk premium while short-term capital inflow leads to exchanging rate appreciation. High foreign exchange debt causes an increase in local currency risks and debt crises (Bordo *et al.*, 2012). Many economies, including Ghana, experience this challenge. The effect of this challenge, to a certain extent, causes the imported building materials prices to increase. This affects commercial property developers' budgets in both the short and long term. Upon this reason, the government of China abandoned its fixed exchange rate policy

and moved to manage floating exchange policy with respect to its currency (Adcock, Hua, Mazouz and Yin, 2017: 22-24).

According to Adcock, Hua, Mazouz and Yin (2017), there is a relationship between the impact of foreign exchange movements and the foreign-dominated assets liabilities structure, off-balance sheet and non-asset-based foreign activities. It can be argued that property portfolio is also exposed to the foreign exchange fluctuations and currency movements (Tomanova, 2016).

The value of the domestic currency tends to move with business cycles causing the domestic currency to gain or lose its value (Sung, Park and Park, 2014). But once the domestic short term interest rate soars, foreign speculative investors have an incentive to borrow capital with lower interest rates from abroad and invest in the domestic market. The impact of this analogy tends to bring price fluctuations to almost all the products, including properties in the economy. Ghana's economy is an open economy, and that it establishes trade relations with many countries (Aliyu, 2012: 429). Therefore foreign exchange rate has an influence on the affairs of the economy relative to the real estate industry because most of the common building materials used by the property developers, such as ceramic tiles, glaze, paints and electrical fixtures, are imported from both Europe and Asia (Owoo and Lambon-Quayefio, 2018).

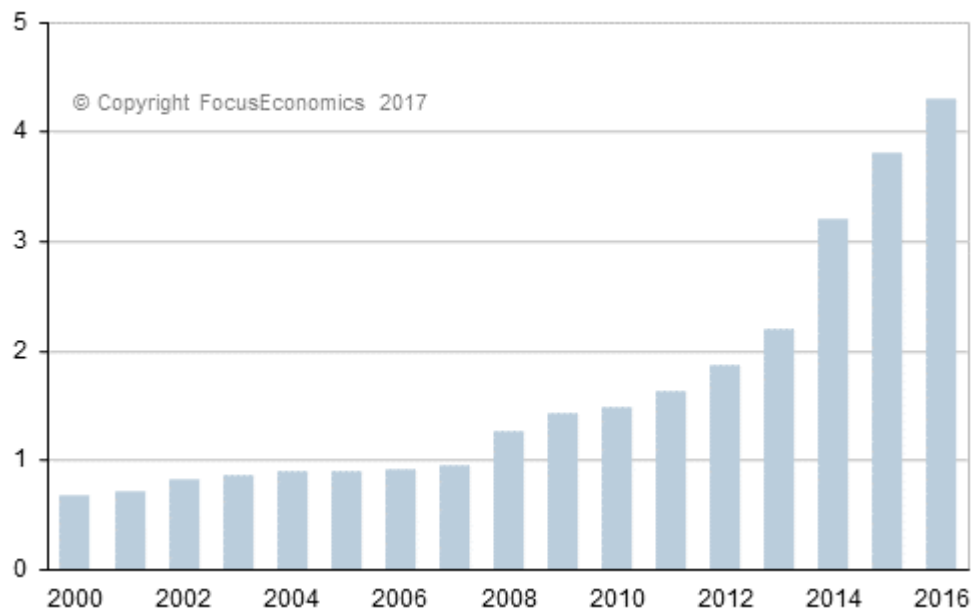
The fundamental concept of macro-economics shows that when an exchange rate increases, production cost increases and the investment return rate decreases which may eventually discourage investment (Mehrara and Karsalari, 2011: 32-37). Mehrara and Karsalari (2011:38-41) also state that production cost increase will affect real estate products such as residential houses, commercial property spaces to rent and hotel accommodation. This can pose a serious risk to property sales and commercial property rentals, and patronisation.

Exchange rate level in a wider context may have an impact on the balance of payment account of a country's viability and external debt (Mehrara and Karsalari, 2011:37-41; Bartram, 2008:1508-1511). This could mean that if the exchange rate is not well controlled, it can cause a balance of payment deficit and escalate the country's external debt stock. This can lead to a general decline in investment. Therefore, it is imperative to control and maintain the exchange rate so that the

equilibrium level of stability regime can be achieved to set a conducive pace to encourage investment growth (Bartram, 2008:1508-1513).

Causation between exchange rate depreciation and volatility runs in parallel, and in each case, a credible intervention in the currency market may be achieved in the interest of avoiding vicious circles of depreciation (Manz, 2019; Amos, Gadzekpo and Amankwah, 2015: 66-71). This affects the construction and development industry. For instance, the demand for cement in Ghana's construction industry increased from 4.8 million metric tonnes in 2010 to 5.5 million by 2012 (Owoo and Lambon-Quayefio, 2018). However, the price rise accompanying the demand was also capped with the exchange rate volatility made the cement so expensive at the market. In the same vein, Owoo and Lambon-Quayefio (2018) further emphasize that exchange rate volatility affects the labour cost of skilled in the construction market.

Manz (2019) argues that flexible exchange rate regimes promote macro-economic stabilisation policies. However, it is evident that exchange rate fluctuations cause real volatility. The intuition of this evidence may explore the fact that policies resulting in more stable inflation can establish credibility. Hence the government may have the upper- hand to put policies in resolving exchange rate challenges.



Source: Bank of Ghana, 2017

Figure 2-4: Foreign Exchange Rate Performance in Ghana

Figure 2-4 illustrates the total record of performance for the major foreign currencies (US dollar, Euro and Pounds) against the local currency (Ghana cedi) over the last sixteen years (2000 to 2016). The figure depicts that the local currency is under pressure. Exchange rates movement analysis has always become a challenging and risky assignment (Sharma, 2019). Amos *et al.* (2015:66-70) assert that exchange rate and inflation instability are the key fundamental causes of economic instability in Ghana.

2.2.4 Credit and Mortgage Affordability Rate

Credit facility plays a major role in the development of the world's economies, and such a role is more important in developing countries (Domeher and Abdulai, 2012:163). It has been noted over many decades that credit provides the availability of capital for investments. Others believe that access to credit helps economic sectors such as private industry grow to the level of increasing the GDP growth by 2% (World Bank, 2001). The growth of this sector has become important for individuals and business organisations in both developed and developing countries (Mbawuni and Nimako, 2015:73).

Loans and credit provision are offered by Financial Institutions (FIs) such as Banks to meet clients' aspirations (Mbawuni and Nimako, 2015: 64). Credit availability impacts asset values, including the measuring of mortgage flows (Chervachidze, Costello and Wheaton, 2009; Chervachidze and Wheaton, 2013; Clayton and Peng, 2011).

There are a number of variables that influence clients' capability to take credit facilities in Ghana (Mbawuni and Nimako, 2015:54). In Ghana, developers lack access to credit facilities while building material prices keep increasing due to inflation challenges. According to the Ghana Real Estate Developers Association (GREDA), developers are unable to supply affordable housing facilities to address the housing deficit due to the continuous increase in the cost of production (Owoo and Lambon-Quayefio, 2018). San Ong (2013) suggests that Banks have to increase credit availability by providing lower lending rates.

However, access to credit facilities by small business organisations is a major problem in Africa, and the governments have to facilitate the establishment of

Monetary Funding (MF) schemes to increase economic growth (Allen *et al.*, 2011; Dauda and Nyarko, 2014). According to Dauda and Nyarko (2014), high collateral requirements instituted by the FIs increase the level of fees on loan amount and competition from the large scale business organisations are the big constraints facing the small scale businesses in Ghana. As a result, the small-scale commercial property developers in Ghana usually struggle to secure loan facilities when conducting their operations. Again, the cost of securing and paying loans is expensive due to the prevailing high-interest rate (D'alpaos and Canesi 2014: 369).

Credit availability is seized up as a result of the stock market collapse in 2008, which caused approximately 80% of the Banks reporting net-tightening on underwriting standards for commercial mortgages (Wiley, 2017: 77-79). Rendering credits to the private sector is an important determinant for private investment (Mehrara and Karsalari, 2011:32-35). If Banks render affordable loan facilities to the private commercial property developers, they will take up development with less interest rate risk. However, it is practically rare to secure a credit facility (loan) from any bank with an interest rate of less than 20% in Ghana. Because Banks in Ghana usually lend money on high-interest rates, a default of payments rate is also high (Asamoah, Adjasi and Alhassan, 2016).

Amromin, Huang, Sialm, and Zhong (2018: 1975-179) ascertained that one of the causes of the global economic recession in 2008 was due to the bad payment of loans on mortgages in the housing market. The over-heated demand for houses and widened access to mortgages results in increased household debt (Park, 2014: 88-93). This implies that mortgage affordability may help increase property acquisition, but its repo-effect on the economy has to be well monitored and catered for by the economic policymakers.

Residential mortgage industry experienced a significant increase in product complexity in 2010 due to the rapid reversion back to simpler products after the 2007 to 2008 financial crisis (Amromin, Huang, Sialm and Zhong, 2018: 1978-180). Increase in mortgage complexity products and feature contracts may impact amortization negatively due to short interest rate period. Usually, the banks employ two classes of rates in apportioning interest charges on mortgage facilities. These are the fixed and adjustable rates. Amromin, Huang, Sialm, and Zhong (2018:1975-

1979) indicate that Financial institutions can push complex Mortgage (CM) to take advantage of households who may not fully understand terms in a mortgage.

The CM may be suitable for potential mortgagors who are less averse to default on their mortgage payment in a situation of unfavourable price fluctuations (Guiso, Sapienza and Zingales, 2013:1473; Garmaise, 2013: 2548). Therefore understanding customers' financial status by the mortgage financiers to establish their default patterns through assessment instruments is of critical importance. In addition, the role of lenders is to focus on the mortgage securities process that can increase loan acquisitions probabilities (Griffin, Kruger, and Maturana, 2019: 726-730).

Adelino, Gerardi, and Hartman-Glaser (2018) declared that mortgage originations get increased when borrowers across all income levels become potential mortgage seekers. However, many mortgage lending securities suffer due to default payments. Ferreira and Gyourko (2015) further discovered that the jump-in foreclosures among prime borrowers could be linked to their negative equity.

Mayer, Piskorski, and Tchisty (2013: 694-698) demonstrated that households with sizeable income variability could benefit from loans with flexible payment schedules. It can be noted that mortgage financing improves the production of housing and the economy at large (Johnson, 2014). The US mortgage sector, for instance, is substantial and has fully grown in sustaining the real estate industry. In fact, mortgages took the largest debt component of the US Domestic Debt Market (DDM) in the 2011 financial year, amounting to \$13.8 trillion (Reich, 2013).

Donkor-Hyiaman and Owusu-Manu (2016) claim that the affordability of mortgage facilities is rare in Africa due to constraints and other hosts of factors investors go through. On the other hand, Oyalowo (2012) identifies two factors that can ease mortgage facility offering namely; the credit information availability system and the strength of legal rights that can support asset-backed financing. Unfortunately, these factors are not well established in West Africa. Hence housing finance including mortgages remains underdeveloped in many emerging economies (Jordà, Schularick, and Taylor, 2016: 107-111).

Johnson (2014) states that mortgage market development in Nigeria has two critical factors known as inefficient mechanism to transfer property for another owner and

the absence of a long-term a This can be viewed as one of the reasons the country is facing a housing deficit of 17 million units (Ghosh, 2014:132-135). This situation is similar to what is happening in Ghana's real estate industry. However, Barakova, Calem, and Wachter (2014) believe that better credit availability will cause the demand for housing provision to increase.

Although, Ghana is the only African country with indexed mortgage products allowing low and middle-income earners to access a mortgage with their low income (Ghosh, 2014:1332-135). It is argued that the indexed mortgage offered by Republic Bank, formally called HCF Bank, is appropriate for low to moderate-income earners. However, the indexed is linked to the interest rate to inflation and this makes it difficult to afford when the inflation rate begins to soar. HFC Bank had a dual index product: the interest rate was indexed to inflation, while the monthly instalment amount was linked to a wage index (Johnson, 2015).

Fisher, Ling, and Naranjo (2009) establish that net capital flows from non-institutional to institutional investors' returns affect the commercial property sector. The impact from 'marginal buyers' who enable lending channel suggests that the market share of new entrants expands as a result of loosening in credit standards, contributing to price appreciation (Wiley, 2017:79-83).

2.3 GOVERNANCE STRUCTURAL FACTORS

Under this section, governance Structures (GS) refers to the legal policies and requirements put in place by the various governments to enhance effective physical development (Bennett and Dearden, 2014:96-99). Its effective adherence can support property development. The GS includes but is not limited to the Constitutional requirements, National Building Regulations (NBRs), Local Governance Acts, Municipal by-laws, systems governing the land acquisition and land administration.

Many researchers claimed that a restricted supply of land will more or less inflate land prices and that more flexible land policies should be advocated to reduce the cost of new developments (Darabi and Jalali, 2019:100-104; Almagor, Benenson, and Czamanski, 2018: 93-97). Good governance is an important consideration for development because it directs the ability of actors to participate in strategic

decision-making processes (Cowling and Tomlinson, 2011:840-843). Zhang (2015:1-5) identifies the role of governmental intervention in the China real estate markets as important.

Paradoxically, there were cases in Tajikistan, Vietnam, and Ukraine where severely constrained regulatory capacity co-exists with the execution of extensive untargeted and ineffective building inspections which were not prioritized on risk-based principles (Hallegatte, Rentschler and Walsh, 2018). According to Mokoena and Musakwa (2016), planning tools such as zoning, community participation, Geographic Information System (GIS), and education programmes are integral components to streamline risk reduction in land-use and development processes. In other words, the correct zoning approach vis-a-vis land-use planning helps to set correct systems on the ground for effective property development.

Land is a critical factor of production and it plays a key role in any city's development and land-use management (Guzmán, Pereira Roders, and Colenbrander, 2014). The demand for land is derived from the rate at which population increases within an area. Kuusaana and Eledi (2015) argue that population increase in the various cities in Ghana is associated with the demand for land purposely for housing, manufacturing, and other economic activities. Therefore, for economic activities to boom in cities, commercial property development and investment are of critical importance.

The existing land administration system in Ghana is noted to pose high expenditure in the construction sector because land developers are often prone to land litigation issues (Owoo and Lambon-Quayefio, 2018).

Urban governance in Australia has experienced a growing trend in government reliance on the private sector to encourage economic growth and promote development opportunities (Acs, Desai and Hessels, 2008:219-224; Williams, Vorley and Ketikidis 2013:399). Nevertheless, leadership on the government's side remains the driver to ensure effective urban governance (Huitema, Adger, Berkhout, Massey, Mazmanian, Munaretto, Plummer and Termeer, 2016; Schauppenlehner-Kloyber and Penker, 2016:664). In addition, good urban governance can promote commercial property development through effective zoning of land. Against this

background, the concept of governance structures is chosen to be analysed in this study.

Generally, property development governance structures vary from one country to another. However, implementing comprehensive land-use planning in West African countries is particularly challenging, especially in many towns where the municipal capacity for urban planning is limited (Klopp and Petretta, 2017: 92-95). Meanwhile, Dhar (2016) asserted that planning is the central pivot to achieve tasks including physical parameters of future land use and helping to align the existing properties into their changing needs. Hence the debate on cost-sharing between governments and the property developers for urban development is long overdue (Taylor *et al.*, 2012:5-9).

2.3.1 Governance Structures that Affect Property Development in Ghana

The challenges associated with property development in Ghana are many and they slightly vary from one region to another (Amos *et al.*, 2015:71-75). One of these challenges is restricted access to land (Opoku-Boateng, 2011). Lack of access in this frame of reference is referred to as litigation-free land because the land market in Ghana is highly informal and generally unorganised (Amos *et al.*, 2015:71-75). Boamah (2013:71-74) clarifies that information to declare who owns a piece of land is not readily available, and the legal framework and administrative systems for transferring ownership and titles are very cumbersome.

Property development process is also subject to a series of changes in the economy and the local government programmes at both national and local levels (Amos *et al.*, 2015:71-75). For example, the cost of commercial property development and management increases if building permit fees and property rates are increased by the Municipalities. The fulfillment of permit acquisition is a legal requirement essential for property development in Ghana (Amos *et al.*, 2015:71-75; Opoku-Boateng, 2011). Hammah (2015) asserts that this fulfilment serves as a green light for any land development. Seemly, building permit approval is supposed to be granted before developers commence development on the site (Tasantab, 2016: 149-153). However, some property developers do not adhere to this caution but rather go ahead develop their properties without receiving permit approval.

According to Arku, Mensah, Allotey, and Addo Frempong (2016:361-35), non-compliance with Building Regulations (BRs) can be attributed to the weak regulatory power of the Municipalities (District Assemblies). Therefore, the inability of the Municipalities to exercise power to enforce BRs standards is a critical issue to address. To address this issue, Duah (2019) suggests that factors affecting the poor implementation of the BRs should be addressed by allowing easy access to information on BRs and providing a 'one-stop shop' approach to reduce the period it takes in approving permits in the Municipalities.

Based on the highlights given above, the subsequent literature is meant to account for the details of land acquisition, land registration and building permit challenges in Ghana.

2.3.1.1 Land Acquisition Challenges

Access to land acquisition in cities such as Accra and Tema in Ghana, where commercial property development could generate good returns, is difficult to follow (Owoo and Lambon-Quayefio, 2018). It has been estimated that approximately 80% of Ghana's total land size is owned by customary (chiefs and families) with allodial titles (Dassah, 2018; Biitir and Nara, 2016:528-530; USAID Report, 2016). The owners lack proper legal documentation to cover their land ownership and title. Therefore land planning, land sale, and land use are not properly ensured. Tagoe (2014) laments that customary landowners' poor record-keeping concerning land sales causes multiple sales and leases. This can be linked to the multiple land tenure system we have in Ghana.

In a broader perspective, the Land tenure system is described by Seufert (2013:181-183) as a system that clearly defines how land access is granted for usage, control, and ownership. The Ministry of Lands and Forestry (MLF) in Ghana defines it as the landholding system that evolved for peculiar purposes. The purpose can be for economic, political and cultural norms regarding its use according to Morgan, Kwofie and Afranie (2013:1). Thurman (2010) argues that the land tenure system provides the scope for who can use a parcel of land and under which terms and conditions the land can be acquired. It is characterized as legal pluralism in which customary and statutory laws co-exist concurrently for land administration (Morgan *et al.*, 2013:2).

However, it is not always the case in some of the urban areas in Ghana. People acquire land and develop haphazardly without making provision for roads, streets and reserving land for future commercial property development within the area. This situation makes the commercial property developers incur extra costs for creating access and sometimes land them into litigations. However, appreciation of land for its socio-economic development cannot be over-emphasised (Pacione, 2013:61-63).

Although **The 1992 Constitution of the Republic of Ghana** recognises the three distinct land tenure systems: customary land holding, private freehold land, and public land, but **Article 258 (1) (b) of the 1992 Constitution** mandates the Lands Commission (LC) to co-ordinate with the relevant public agencies to advise the government, local authorities and traditional authorities on the land policy framework in ensuring proper land development across the country. **Article 258 (1) (c)** also declares that the Land Commission has to formulate and submit to the government recommendations on national policy with respect to land use and capability. The sub and paragraph articles quoted; **(258 (1) (c) and 258 (1) (c)** stand to support that the LC department is an agency to ensure an effective land administration system in Ghana. However, field evidence prevailing in some urban areas including Accra and its encashment area, proves otherwise.

Larbi (2009:21) refers to the act of acquiring lands as the eminent domain power possessed by the state over all property within the state for appropriate public use. The power to compulsorily acquire land in the public's interest when the necessity rises is stated in **Article 20 of the 1992 Constitution of Ghana** and the **State Lands Act of Ghana, 1962 (Act 125)**.

Complex legal considerations, such as property ownership rights and investment restrictions, have been identified as risks when investing in Africa (PWC Report, 2015:10). Hence land acquisition risks and challenges are an ongoing process in a number of African countries and, it has presented itself as a live issue in many articles written by land administration scholars and experts (Ghosh, 2014: 130-134). In fact, the matter needs a more coherent and robust system to address to reap the benefits of broader access in securing sanity for faster economic growth (Williams, 2013:21-22). This can be achieved through a conscious process whereby land role

players such as government institutions and private land owners can take active responsibility in land acquisition processes.

Public-Private Partnership (PPP) in urban regeneration and development as a source of providing infrastructure supply is often characterised by the active involvement of business entities in municipal level governance (Bauer and Steurer, 2014:121-124). Siemiatycki (2011:1707-1711) mentions four key conditions the private sector observes before investing in commercial property development. They are prospects creation for return on investments; managing the project scope and externalities; managing the associated risks perceived by private parties, and minimising political uncertainty. Fiedler and Glennie, and Lodhia (2013) also state that the construction sector and the green groups private companies seek to partner to enhance their reputation by alleviating pressure exerted on the government. Inference can be drawn from the above that PPP can be one of the ultimate ways to acquire land for commercial property development projects in order to minimise risks associated with acquisition in Ghana.

Other experts question the tendency of urban governance as essentially collaborative in character (Taylor, Harman, Heyenga and McAllister, 2012:5-7). This means that trends towards recentralisation for decision making by the government and the private partnerships on urban development should be in a way to improve leverage amongst local stakeholders (Koppenjan and Enserink, 2009:284-287). In such a setting, the institutionalised tensions between developers and the local authorities are played out with competing needs of certainty and flexibility at different stages of the development processes can be achieved. For example, private sector development groups were able to influence national-level strategies on housing policy in the UK to achieve housing affordability and sustainable urban development (Turcu, 2012:101-106; Oyebanji, 2014). Hence commercial property developers in Ghana may adopt the the same with regard to addressing land acquisition challenges.

The government response to address land issues in Ghana tasks the Metropolitans Municipals and District Authorities (MMDAs) and regional land bank registry to collaborate with landowners to undertake efficient land documentation exercises (Dassah, 2018; Owoo and Lambon-Quayefio, 2018). It may help to streamline and

fast-track land registry services for both public and private uses. This may help developers undertake property legal and technical due diligence search before acquiring a land for development and investment (Zamanifard, Alizadeh and Bosman, 2018:155-157; Kołodziejczyk, Mielcar and Osiichuk, 2019:301-305).

2.3.1.2 Land Registration Challenges

Land registration is described as the process of recording land ownership data into a national database that can be easily accessed and retrieved for general public use and references (Domeher and Abdulai, 2012:161-164). Registration of land title in Ghana is a means of entering a person's interest and right into the institutional record books (Ehwi and Asante, 2016). Shibeshi, Fuchs, and Mansberger (2015:282-285) indicate that registration is a legal exercise because land transfer and ownership certification are involved.

The following are some of the laws passed to ensure efficient land registration in Ghana; the Land Ordinance (1883), the Land Registry Ordinance (1895), the Land Registry Act (1962), and the Land Title Registration Act, 1986 (subsequently renamed as Provisional National Defence Council Law [PNDCL] 152). Before introducing these laws except the Land Ordinance (1883), land transfer was done orally, and the grantee expressed appreciation to the grantor by offering items such as kola nuts and alcoholic drinks (Bentsi-Enchill, 1964). Hence other laws were enacted purposely to formalise land transactions to guarantee certainty and security of title (Kasanga and Kotey, 2001).

It is difficult to find that the various arguments surrounding property rights debates in Africa can not be traced without linking to the historical ideologies and institutional context (Boone, 2019:385). Little has been done on land registration in Africa. As of 2003, it was recorded that the quantification of lands that were not registered and titled were about 90% of the total in sub-Saharan Africa. This varies from one sub-region to another (Domeher and Abdulai, 2012:164-166). The figure indicates that much more has to be done as far as land registration is concerned. The inherently political nature of our land laws and policies on the implementation and enforcement of land registration more or less contributes to the land registration back lock (Boone, 2019:385).

It is important to emphasise that land registration and administration in Ghana is classified under six (6) land sector agency domains; thus, the Land Title Registry (LTR), Lands Commission (LC), Land Valuation Board (LVB), Administrator of Stool Lands, Survey Department (SD) and the Town and Country Planning Department (TCPD) according to Ehwi and Asante (2016:2). Therefore, the numerous numbers of agencies involved in land registration and administration are quite cumbersome. This is why Obeng-Odoom (2015) and Kasanga and Kotey (2001) remark that the inconsistencies and lack of coordination among the agencies pose bureaucratic challenges in the whole process.

To be precise, it becomes difficult for clients to deal with the agencies separately and, in doing so comes with cost implications such as time cost, transportation cost, application fees, and processing fees at different locations. These difficulties are confirmed by Nara, Mwingyine, Boamah, and Bitir (2014:24-32). It is therefore not surprising why Thirty Thousand (30,000) land parcels are registered under the PNDCL 152 out of the Six Million (6,000,000) land parcels in Ghana (Deininger, Selod, and Burns, 2011).

According to Ehwi and Asante (2016:2), the six land agencies mentioned above need to merge to improve land registration delivery in Ghana. This thought of action can put all the activities of the agencies together to ensure fast service to clients (Barry and Danso, 2014:358-361). It can also help in updating data to render a solid database as a mirror of an image to actualise land ownership and land title registration. Boone (2019:388) mentions that lack of land title deprives the owner of the land access to mortgage security. This challenge disturbs landed property owners when it comes to liquidity conversion. Again, it also prevents them from getting high value when disposing of their properties.

There are two schools of thought regarding the relationship between land registration and land rights (Domeher and Abdulai, 2012:168). One school of thought states that land registration is the panacea to the issues of ownership insecurity and paves access to credit for investment (Jacoby and Minten, 2007:461-463; Feder, 1999). The other school argues that land registration per-say is incapable of guaranteeing land ownership security (Deininger, Selod and Burns, 2011; Abdulai and Hammond, 2010; Durand-Lasserve and Selod, 2009: 101-105). These two

schools of thought were legally justified from the court's conclusion in a leading Ghanaian case known as **Brown vs. Quashiga (2003/2004) 2SCGLR@930**. In the case, the court was to determine the owner of a parcel of land being litigated by two parties. The court, in summary, said that having a mere land registration document to the disputed land does not grant party ownership to the land. The court assertions that land registration alone cannot guarantee the security of a subject land in Ghana. Investigations show that 10% and 15% of registered lands remain under ownership disputes (Abdulai and Owusu-Ansah, 2014:134-136). This challenge threatens the safety of commercial property development and investment in Ghana.

Abdulai and Hammond (2010) find that land disputes continue to persist despite introducing several schemes for land registration. Abdulai Hammond (2010) further discovered that approximately Twelve Thousand, Three Hundred, and Eighty (12,380) land-related cases were filed at the courts of law between 1999 and 2006 in Ghana. Surprisingly, 53% of the cases were decided against the registered owners. This significant percentage (53%) emphatically supports the judgement pronounced by the learned Judge in **Brown vs. Quashigah (2003/2004) 2SCGLR@930**.

Discourse from Payne *et al.* (2009) share to light that in many countries such as South Africa, Tanzania, Senegal, Egypt, India, and Mexico, land security already existed prior to the commencement of land registration programs. In India, for example, it was reported that land registration led to a reduction in tenure security (Domeher and Abdulai, 2012:168). This could be the reason why Ghebru and Lambrecht (2017:293-295) argue that registration of land could perhaps reduce security and instead lead to more disputes. However, Domeher and Raymond Abdulai (2012:169) view it that registration has rather come to formalise ownership rights. Therefore governments in Africa, including the government in Ghana, have to accept an effective land registration framework as a mechanism for promoting tenure security, protecting property rights to land, streamlining land markets, enhancing access to formal credit, and promoting economic development at large.

In Ghana, a person is said to have attained recognition right to a land upon completing a transaction agreement (Domeher and Abdulai, 2012:165). At this stage, the lessee acquires the land from the lessor. The lessor can be the state or the customary owner. Then, the lessee has to proceed to undertake two different

registrations of his interest. The first one is the lease registration at the Lands Commission, followed by the land title registration at the Land Registry Department. The two types of land registration are quite difficult to establish the differentiation. It is often viewed that the presence of a statutory warranty of title under the title registration system is the main distinguishing element (Shibeshi *et al.*, 2015:284-287).

A research study conducted by ElHadary and Obeng-Odoom (2012:59-61) on land registration indicates that it could take more than six (6) months for the land certificate to be issued. The delays and complex uncertainties in the process usually result in the public's apparent lack of confidence in the institution's ability to preserve and protect their rights in land (Bean, Broda, Itō, and Kroszner, 2015). Furthermore, it can be noted that there are so many charges involved. In fact, the majority of the charges paid through the process to the officials cannot be counted with receipts. Hence many land registration researchers, including Arko-Adjei (2011), Awuah and Hammond (2013), together with Benjaminsen, Holden, Lund, and Sjaastad (2009:28-35), trace the theoretical foundation of title registration challenges to the "gospel" according to De Soto which states that lack of access to formal property rights is responsible for the corruption in most parts of the developing countries.

Some people continuously postulate that registration of land can promote economic growth and reduce poverty (Deininger and Feder, 2009:233-237). This postulation depends on the extent to which land registration impact can be able to influence the entire economic growth of a country. Domeher and Abdulai (2012:165) suggest that a proper land register database can provide ownership information for verification, which simply helps speed up land-related transactions to eliminate uncertainties and reduce cost in terms of time. The World Bank consistently advocates for land registration and titling (Boone, 2019:390-395). The theory behind it could be for effective control and disposition of land as rights of title by individualisation to create a wealth of evidence for private sector development (Holden, Ali, Deininger, and Hilhorst, 2016).

It is estimated that land value appreciates by 25% higher upon registration (Payne, Durand-Lasserve and Rakodi, 2009: 443-446). Other experts also estimate that land market value sores from 20% to the maximum of 30% after the said land is

registered and titled (Durand-Lasserve and Payne, 2006). Therefore, it is envisioned that buyers may pay more on registered land.

Boone (2019) outlines the following facts for promoting land titling commodification and transferability;

- Private property rights in the land should be envisioned as both a driver and the end point to an inexorable economic and institutional modernisation process.
- The position regarding registration and titling should be put forward by advocates of legal empowerment of the poor for recognition and titling of existing use rights.

Other social commentators believe that the government has to register all the lands in Ghana and subsequently alienate individuals for a defined development purpose. Such a move may create dispossession and disempowerment to customary landowners (Boone, 2019: 385). However, it can bring sanity and trust inland rights and title acquisition.

2.3.1.3 Building Permit Acquisition Challenges

Building Permit (BP) acquisition process is described like the steps set by the local government through to the Municipalities for clients to follow in securing permits for building development projects in Ghana. Botchway, Afram, and Ankrah, (2014:12) assert that BP proves the authorization of a project to take off on a particular site. It indicates that specifications and codes of the construction are met. Taiwo and Afolami (2011:241-244) also state that approved BP is a measure to assess and evaluate building designs for the purpose of establishing quality standards to be followed by the construction team in the Metropolis.

Agyeman, Abeka, and Assiamah (2016:337) posit that the BP acquisition process starts with the first point where the client buys and completes an application form obtained from the Municipal office after showing their site plan to be developed. Botha (2013: 165) notes that acquisition permission can sometimes be complex because the process requires an in-depth knowledge of legislation and policies. The complexity comes from the requirements Municipalities require from the developer

and varies from one Municipality to another. Hence the developer can make use of consultants to process and facilitate permit applications.

According to the **Local Governance Act 2016 of Ghana, Section 106**, a person shall obtain a building permit from a District Planning Authority (DPA) before undertaking the construction of a building or undertaking any other work within the District jurisdiction. **Section (106)** compels any property developer to secure a permit before commencing a construction project or activity on a parcel of land. **Regulation 1 of Ghana's National Building Regulations, 1996 (LI 1630)** states that every person intending to erect, alter, or extend the building has to apply to the DPA to secure a building permit before commencing any development.

The above legal references, including Municipal bye-laws, support Botha's (2013: 165) view on the complexity involved in acquiring property development permits from state institutions. A developer needs to make realistic time and cost projections in obtaining development permission (Botha 2013; Pangarkar, 2011). Because time delay and cost involved in permit acquisition also affect the project. BP is legal permission granted by the Local Planning Authority to the developer (Arku, Mensah, Allotey and Addo Frempong, 2016:365). In other words, it is prudent for the property developer to clear all the legal emissions and hurdles before any commitment is made (Pei, Liu, and Zhang, 2013: 307-310; Botha 2013: 166).

Agyeman *et al.* (2016:350), in their investigation into the issues on building permit acquisition in Ghana, recognise the following as the fundamental challenges developers face; there is lack of permit agencies central database management system, delays in processing and lastly, there are a lot of analogous institutions involved in the permitting process. Agyeman *et al.* (2016:350) further realize that these challenges lead to illegal building development in many of the urban areas.

Before a developer can apply for a building permit, a site plan has to be obtained on the subject land, and usually, such a plan is a sub-copy of the master plan covering the entire area (Agyeman, Boamah, and Abeka, 2015). In addition, the developer has to include his or her other documents such as land title certificate, indenture or allocation paper, and the working building drawings together with the filled permit application form to the DPA. Finally, the application form must be endorsed by a

licensed architect, civil engineer, or building surveyor as stated in the **NBRs, 1996 (LI 1630)**.

In practice, the Town and Country Planning Department (TCPD) in the Municipality vets the BP application to determine whether the application submitted fulfills all the requirements. The applications are then forwarded to the Statutory Planning Committee (SPC) for approval or disapproval of the building permit. However, formal approval provides the necessary guarantee to the proposed building, indicating to the large extent that the building is suitable for construction (Botchway *et al.*, 2014: 12; Danquah, Attippoe and Ankrah, 2014:26-28).

Agyeman *et al.* (2016:340) argue that the application processing is too cumbersome since clients are not well orientated. However, the flow chart (figure 2-6) shows below summarises the chronological stages developers have to follow to procure building permits in Ghana.

Stages to Acquire Building Permit

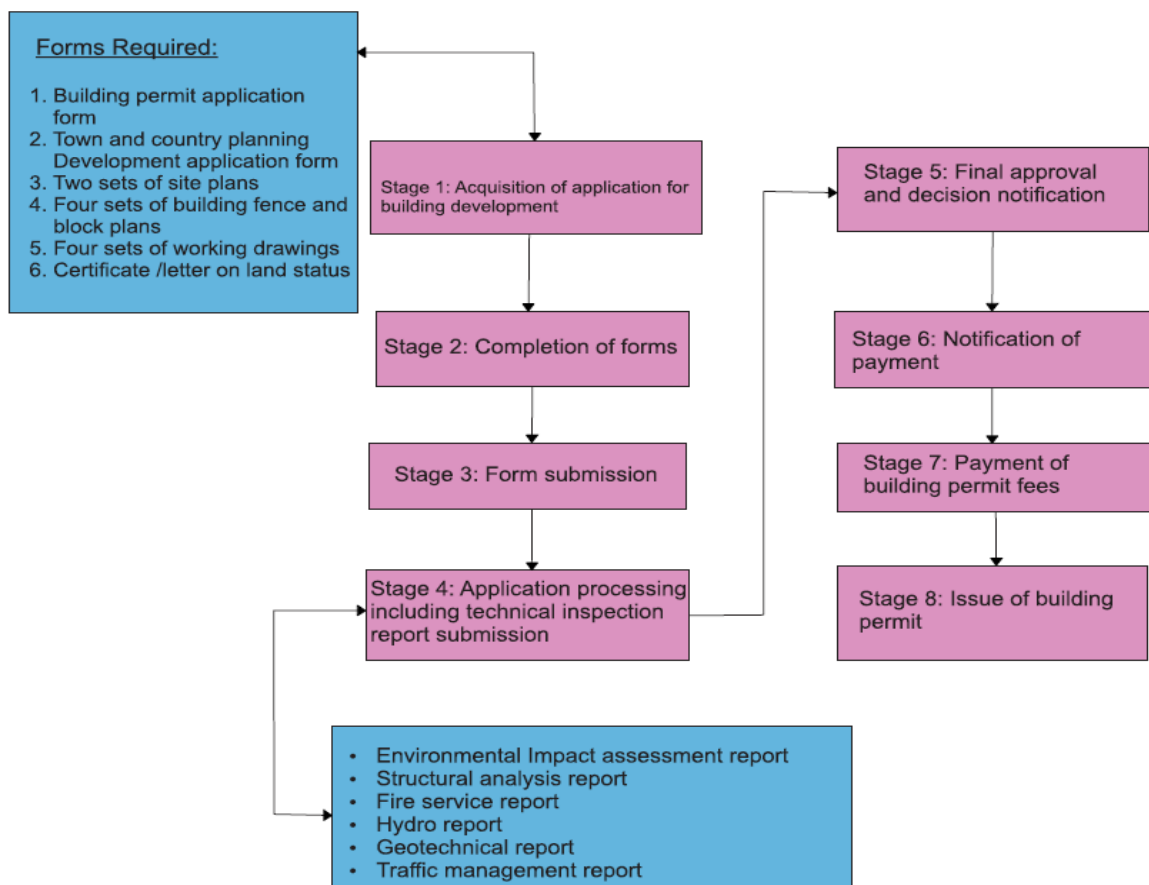


Figure 2-6: Building Permits Acquisition Stages

Figure 2-6 shows the above outlines eight stages developers generally follow through in obtaining BP. The follow-up question is, can something be done to cluster some of the stages? Or, will it be possible to introduce another strategy that can speed up the BPs processing at the TCPD level in the various District Assemblies in Ghana? Many concerned stakeholders usually ask these and similar questions. For example, Kweku (2013) and Karikari, Stillwell, and Carver (2005:343-345) suggest that lack of technology and organisational workflow appear to be predominant factors underling the delays in processing BP applications in Ghana. Meijer (2005:125-125), for instance, alleges that the Netherlands has Information Communication Technology System (ICTS) online developers use to apply for BP. This electronic approach helps Municipalities in the Netherlands cut down queues at the Municipal offices and process and complete a large number of BP applications within a short time.

Comparatively, the procurement of BP in Ghana continues to pose a bigger challenge to developers despite the government initiatives to establish a 'one-stop shop' concept in permit processing (Agyeman, Boamah, and Abeka, 2015). Agyeman *et al.* (2016: 340) are of the view that the situation has created tents for unregularised middlemen to lead and falsify building permits for innocent developers and clients.

Offei-Nketiah, Kwofie, and Duah (2019: 225-228) lament that the most important factors that affect the full implementation of the National Building Regulations in Ghana are bureaucratic procedures of acquiring building permits, corruption by the TCPD officials well as lack of education and political interference. Based on this evidence, it can be presumed that these activities can retrogress the growth of modern commercial property development trends in the country.

According to Botchway *et al.* (2014:11), the six storey retail building (Melcom supermarket) that collapsed in November 2012 at Achimota in Accra, which claimed forty (40) lives later revealed by the then Accra Municipal Assembly (AMA) Chief Executive that the building owner did not acquire a building permit for the development. Most developers refuse to apply for BP due to its complexity.

Interestingly, Ghana places 151st position of the world ranking in terms of easiness to acquire the building permit whiles Kenya is ranked as the 35th position and Hong Kong being in the 1st position (Agyeman *et al.*, 2016). Granting permits by the Municipalities is the administrative procedure to ensure effective planning and development in our communities (Botchway *et al.*, 2014:11).

Hammah (2015:2) proclaims that little work has been done to gain a perpetual understanding of permit approval applications delays and their implications on the socio-economic level in Ghana. This inference is that permit approval delays may discourage infant property developers who want to venture into commercial property development. Meanwhile, the country needs more housing stock to close the existing gap between housing delivery and housing demand.

2.4 SPATIAL DEVELOPMENT FACTORS

In many countries across the globe, spatial planning and land use constitute one of the established governance systems by which the states articulate and implement policies to achieve integrated and functional economic activity (Owens and Cowell, 2011). Records prove that success stories of Spatial Planning (SP) and its development are common amongst developed countries due to their effective coordination of the urban space and configuration systems (Korah, Cobbinah and Nunbogu, 2017:361-365). However, these success stories can only be traced in a few developing countries. For example, some countries in Africa have weak state control systems in spatial planning (Andersen, Jenkins and Nielsen, 2015: 329-333; Watson, 2009:2259-2262; Roy, 2005: 147-149), do not experience such success stories.

Spatial Planning and development in African urban areas need to go beyond the formal scheme planning preparation that encourages economic and social growth (Korah *et al.*, 2017: 365-368). This can promote both commercial growth and social sanity in our spatial setting. Kauko (2018) argues that urban restructuring by the local government is the antidote to spatial problems that emerge from an unhinged space market in the cities. City regeneration and re-engineering can pave the way to embrace commercial property development to create more business spaces (Kauko, 2012: 2053-2055). Airport city commercial development agenda in Accra is a typical

example of a city regeneration project in Ghana. The economy experienced growth when the city centres provide business and employment opportunities to their residents (Raman, 2010: 63-65).

Byrne, Jackson, and Lee (2013) believe that demographic and economic changes bring new patterns of demand for property, but the response from developers, investors, and landowners determines the spatial outcomes that affect the profitability and competitiveness in the urban areas. Thus, one can say that the uncertainty and rapid urban transformation in Africa call for effective spatial development in our cities (Cobbinah and Darkwah, 2017:1229-1232; Delladetsima, 2006: 245- 246). Recently, major cities in Ghana, such as Accra and Kumasi, experienced flood challenges annually.

The subheading below mainly discusses the historical spatial planning system in Ghana.

2.4.1 Historical Spatial Development System in Ghana

Historically, the effort to ensure harmonious spatial development and environmental sanity in Ghana's settlements can be traced back to the colonial age (Tasantab, 2016: 152-155). According to Leith (1974), cited in Tasantab (2019: 1-9) indicates that the ten-year development plan (1920-1930) was launched in Gold Coast by the British Colonial Governor called Sir Gordon Guggisberg. Such a laudable and comprehensive effort was made to direct the development of the Gold Coast, now called Ghana. Sir Gordon Guggisburg was known to be one of the Governors who carried the spatial planning flags to promote effective spatial development as the basis for all other developments.

Spatial planning in Africa offers cities an opportunity to consider the complexity and integrate uncertainty in a way that can make it possible to develop and implement formal plans for effective settlement development (Boelens and De Roo, 2016:42-46). This is necessary because the availability of a formal plan promotes certainty about the future of urban development (Korah et. al., 2016) and ensures social and economic integration of the area. This implies that spatial planning and development in Africa must be properly established for the sake of urban sustainability (Cobbinah et al., 2015; Boelens and De Roo, 2016:46-48).

The study of spatial planning and development offers many opportunities to reflect on the importance of urban functionality and liveability and the chances of considering and implementing measures that direct a new direction in urban development (Tasantab, 2019; Cobbinah et al., 2015; Andreasen et al., 201). This brings to light that there are significant obstacles such as haphazard development, unplanned urbanization, and complex land tenure system in some countries in Africa. Ghana is no exception. To overcome these obstacles requires a new correlation of social forces, a positive move towards broad-based democratic participation in all aspects of spatial planning and development in cities (Korah et al., 2017). This can give way to creating land spaces for future commercial property development in our spatial planning layouts.

Others believe that effective spatial planning and development at the local levels can help address some of the risks and challenges associated with property development in general (Korah *et al.*, 2017). Portugali, Meyer, Stolk, and Tan (2012) state that urban development is a complex adaptive system and it opens for external influences, structures and relations in cities. The results can be inferred as the separation between formal plans and self-organisation in a recipe for informal urban development.

Spatial planning and development system across many cities in West Africa takes the informal-urban type of shape (Cobbinah, 2015; Amoateng et al., 2013: 96-101; Cobbinah and Amoako, 2012). In fact, this situation negatively affects commercial property development since the informal-urban spatial development does not provide adequate infrastructure such as road networks and public open spaces to promote socio-economic growth in the cities.

It can be argued that the spatial planning and development challenge in West Africa and Ghana is linked to private land ownership issues. Yeboah and Shaw (2013:21-25) illustrate that conflict between local conditions governing lands and the formal planning on land at the District Assembly end are the driving agents for the overall configuration of physical urban development. Effective urban development may not be possible if the spatial planning system continues to create a dichotomy between emphasized formal plans and de-emphasized formal planning (Korah et al., 2017). To address this challenge, one can argue that there should be a balance between

the two institutions (Customary land owners and District Assembly) regarding their functions and responsibilities. This may help the two institutions to achieve one common goal of ensuring effective spatial planning and development in our urban areas.

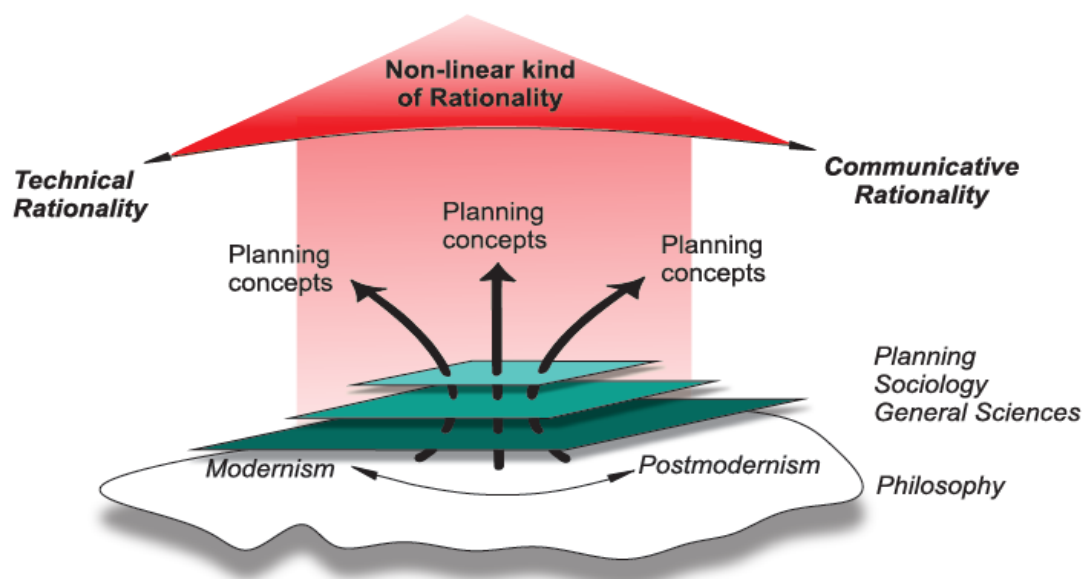
There are numerous legislations established for the purpose of supporting effective spatial development in Africa. Tasantab (2019) discusses the widespread availability of spatial planning and management legislation and several urban planning institutions. In Ghana, for instance, **Section 97 of the Land Use and Spatial Planning Act, 2016** states that the Local Authority shall prescribe the form of a land-use certificate to a client. **Section 97** further indicates that the District Assembly shall attach the appropriate land use certificate to the permit and, where necessary shows the conditions applicable to the use of the land in question. This legal proposition raised in the **Act** has the cause to question the Town and Country Planning Authorities to come under intense public criticism for failing to control development in some of the major cities in Ghana (Cobbinah and Darkwah, 2017:1240-1244).

Furthermore, Section 62(2) of the Land Use and Spatial Planning Act, 2016 of Ghana requires the District Authority to prepare a structure plan for their area of jurisdiction. Section 72 of the Act also mandates the District Authority to have a local plan as its key object for ensuring the judicious use of land for attaining a sound, natural, and built environment to improve living standards. Yet, enormous challenges continue to be generated by ineffective spatial planning systems and practices in some cities in Ghana (Korah et al., 2017).

The challenges associated with the ineffective spatial planning and development in Ghana are more or less having a hampering effect on property development. Hence profound changes are required to streamline and facilitate a strategy for sustainable urban development in Ghana (Acheampong, 2018; Korah *et al.*, 2017). Meaning that spatial development has to be fashioned effectively to protect and improve our urban areas (Fuseini and Kemp, 2015:309-314).

According to the Turkey Development Plan Law (TDPL), it is obligatory that zoning plans in the various settlements are made based on the population criteria trends (Ali, Noor, Johari, Fauzi, Chuweni, and Ismail, 2016). Comparatively, Ghana's spatial

development is unparallel to that of Turkey. However, a full recognition of the need to support the integration of formal planning and self-organization in urban development (Acheampong, 2018; Korah *et al.*, 2017) is necessary for Ghana. This may help settlement planners to achieve effective and efficient results in land planning. To deepen the discourse on spatial planning and development theory a two broad extremes; thus, technical rationality and communicative rationality philosophies have been illustrated in figure 2.4 below.



Source: De roo (2010:35).

Figure 2.4: Contemporary Planning Theory; the inclusion of non-linear development over time

The two categorization of planning philosophies is sought to portray certainty either through the availability of facts and information (Zhang, De Roo and Lu, 2012:1997-201). The consequences of the 2008 global financial crisis motivated experts to rethink by formulating these planning theories (Zhang et al. 2012:1997-2001; Allmendinger, 2009) in order to appreciate the reality that contemporary planning theory should transcend. This new thinking has dully modified spatial development across the globe (Acheampong, 2018). Seemly, spatial planning is no longer perceived to achieve a pre-defined future outcome. Instead, spatial planning is gradually focusing on the autonomous processes called self-organisation

(Allmendinger, 2009). This defines city configuration. Planners and mediators roles are now involved in acting and guiding the urban development system to optimise their interest (Zhang *et al.*, 2012). This new role of planners is described as transition managers (Allmendinger, 2009; Zhang *et al.* 2012:2002-2009).

Korah *et al.* (2017) asserted that embracing dynamism and uncertainty in the urban development process would make more room for future flexibility. According to Yeboah and Obeng-Odoom (2010), planning theory in Ghana is strongly influenced by British Town and Country Planning Ideology (BTCPI) which was handed down during the colonial period. Unfortunately, this BTCPI appears not to be properly implemented and has led the urbanisation phenomenon to outpace spatial planning and development in the country (Yeboah and Obeng-Odoom, 2010).

Fuseini and Kemp (2015) confirmed that spatial development tasks in Ghana are done by the planners who are at the national, regional, and district assembly levels. Meaning that; planners employed at these levels are known as technical expertise, and the Land use and Spatial Planning Authority, formally called the Town, and Country Planning Department, is the department responsible for planning land for settlement at the District Assembly base. Cobbinah and Korah (2015) mentioned that rapid urban growth, lack of planning personnel, and the complex land tenure system have contributed to Ghana's ineffective planning and management.

The country is endowed with spatial planning legislation such as the Local Government Act of 1993 (Act 462), National Development Planning Commission Act of 1994, National Development Planning Act of 1994, Town and Country Planning Ordinance of 1945, Local Government Act of 1993 (Act 462) and many more. However, spatial planning and development challenges continue to be a major hurdle for the country.

In practice, it has been observed that most urban areas have severe planning scheme deficits. The challenge is that the District Assemblies (DAs) undertake little forward planning, and the few prepared plans are rarely implemented (Ayambire *et al.*, 2019; Yeboah and Obeng-Odoom, 2010: 46). Considering the ineffective planning schemes in the cities and towns causes Yeboah and Oppong (2015: 60-65) to describe physical development in Ghana as haphazard. However, Arku *et al.*

(2016:362) believe that policymakers need to appreciate the basic root causes of spatial development problems before addressing them.

2.4.2 Location and Neighbourhood Assessment

The most popular adage of location, location, location is always cited in many real estate development studies with respect to site selection (Costello and Preller, 2010:174). Location is defined as the specific position of a property which influences the choice of property in the neighbourhood (Aluko, 2011:70). Therefore, location selection is very important in the determination of the viability of commercial property development. Lerner, Kocher and Mathieu (2014) view that finding a good location to site a development is an approach to minimise economic risk that is likely to affect the property. Therefore, conducting a search to select a suitable location for a property development should have a good link to economic and social relationships that exist among occupants and residents (Aluko, 2011:70). Social amenities like hospitals, schools, shopping centres, recreational centres and other infrastructural developments available in a neighbourhood influence property values in the area. According to Dubé, Brunelle and Legros (2016:143-147), location decisions is a core concern to business organisations. This means that commercial property developers and investors have to be strategic in choosing a place for shopping malls, office blocks and warehouse development. Therefore, location assessment is of vital importance in commercial property development projects (Samburu, Owino and Hayombe, 2019:26-31).

The logical sequence of the above discourse explicably implies that location and neighbourhood are inter-related terms, and play a key role in developing an income-producing property as an investment (Gottdiener, 2019). Hence this section of the literature sought to analyse how location and neighbourhood affect the development and operation of commercial properties. Location is one of the key determinants of a property value, and that it has a strong effect on the economic performance of commercial properties.

Botha (2013: 185) asserts that restricting development location affects its profit generation. The chances for a commercial property located or built in the city getting patronage is quite higher than a commercial property located far from the Central Business District (CBD). Population prevailing in the city could be a factor. In Ghana,

the number of people living in the cities (Accra, Kumasi, Tema, Secondi-Takoradi, Cape Coast, and Tamale) amounts to approximately 50% of the country's total population (Ghana Statistical Service Report, 2012). Hence, the location for development is influenced by the population trend, accessibility, future growth, and competition analyses (Botha, 2013). According to Kwon (2012:119-124), neighbourhood remains a social paradigm and geographic concept that plays an important role in research vis-à-vis property development and investment research. The effect of such research occurs when residents and users interact with their surroundings to provide economic and social meaning (McCormack, Rock, Toohey and Hignell, 2010:712-716).

Location has a major influence on the success of a commercial property development, especially in retail development. Costello and Preller (2010:175-179) and Huxham (2010) identify the following key elements to look for when choosing a location for property development; traffic flow, road linkage, transport systems available, travel cost, site exposure of the neighbourhood, economic complementary support availability such as shops and schools. All these are significant because such elements tend to boost economic activities in the area depending upon the purpose and the use of the development.

For commercial property development projects, Huxham (2010) and Olivier (2007) believed that the site should provide accessibility, parking area and pedestrian passages. Huxham and Olivier think that the provision of such facilities will help increase the development marketability.

Aluko (2011:69) states that many urban economists side with implementing quality neighbourhood housing bundle systems. But regarding the measurement of the neighbourhood quality system, the choice is based on the fundamental data availability (Mabogunje, 2015 and Dubin, 1992:433-436). The justification to establish the difference between a mere neighbourhood and a quality neighbourhood system centres is on the developer's ability to create neighbourhood opportunities (Kwon, 2012:125-128).

An urban neighbourhood is a collection of various economic, political, social, and cultural activities (Oundo, 2011: 23). Economic activities in this regard include industrial, public, commercial, and residential property use. Therefore, any given site

in an urban area may be capable of being developed into the various economic uses mentioned above after analysing their highest and best uses (O'connor, 2019:63-67; Appiah, Abalo, and Eshun, 2019: 1-6).

A good location enhances the rental returns of a property. In addition, the concepts and theories such as the highest and best use, rent bid accessibility, and complementarity are collectively linked to location philosophy (Chetty and Hendren, 2018:1163-1168). The literature below discusses in detail these concepts and theories on development project as far as market research is concerned.

2.4.2.1 Highest and Best Use Concept

According to Van der Walt and Boshoff (2017:44-49), the Highest and Best Use (HBU) is defined as the value of a property that could reasonably be established after all the factors affecting the property are considered. The factors can be viewed from the legal, financial and physical perspective in relation to the optimal productivity of the property. Robin (2018) views the best use from the viability perspective. Boshoff (2016) explains that when analysing the HBU of potential land, the property developer has to determine the following key questions; should the land be developed or left vacant? If the land should be left vacant, when would future development be financially feasible? Lastly, what kind of improvement (s) should be built if the land should be developed?

These three critical questions posed by Boshoff (2016) serve as the basis to assist property developers in making investment and development decisions. The HBU concept is based on the fact that there may be many alternative uses; however, each probable return needs to be determined (Orphanides and Williams, 2011). The returns can be quantified as monetary value depending on the nature and purpose of the proposed development. Oundo (2011) argues that development that indicates the highest yield is termed as the highest use. Boshoff (2016) therefore, remarks that the HBU determination lies on comparative analysis that identifies the most profitable use of the subject property. It can be noted that the HBU determination fundamentally centres on the market forces that prevail within the location and neighbourhood the subject property situates.

Therefore the HBU determination needs to be conducted by knowledgeable and experienced property professionals who can pay critical attention to almost all the possible and probable factors that may have an influence on the proposed property development. In fact, the determination requires demand trend analysis and relevant market data such rental income levels and other economic obsolescence need to be assessed. Carlino (2012) suggests that the HBU determination of any development has to share light with both the highest comparative advantage and least comparative disadvantage.

2.4.2.2 Rent Theory

There are many rent theories which the early economists propounded. For example, Marxian theory on land rent was in the limelight as an alternative to mainstream urban economics in the 1970s to 1980s (Haila, 2015). The theory is viewed as inseparable from the classical political economy perspective (Mmasi, 2013). Smith's rent theory on the other hand, is often regarded as inconsistent and self-contradictory as he was silent to classify and identify the various types of rent in his theory (Park, 2014; Mmasi, 2013). Smith used 'rent' as a general term for all types of rent; however, he suggested that the premise where rent arises is due to the existence of demand for the landed property (Park, 2014:90). The demand for a landed property determines its value. Notwithstanding, location plays a significant role when it comes to renting value determination, and this poses a serious risk to the commercial property investment when it comes to renting generation.

The rent theory of Johann Heinrich von Thünen was first recognised in 1864 and became the basis of neoclassical urban economics (Park, 2014:90). This theory is well known as location theory because the city and its surrounding factors are highly considered when determining rent. Dasso *et al.* (1989) assert that rent theory is based on the property's premises. Therefore commercial property developers and investors are to site their development in a place where they can receive good rentals (Haynes, Nunnington, and Eccles, 2017). Plaut and Boarnet (2003: 254-259) assert that urban land and housing are priced based on their distance to the CBD with the rent gradient.

2.4.2.3 Accessibility and complementarity theory

Accessibility is one of the major factors to consider when choosing a site for development. A number of approaches and techniques can be adopted in determining the most accessible site for a proposed development (Oni, Akindele, and Akinjare, 2014:11). Some of these techniques include weighted average distance, gravity-based measure, cumulative opportunity type measure, space syntax, graph theory, hedonic model, route structure analysis, expert system heuristics, and the multiple regression model (Oni, 2013). Such techniques help outline the effects of accessibility on the subject property value (Oni, Akindele, and Akinjare, 2014:11; Oni, 2013).

Complementarity theory posits that human social coordination is the product of a structured psychological proclivity that links to humanity's corresponding cultural paradigms (Fiske, 2000:79). This theory is brought into property design and planning and development to promote human comfortability and satisfaction. One of the significances of a finished property as a product is excitement benefit. Oundo (2011) notes that complementarity applies to the clustering of economic activities in an area. From this view, it can be deduced that the tendency of economic activities to concentrate along a particular location can bring about differentiation of sites a developer has to choose.

Complementarity theory declares that people cannot utilize their socially transmitted paradigms and proclivities independently; they need to combine them with devised and dependent on flexible social adaptations (Udenze and Ugoala, 2019:49; Fiske, 2000:79).

Manzini, Mariotti, and Ülkü 2019:1343-1347, together with Oundo (2011), argue that accessibility and complementarity factors are necessary for deciding to choose a location. The blend of the two theories (Accessibility and Complementarity) is also imperative when choosing a site for potential commercial property development. A developer has to make sure that the site can fit for the exact development in terms of its viability. A place that has low transport costs may attract many competing uses (Edwards, 2017).

Generally, accessibility describes the degree to which a neighbourhood setup can be usable by as many people as possible. It includes a major road system, minor road,

and street networks available in the neighbourhood. In simple terms, it is the degree of ease in reaching certain areas in the neighbourhood. Unfortunately, Ghana experiences poor roads and street access in some residential areas. Either the street is untarred or blocked by another neighbour's building (Adedire and Adegbile, 2018:126-129).

The concept of accessibility produces a location pattern that commences from the commercial property (retail or office) at the CBD with transportation, manufacturing, and residential in that order (Guerra and Kirschen, 2016). General accessibility refers to the property location nearness to bus stations, motorways transport facilities, and service facilities such as banks and post offices, and accessibility occur when complementary facilities are seen to be in close proximity (Oni *et al.*, 2014:12). Iroham, Oluwunmi, Simon, and Akerele (2016) explain that economic costs of movement will be cost-effective in terms of distance, convenience, and time in reaching areas where facilities can be accessed.

Kwan and Weber (2008:110-115) identified that measures of neighbourhood accessibility are usually consisted of two items; utility and transportation. They believe that transportation consists of travel distance and time while the utility item consists of the amount involved and the location of various activities. Banister and Berechman (2005) asserted that the meaning for the small and variable impact of urban railway investment is "ubiquitous" accessibility found in the urban centres. However, Cervero and Duncan (2004:299-304) make a remarkable input that accessibility increasingly aligns metropolitan location systems to create advantages for real estate development. Botha (2013) together with Needham and Intel Corp (2003), agree that access determines the amount of rent or price to be paid for the premises of a property.

It can be emphasised that accessibility and Complementarity are closely related factors that influence property demand (Siripanich, Rashidi, and Moylan, 2019:2). This means that commercial properties located in areas with good road networks may compel higher sales and rentals. In addition, the next subsection below leads to an in-depth location theory analysis.

2.4.2.4 Location Theory Analysis

Location theory is based on the production function (Laporte, Nickel, and Saldanha-da-Gama, 2019:1-8; Boshoff, 2016:251-256). It primarily deals with the areal pattern of distribution of productive activities (Oni *et al.*, 2014:11; Oni, 2013). Location choice theory has been proposed at the business and firm levels (Dubé *et. at.* 2016; Dubé and Brunelle, 2014:245-248; Alamá-Sabater, Artal-Tur, and Navarro-Azorín, 2011:393-396) because studies exploring location decisions for establishments consider the main economic activities that keep the neighbourhood running (Yang and Moodie, 2015; Kabisch, Strohbach, Haase and Kronenberg, 2016:586-589). This means that the existing studies based on micro spatial planning data have been emphasised as the role of agglomeration economies, market size, land cost, and regional endowments when interpreting business location decisions (Dubé *et al.*, 2016;147). It appears that commercial activities are highly dependent on the location because location determines the volume of sales and the area that could be profitably occupied (Oni *et al.*, 2014). This means that location can serve as a prime factor to consider when developing a commercial property.

According to Smersh, Smith, and Schwartz (2003), the following are the main factors to consider when locating a site for residential flat development:

- Legal restrictions and government regulations (land use controls)
- Availability of social amenities (shopping malls, restaurants, golf, parks)
- Physical suitability for development (slopes and soils)
- Existing land use patterns on other developments
- Access (including proximity to highways)
- Distance to employment sources
- Neighbourhood factors (age of surrounding housing stock, schools, crime)

In practice, availability and distribution of utilities such as water, electricity, telecommunication and drainage system are also important factors as far property development is concerned. Some investors' decision to select a site for development is based on their intuition and assumptions (Oni *et al.*, 2014:11; Oni, 2013). This can impede the success of the development. For viability's sake, proper site selection needs to be done through scientific methods and modern economic theories.

2. 4. 1 Population and Demographic Trend Analysis

Population is defined as a group of individuals of the same characteristics living in the same given area (Tarsi and Tuff, 2012: 3). Hauser, Dickinson, Travis, and Koffel (1975) state that demography is the study of the size, distribution, composition of the population, and the components of changes such as migration and social mobility, which are identified. According to the United Nations Statistics Division Report (2014), demography is termed as the description of people. In a deeper context, population's size consists of population density, and it determines the size of a population amount (Tavecchia, Pradel, Genovart and Oro, 2007:1481-1484). This may imply that the number of individuals per unit area in the population segment is usually expressed as density.

Gimenez, Lebreton, Gaillard, Choquet, and Pradel (2012:307-311) indicate that members of a given population are subject to the same environmental challenges, and they interact and share the same resources over a certain period. Population ecologists mostly depend on a series of statistical measures and demographic parameters to define the population. Studying global population trends and anticipating the demographic changes to come remains crucial for the achievement of the 2030 agenda for Sustainable Development Goals (SDGs). The 2030 SDGs agenda highlights that people are the pivot for sustainable development (Campagnolo and De Cian, 2020: 15-125). One of the areas that require sustainable development in this twenty first century is housing.

The world's population has reached 7.7 billion as of the mid of 2019, and it is expected to increase to 8.5 billion in 2030, 9.7 billion in 2050, and 10.9 billion in 2100 (United Nations World Population Prospects Highlights 2019:5). Such projection increase by the year 2050 is further predicted that there will be unprecedented shifts in population which will drive changes in demand for real estate investment opportunities, especially for the middle-class urban population in Africa, Asia, and Southern America (PricewaterhouseCoopers Real Estate Report, 2020:12). It can be deduced from the above projections that real estate investment prospects go hand in hand with the increase in population.

However, Countries experiencing rapid population growth are mostly found in sub-Saharan Africa (United Nations World Population Prospects Highlights 2019:5).

According to the United Nations (UN) Report (2012), it has been discovered that approximately half of the world's population lives in urban areas and African countries are no exception. So it is also that urbanisation trend in developing countries, including Ghana, is progressively growing. Africa as a continent is projected to reach an urbanisation rate of 50% in 2035 (UN Population Report, 2012).

Africa continent as an emergence in the world has the highest recorded demographic growth rate, and it presents itself as a niche area for real estate investment growth. Demography is an instrument a property practitioner can use to measure the potential demand for property and purchasing activities (Malpezzi, 2014). The demographic study of a potential area may help a developer make an informed decision on a kind of commercial property development that can yield a better return for his investment. Asongu (2013:14) remarks that a continent having high population dependence may have a high propensity for consumption. For example, the PWC Report (2018) entitled; doing business and investing in Ghana declares that Ghana's population is approximately 29 million, and the concentration of people is mostly located in the Greater Accra Region. This might contribute to why many real estate developers and investors have directed their development into the Greater Accra Region. Under such instances, demography serves as the main indicator in measuring property demand. This influences tenants' and buyers' behaviour (Gnagey and Tans, 2018: 61-67), especially when it comes to the decision-making process in choosing the appropriate unit for their homes (Majid and Daud, 2017; Jain and Mandot, 2012:81).

Morgan et al. (2013) point out that the rural-urban growth situation in Ghana is coupled with urban housing supply challenges. Based on the field evidence, there is a lack of housing for middle and low-level income earners in major urban areas such as Accra and Tema. The situation is very alarming due to the high influx of the population from the rural areas. The situation has resulted in the establishment of slums and squatter camps in the cities (Kwofie et al., 2011). In 2005, the total population of people living in slums and squatter camps in Ghana was amount to 5.4 million, and the figure increased to 7.1 million in 2010 (Kwofie et al., 2011).

Huxham (2010) believes that the dependency of population growth is based on a number of factors such as birth rate, mortality rate, immigration, and emigrants

springing out into the local, regional, and national levels. White and Gray (1996:3) argued that the demographic data for each market area should be continuously examined and monitored. The outcome of the examined demographic data can be used for national policy making and business decision making. For instance, in an attempt to build a shopping mall in an area, a survey should be conducted to determine the area's demographic status in anticipating the future potential of the proposed development. That is why Huxham (2010) and White and Gray (1996:3) found that a shopping centre mall's development success depends on the tenants' success.

Emphatically, property economists and policymakers have established that demographic criteria such as occupation status, age distribution, gender, marital status, educational qualification, number of households, and income level are the main factors that provide a high impact on the choice of property (Stojanov, 2013:122-128; Bujang, Zarin and Jumadi, 2010:49-54). In the same way, desires, tastes, and preferences, together with these demographic criteria mentioned, determine a kind of commercial property facility a developer has to provide in a particular area. However, Ariyawansa (2010) is of the critical view that all of these demographic criteria do not influence the housing market and property purchasing activities.

Usually, there are diverging preferences among the adult and older generations (Majid, Said, and Daud, 2017). This implies that retired persons may prefer to acquire accommodation having a simple design with flexibility movement inside. Hurtubia, Gallay, and Bierlaire (2010: 1-9) assert that age helps identify the household's current lifecycle, whether young family or old family. Because age influences people to make different decisions regarding their requirements (Majid, Said, and Daud, 2017; (Majid, Said, and Daud, 2012:2).

According to PWC's (2015:18) Report on real estate, building the future of Africa asserted that Africa's young population would motivate the demand for real estate whiles urbanisation will continue to expand cities. The Report continues to claim that cities will attract more people, but the cost of prime urban real estate per square metre will increase, making them less affordable, leading to greater urban density and smaller apartments. The rationale to deliver affordable housing is to ensure effective plan planning systems (Agyemang and Morrison 2018:2643). This

projection has provided a deeper real estate trend property developers can follow to venture into the urban areas of Africa.

Therefore, one can argue that the emerging demographic trends are likely to create diverse needs for new property development opportunities for property investors. Production of residential flats for low-level income earners in the various urban settlements in Africa countries will be a huge potential to tap into by real estate producers. Urban apartment developments for young professionals in the sectors such as health, education, and security in Ghana who have sustainable income and job security can be identified as an investment area property developers can look at. In Accra, for example, the population is tremendously growing, and the catchment areas are becoming more urbanised (Hammah and Ibrahim, 2014:82-86), and undertaking housing development in such areas may be viable.

2.5 PESTEL FACTORS ANALYSIS AND VIABILITY REPORTING

Costs of ineffective management and decision making can be very high in many business cycles especially in construction and real estate industry (Kauškale and Geipele, 2017: 505-509). This is because markets can be characterised by several changes, including liquidity, allocated efficiency, sale volumes, regulations, and other economic information (Tirole, 2014). In addition, negative fluctuations can be expressed in economic slumps and recessions according to (Kauškale and Geipele, 2017: 510-513). Therefore, the economic downturn adversely affects several sectors, and the real estate sector is no exception.

Several works of literature prove that construction entrepreneurship economic performance affects real estate product prices and changes constantly under conditions based on the larger market economy (Kauškale and Geipele, 2017: 510-513; Kauškale and Geipele, 2016:1). Mihályi and Szelényi (2019) assert that the demand analysis for commodities depends on their price, the price level of all other commodities, and the total expenditure spent on the commodities. Households' demand for each commodity changes in response to dramatic price level changes, while uncertainty and liquidity constraints affect individual consumption rates. This situation exists in the periphery of the real estate market. More importantly, aspects of price sustainability in the real estate market depend on the macro-environmental factors (Kauškale and Geipele, 2017: 510-513; Kauškale and Geipele, 2016:1).

Therefore, the literature section below analyses the real estate market against the major macro-environmental factors that influence the viability of commercial property development and investment projects.

2.5.1 PESTEL analysis

The PESTEL framework groups the macro-environmental factors that influence business industry and development into six (6) main areas thus political, economic, social, technology, environmental and legal. Johnson *et al.* (2011: 50) submit that the PESTEL framework provides a comprehensive list of factors that actually influence the success or failure of business industry. The framework is seen as a simple and effective tool to carry out situation analysis by identifying the key external forces that may affect an organizational success (Zafar, Rajpoot, and Khalid, 2014:42-46). Jurevicius (2013: 2) and Mourfield (2014) believe that these external forces can offer opportunities and threats to business organisations. It can be inferred that entrepreneurs should be strategic in their decision-making to find ways to leverage the opportunities within their environmental business space to mitigate the opposing threats.

Upon this background, the PESTEL framework has been adopted to lense commercial real estate development and investment opportunities in Ghana. The strategic utilisation of the PESTEL analysis framework will cover the external macro-environmental forces prevailing in the country and the internal risks such as stakeholder-related issues and other influencing factors within the market (Mourfield, 2014). This means that using the PESTEL framework to conduct a risk analysis of a business is widely extended into external and internal issues concerning the real estate industry.

Globalisation brings huge implications and offers huge potential to the world economies and the new markets (Kauškale and Geipele, 2017; Kauškale and Geipele, 2016:49). The world is seen as a global village, and there is capital flow from one country to another for investment purposes. The focus on a selected market is one of the key factors to consider in the process of internationalisation (Kauškale and Geipele, 2016:49). Property development is considered a business (Botha, 2013:32), and for that matter, macro-environmental factors that influence

business industries also influence property development operational firms. Figure 2.7 below demonstrates the PESTEL factors that influence commercial property development industry firms.



**Figure 2-7: PESTEL Analysis Framework
Institute of Management Services (2020)**

It has been recognised that several important factors that affect many industries' market entry are not limited to market competition, market potential, economic, social, political environment, and government regulation (PMBOK Guide, 2017: 510; Mourfield, 2014). Botha, Adendorff, and Smallwood (2014:1012-1015) assert that the property development market is at the highest macro-economic level operation within an institutional framework, political, social, economic, and legal structures in our societies.

Hence the discussion below provides a breakdown analysis of each PESTEL factor relative to the property development market or industry, particularly in commercial property development.

2.5.2 Political Factor Analysis Relative to Commercial Property Development

Political risk may be linked to the changes in government legislation systems, regulations, policies, and improper administration systems (Zavadskas *et al.*,

2010:34; Li and Liao 2007: 2043-2047). In the Sub-Saharan African region, some countries face multiple numbers of structural pressures, including violence and conflict, due to political instability (Bello-Schünemann and Moyer, 2018:1-7). In West Africa, for example, Nigeria struggled with the 'Bokuharam' menace. However, Ghana has emerged as a paragon of political stability over the past two decades serving as a shining example to the rest of African countries (Center for Strategic and International Studies Report, 2011:1). History proves that commercial real estate development and investments do well in countries where there is political stability.

Ghana has successively recorded mega commercial property development projects over the last ten years. Amongst the few ones are the Accra mall development, Accra Stanbic Height office building development, Accra West Hills mall, and the Kumasi mall development in the Ashanti Region. There are also other residential flat developments that have spread mainly in Accra and Tema. This supports the claim that political stability climate positively influences the perceived success of property development projects (Botha, 2013: 215).

Ghana is ruled by two major political parties, namely, the New Patriotic Party (NPP) and National Democratic Congress (NDC). The NPP has been in power since 2017. Hence the following are the highlights of the commitment the party has made concerning infrastructure and real estate development business, and the below facts have been extracted from the Party's Manifesto for the 2016 Election campaign.

- According to page 9 of the Manifesto document, the party promised to put in place a policy framework that will help businesses to expand and create jobs, as well as promote the growth of entrepreneurship opportunities for young Ghanaians;
- On pages 13 and 14 of the Manifesto, it is stated that the effect of the last five (5) years of 'DUMSOR' (erratic power shortage in the country) on our economy will be addressed through the development and implementation of Energy Sector Financial Restructuring and Recovery Plan, incorporating a liquidity management mechanism for the Volta River Authority (VRA), Electricity Company of Ghana (ECG), Northern Electricity Department (NED) and the BDCs to end "DUMSOR" in the short-term;
- Page 14 establishes that the Party will establish land banks with infrastructure development such as roads, drainage, water and power in place to pave way for

affordable housing units' development through a Public-Private-Partnership (PPP) approach;

- Page 25 indicates that the 5% VAT on real estate sales will be abolished;
- Page 25 further indicates that working with identifiable groups such as the Trades Union Congress (TUC), Ghana National Association of Teachers (GNAT), National Association of Graduate Teachers (NAGRAT), Farmer's Groups, and other trade groups to facilitate the construction of homes for their members through the provision of the appropriate financing guarantees; and
- Page 25 lastly states that the Party will also facilitate the development of an active mortgage market to expand mortgage loans to Ghanaians.

Political analysts may say that some efforts have been made and much need to be done to achieve the above-stated promises. Though the party is on its fifth year term of office, in examining all the six (6) promises bulleted critically, one can argue that the party has to work harder to deliver the promises before completing its term on the eighth year.

The elimination of the 5% VAT on real estate sales by the NPP government has relieved the property purchasers in Ghana. As a result, the Dumsor (blackout situation) energy challenge, which was devastating, making property occupants and users result in other sources of energy to operate building facilities in return for increasing operational property cost, has become a thing of the past. The Institute of Statistical Scientific and Economic Research Report (2014) shows that the country lost average production worth approximately US\$ 2.1 million per day (US\$ 55.8 million per month) as a result of the Dumsor crisis.

The Party agenda to promote Public-Private-Partnership (PPP) in providing housing units for the people in Ghana is a welcoming opportunity that can bring growth and sustainability in the real estate industry. Because partnerships involve contract arrangements between the government and private firms, it makes projects reach substantial levels of risk transfer (Sharma and Bindal, 2014:1270-1274). PPP projects are designed and implemented to government expectations and also to resuscitate the private sector development. The government may use this policy to bring the trade unions and the property developers together to speed up resolving

the 1.6 million housing units deficit the country is faced with (Adu *et al.*, 2019:269). Though real estate development is capital-intensive activity, much can be achieved within the shortest possible time (Gibson, Wallace, and Sturgill, 2015).

In this instance, the emerging astute real estate entrepreneurs may have to strategize and propose this effect to receive a market share of the real estate potential offer enshrined in the NNP 2016 manifesto document. The government needs to continue encouraging property investment and development, particularly in projects that have positive externalities for the entire society (Hui and Lau, 2011:781-784). Osei-Kyei and Chan (2016:170-175) advocate that PPP can provide a wide variety of importance for the society because it is a win-win collaboration by improving creativity and innovation, reducing the time of project implementation, distributing risk, improving the effective allocation of public resources, and minimizing the cost of project execution.

The intent of the Party to initiate programmes in solving infrastructural problems such as poor drainage systems will facilitate real estate development projects. Ironically, flooding as an effect of poor drainage systems in the cities of Ghana, as discussed previously, is rated to be the number two (2) national disaster; it has been occurring for about eighteen (18) times, killing over four hundred (400) people in total (Tengan and Aigbavboa, 2016:498). Because no effort has been taken so far to arrest this problem, Ghanaians think that the government's pledge to end flooding has become mere rhetoric (Tengan and Aigbavboa, 2016:499). Ahadzie and Proverbs (2011:182-188) argue strongly that government institutions' and stakeholders' roles have become necessary in addressing flooding. Looking at the intensity and the extent of the degree of flooding phenomenon, the government is expected to resolve it once and for all.

The party's effort to complete the promises can help to increase more business opportunities for property developers in Ghana.

2.5.3 Economic Factor Analysis Relative to Commercial Property Development

Kauskale and Geipele (2016:39) argue that economic problems affect the business environment and society in general. This section provides a detailed analysis of economic factors and their implications on the commercial property industry in the Ghanaian economy. The discussion intermittently also provides suggestions on how

commercial property developers may strategise their business operations in attaining business sustainability in these continual changes of economic conditions. Sustainability in this context is the aggregate of characteristics including economic security and growth (Turcu, 2012: 121), vis-à-vis its impact on the property development industry in Ghana.

Geipele, Kauskale, Lepkova, and Lias (2014:3) proclaim that the real estate investment strategies should be designed around these factors, namely, economic, political, social, environmental, and technological factors. However, the most comprehensive among the group of factors is the economic factor, and it includes globalisation economics, national economics, macro-economics, micro-economics factors, and the economic development cycles (Syms, 2013).

Liu and London (2013:1-6) establish an interrelationship existing between housing supply and monetary policy in the context of global economic turbulence. This relationship is much felt in economies where budgets and monetary forecasts largely depend on foreign borrowing stock. Most developing countries including Ghana, fall as victims in this regard. Countries that depend largely on net foreign liability eventually shift from construction activities to export-oriented activities to diminish their dependency on external financing (Kauskale and Geipele (2016). When a country reaches such an economic stage, it may slow down growth in the construction industry, and property development is considered an aspect of construction.

In the world economic outlook, it is recommended that policies should be put in place to nurture the recovery and help the vulnerability from serious fiscal and current account deficits (Kauskale and Geipele, 2016; International Monetary Fund, 2013). Economic regulations on excessive demand for mortgage lending can be set to assist in controlling housing prices (Hwang, Park, and Lee, 2013:2106-2112). This mechanism may be appropriate to suggest in dealing with economies experiencing the a housing bubble effect in the property market. However, housing bubble effect is currently rear in the Ghanaian real estate market.

Kauskale and Geipele (2016), together with Syms (2013) side to advocate that the interaction between the real estate industry and the Gross National Product (GNP) at the macroeconomics level are based on the following factors:

- a) Incomes: rents and direct employment;
- b) Equity release;
- c) Investment;
- d) Space for living and producing;
- e) Collateral for loans and business;
- f) Housing derived demand-increases in a boom;
- g) decreases in recession; and
- h) Land for food production.

Real estate development is significantly influenced by financial opportunities and the effective and efficient decision making in the industry (Kauskale and Geipele, 2016). Economic indicators and their performance are also important in the commercial real estate analysis (Komisarov, Kauškale, and Lepkova, 2016: 51). For example, when the economic indicators discussed previously in this chapter (Inflation, interest rate, and foreign exchange) performance show favourable on the country's economy outlook, the vacancy rates in retail and industrial properties begin to decrease while the demand for rentals increase (Komisarov, Kauškale, and Lepkova, 2016: 53). The opposite brings negative effects on the commercial property rental market.

Real estate investment trends may affect the future supply of real estate products in cities. However, what should inform the investor to invest in real estate should be based on the risk assessment report conducted (Kauskale and Geipele, 2016; Kauskale and Geipele, 2014:4). For the real estate investor to achieve his or her investment objectives, the country's economic reality cannot be taken out of the equation. Economically, investors should carefully assess the real estate investment environment and develop investment strategies that can make the development satisfy the needs of the target market chosen (Kauskale and Geipele, 2016; Kauskale and Geipele, 2014:5).

A country's strategic economic policies can be characterised in many forms, thus; distributing economic resources to the overall sectors or targeting a certain sector to boost economic growth (Glasson and Marshall, 2007:316). For example, if a government decides to invest more in the infrastructure and housing sectors of the economy, it gingers growth and creates business opportunities at large. Over many decades, Ghana's building construction sector of the economy has been receiving

much more investment in value than other sectors of the economy and, the highest of all occurred in 2011, amounting to the tuning value of USD 6.1billion (Quartey, 2017:9).

According to the Ghana Labour Market Profile Report (2020), Ghana has slightly recovered from a recession into a fast-growing economy due to the driving of oil production expansion coupled with agriculture, manufacturing, and service sectors. The report further details that the recent government economic reforms are making gradual progress. The growth may affect the real estate sector in the longer-term.

Ghana is a service-driven economy, and that most of the building materials are imported. Adewuyi and Akpokodje (2013) support the motion that exchange swing is the bane of concern due to inflation. This causes building materials prices to become expensive (Adu *et al.*, 2019: 269). In practice, this challenge is affecting the real estate industry.

2.5.4 Social Factor Analysis Relative to Commercial Property Development

Commercial property development and investment positively impact our socio-economic lives since it boosts economic activities and provides comfortable, decent, and affordable housing. Therefore, it is important to adopt appropriate methodologies to develop real estate projects that may sustain innovations and require public-private participation (Soriano Llobera and Roig Hernando, 2015:35-38). Mulliner, Malys, and Maliene (2016: 146-149) point out that housing affordability is a socio-economic requirement that improves the quality of life in society. Property has been a concern for individuals, families, groups, and governments due to the urban civilization. (Danso and Manu, 2013:19). Having a satisfactory shelter has been the dream for many people in Ghana (Danso and Manu, 2013:20). However, few can secure their satisfactory accommodation.

Some of the sustainable business integration models are classified as excellent institutional theories (Bryson and Lombardi, 2009:97-103; Brandon and Lombardi, 2010). However, institutional theory covers the influence of social pressures that lie outside an organisation (Brandon and Lombardi, 2010). Ghana is blessed with hospitable people, the right attitude to work, and they usually do not encourage social pressures in their field of work.

Bribes and irregular money payments are often exchanged in return for public services (GAN Integrity Report 2018). This act also occurs when securing land title registration and building permit for property development projects at the Lands Commission and Municipality offices. The government attempt to address bribery and corruption has made the President of Ghana to create an office for the Special Prosecutor purposely to fast track corruption cases and prescribe appropriate remedies and punishment for the culprits. This may serve as a deterrent to the public and private officers who may indulge in corruption activities. The purpose is to open a freeway for effective and efficient service in promoting socio-economic growth in the country.

Another social factor that has a relationship with housing development is the rural-urban migration phenomenon. Afrane *et al.* (2016:140) posit that rural-urban drift in Ghana immensely contributes to the housing deficit in the urban areas. According to the Business World Ghana Report (2012), the trend has increased the pressure on urban housing. This has created a huge scarcity in the housing industry, thereby affording real estate development opportunities in urban areas. Ghanaians used to shop from the local market centres called Africa market centres over the years in the retail sector. Therefore shopping from the emerging shopping mall establishments is currently perceived as a place for the high class and few middle-class income earners. Hence, traditional advertising by the shop operators period by a period may turn to shift a large number of people's attending to the shopping malls' marketing.

2.5.5 Technological Factor Analysis Relative to Property Development

Based on section 9 of the 2030 Sustainable Development Goals (SDGs), technology has become vital in addressing global challenges such as job creation and energy provision. Technology enhances business operations worldwide. The use of the internet to connect business operators to their customers has increased market awareness and competition worldwide (Global Risk Report, 2012). Doing business is gradually becoming easy due to the application of technology, and it is increasingly becoming the engine to drive development growth in almost all the spheres of life in this twenty-first century.

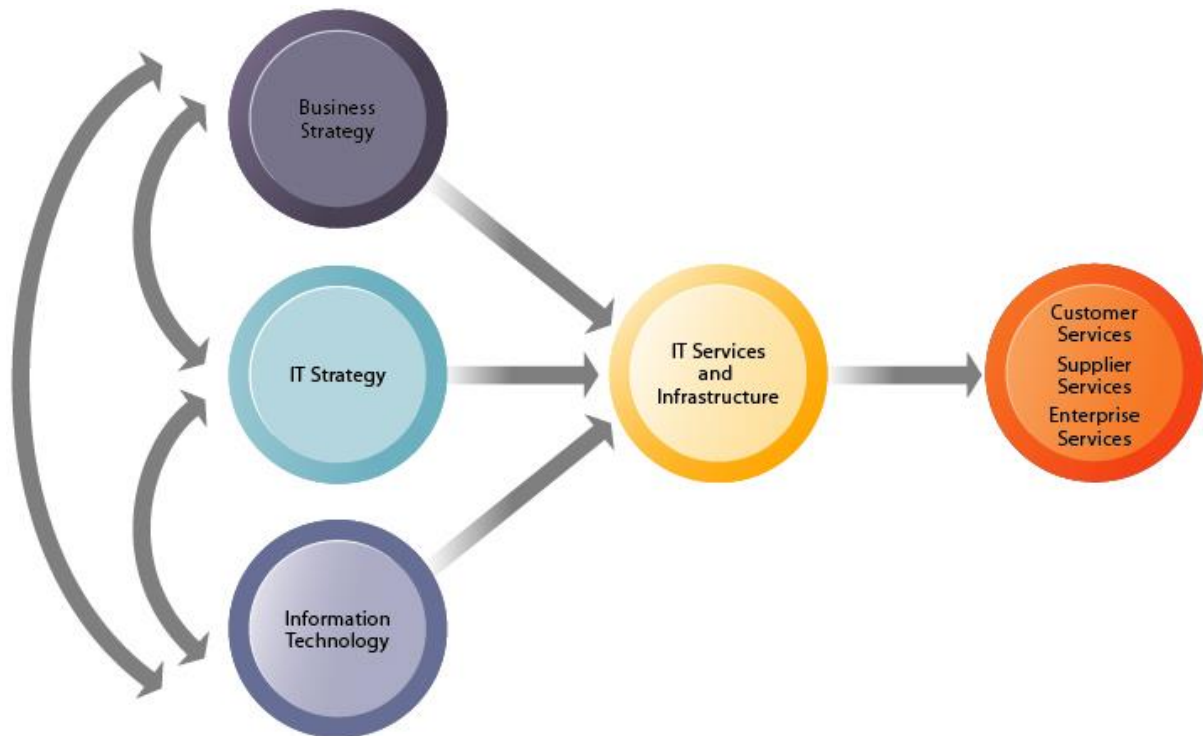
The built environment is gradually modelled with the rapid and intensive creation of the use of information, knowledge, and automation technologies as decision support systems (Kaplinski and Tupenaite, 2011: 170-172). The use of technology cannot be left out in the commercial property development processes from the conceptual level to the managing level. It can be used to perform financial viability analysis, assess risks, design and draw plans for the proposed development, and manage the entire project. It is agreed that technology helps speed up built environment processes, cutting cost, improving quality, and adding value in decision-making throughout the project life cycle (Kaplinski and Tupenaite, 2011:172).

The energy supply consists of hydroelectric, liquid fuels, biogas, LPG gas, nuclear, wind, solar, and geothermal resources, while the transportation system is characterised as a multi-commodity flow of movement of goods (Ibáñez, 2010:2-3). In addition, transportation includes other systems for human mobility. Therefore, the availability and affordability of energy resources and transportation systems support commercial property investment sustainability. In this section, extensive analysis is conducted to cover the following areas:

- Information communication technology applications in the real estate development industry and their impact on the success of real estate industry competitive market;
- Sources of energy available to support commercial real estate development in Ghana; and
- The transportation system in Ghana.

2.5.5.1 Information Communication Technology Applications in the Real Estate Industry

History tells us that human beings have been recording, gathering, retrieving, and communicating information since Sumerians in Mesopotamia in 3000 BC (Butler, 2012). Information communication practice has been part of human life activities. Adah, Paul, and Achoba (2018) crown it that Information Technology (IT) is just a broad term that covers almost all the aspects of the use and application of computer technology. The IT practice includes the link between business and IT services support systems shown in the framework 2-5-1 below:



(Source: <https://paginas.fe.up.pt/~als/mis10e/ch5/chpt5-1bullettext.htm> (Accessed on the 6th May 2020))

Framework 2-5-1: Information Technology Support System

Adah, Paul, and Achoba (2018:79) argue that Information Technology Communication (ICT) contributes to the advancement and improvement of designs in the built environment industry. A typical example is the invention and implementation of the Building Information Modelling (BIM) system. Research shows that new technology applications have fundamentally changed the construction and development projects methodologies, and these technologies include but are not limited to simulation, visualization, and analysis software applications (Kocakaya, 2019:323). The use of these applications helps to predict how buildings will perform and appear after completion (Kocakaya, 2019:323-324-325). Indeed, professional architects and building engineers in developing countries have started using some of these software to design and plan proposed building projects (El Shafie, 2000).

Geographical Information System (GIS) is a computer system for capturing geographic data, storing, analysing, and displaying geospatial data (Chang, 2016).

The uses of drones may classify under GIS. The GIS is also referred to as a computer system for capturing and storing data related to positions on Earth's surface. Urban planning in developing countries is conducted chiefly based on inadequate information and sometimes in a disjointed way (Dale and McLaughlin, 1988) due to the implementation of appropriate technology. Recent Ghana's Digital Technology System (2018) implementation is meant to fill in the digital system technology gap and to put the country on the level of geographical-lense worldwide for technological growth. It is in line with this reason why Mutesi and Kyakula (2011:263-268) believe that sustainability for efficiency in production in private and public organisations are dependent on the adoption and implementation of ITC.

Technology plays an important role in the built environment by empowering the professionals with appropriate datasets and tools to enhance project productivity (Adah *et al.*, 2018:81). Kocakaya (2019:324) is of the view that BIM technology and its applications help the construction projects to be completed in a shorter time, at a lower cost, and in a more sustainable way, whereas Becerik-Gerber and Rice (2010:185-189) argue that BIM technology is too early to be adopted in the built environment sector. The adoption of the BIM technology may lead to the decrease of jobs for built environment professionals (Becerik-Gerber and Rice (2010:185-189), but the benefits of its implementation to the clients is so enormous. El Shafie (2000) states that the evolution of technology will profoundly impact firms in the building construction and architectural industry functions. The United Kingdom (UK) government has mandated the use of BIM technology to execute state construction and building contracts in April 2016 by the central procurement office (Kocakaya, 2019:325). Sooner or later, other governments worldwide may follow suit.

In the real estate industry, the ITC is useful in the areas of planning, project risk assessment, project estimation,, and management. To ensure sustainable growth, it is imperative to employ appropriate ITC to enhance the existing professional practices (Adah *et al.*, 2018:80).

2.5.5.2 Sources of Energy Available in Ghana

Energy is one of the resources used to generate production and to offer services. According to section 7 of the 2030 Sustainable Development Goals enacted by the United Nations Development Programme (UNDP), electricity access has increased

drastically between 1999 and 2010 by 1.7 billion worldwide. The document further predicts that the demand for electricity will continue to increase as the world's population continues to increase.

According to Edenhofer *et al.* (2011), the demand for energy helps meet social and economic needs for mankind through the provision of services and productivity. Experience shows that countries having energy availability at a moderate and affordable prices are likely to attract international investors in the production sectors. Asumadu-Sarkodie and Owusu (2016) support the notion that energy development has a link with the economic development of a country. Bakirtas and Akpolat (2018:110-116) envisage that electricity energy sources are key determinants for economic growth in any emerging economy.

In Ghana, the major source of energy supply is the hydroelectricity generated from the Akosombo Hydro Power Station. There are other menial sources of energy such as solar, LPG gas, and wood fire for the household sector. However, hydro-electricity is mostly used in factories and commercial property facilities. Although the country experienced a serious energy crisis over the few years (Institute of Statistical Scientific and Economic Research Report (2014) however, the government initiative on the Power Barge Programme (PBP) implementation has been able to sustain the energy supply in the country at the moment. Asumadu-Sarkodie and Owusu (2016:4) assert that an effective energy policy serves as a measure to support innovation and alternative energy technologies in meeting the growing demand for energy in the future. Therefore, to create an effective energy policy, policymakers are to conduct energy sector viability analysis (Omer, 2008:2117-2122).

This may help the government to determine the cost of production and the profit before the budget may be allocated for any new energy supply expansion. Ghana has joined the few Economic Community of West African States (ECOWAS) in principle on the White Paper Policy to start producing bio-mass energy, consisting mainly of wood fuel and crop residues (Zhang, Adu, and Fang, 2018:284). It is estimated that the bio-mass will produce almost half of the energy the Akosombo hydro-power currently produces. This indicates that the country will be able to have more energy supply if the project commences and becomes successful.

The solar irradiation level in Ghana lies between 4.5 to 6.0 kWh/m²/day, and the highest irradiation levels occur within the northern part of the country (Mensah, Kemausuor, and Brew-Hammond, 2014:323-327). Based on the above information, the government has started piloting solar energy systems initiatives in some selected areas (Mensah, Kemausuor and Brew-Hammond, 2014:325-328; Zhang, Adu and Fang, 2018:284-288). Solar potential available in Ghana signifies that commercial property developers and investors can take advantage in this regard to invest in solar energy generation for their properties by installing solar panels. Such development may assist property developers and investors in managing energy costs and power-cut risk in many commercial facilities in Ghana.

2.5.5.3 Transportation system in Ghana

In simple terms, a country's transportation system can be viewed as the structures and measures put in place to ease human and goods movement from one area to another in the territorial borders. It includes the road network, railways, and aircraft services available. Ferro and Behrens (2015: 123-128) explain that Public Transportation (PT) is essential in improving the socio-economic standard of the people in the country. The PT development further serves as a critical component to address poverty (Yobo, 2018:36). The literature in this section analyses the various kinds of transportation systems available, including their challenges and prospects thereof in relation to commercial property development and investment projects.

Road transport is the most common means for mobility in Ghana, and it accounts for high passenger travels and other logistic carriages (Owusu-Bio, Frimpong, and Duah, 2016:79). Therefore, successive governments always try to invest in road infrastructure, and one can say that Ghana is far ahead in terms of road development as compared to other West African countries. However, the challenge is the traffic congestions in major cities such as Accra, Tema, and Kumasi due to the rural-urban migration, indiscipline driving, and lack of adequate parking lots (Owusu-Bio, Frimpong and Duah, 2016:2). In addition, the country is becoming urbanised, and major economic activities take place in the cities (Masron, Yaakob, Ayob, and Mokhtar, 2017; Owusu-Bio, Frimpong, and Duah, 2016:79).

The government attempt to resolve the above threat to economic growth by frequently investing and undertaking road infrastructure expansion projects and installing traffic lights (robots) in the cities (Anin, Annan, and Alexander, 2013: 2). Other previous governments have shed more light on the transport industry by establishing state transport institutions to cater to public transport needs (Yobo, 2018:36). Some of the State Transport Companies which have been established are the State Transport Corporation (STC), Omnibus Service Authority (OSA), and among others (Yobo, 2018:36; Faajir, and Zidan, 2016:18).

The Ghana government is currently busy reforming the railways sector. For this reason, Cervero (2011) argues that the state has as a social obligation and responsibility to enhance mobility for its citizens to increase easy accessibility of movement for economic vitality and basic social purposes.

Commercial property development, which is located in the areas where access to transportation is available, may triumphant the risks associated with the lack of a transportation system because mobility is the basic need for humans (Cervero, 2011). The linkage between transportation and socio-economic development will continue to be positing as a cutting edge for global economic perspective (Anin *et al.*, 2013: 2).

2.5.6 Environmental Factor Analysis Relative to Property Development

The word “environmental” is often associated with some human activity's impact on natural systems (Morelli, 2011:4). Ecological is characterised as the fundamental concept for the interdependence of the elements in the natural systems. In this modern term, ecology and development are fused to gain sustainable development (Larsson, 1957:155). The environment is increasingly depleting due to the increase in human activities. It is on this view that Nations worldwide are on strive to protect their environment at different speeds with different levels of rigour by using different approaches and techniques (Zhao, Tang, Lu and Zhang, 2019:46).

Under this section, an effort is made to analyse environmental factors holistically to outline the various causes and effects of environmental degradation in the context of property development and construction projects. The section further discusses

measures and developmental practices that can be adopted to minimize environmental degradation during real estate development processes.

Zhao *et al.* (2019) argue that the environmental problems in developing countries are not the product of affluence living but poverty oriented associated with the lack of the socio-economic needs of the people. This assertion is in a true sense due to the fact that indigenous people involved themselves in illegal mining activities and, in the process, caused land pollution for survival. In this view, human needs for settlement, shelter, and transportation services as the underlying motivation to perform construction activities by clearing the land to meet such requirements (Morelli, 2011:5). This eventually diminishes biological diversity in the ecosystem (Morelli, 2011:5-6). However, environmental sustainability conditions must be set to ensure balance and inter-connectedness so that human society may satisfy their needs while less or no harm is done to the environment. Furthermore, section 3 of the SDGs 13 urges the world to take urgent actions to address climate change and its effects. Therefore property developers are to find ways to fulfil SDG 13 in their property development activities.

Translating the current and expected environmental problems into preventive or corrective environmental policies depends much on political and social factors on both the national and regional levels. Zhao, Tang, Lu, and Zhang (2019) claim that environmental quality measures are matters of social and society's choice depending on how a nation views it. This may mean that the various countries need to assess their environmental challenges relative to the social needs of their people and formulate appropriate measures in addressing the challenges. Standards are also important to be met relative to the environmental laws. For example, Zhang (2015) mentions that construction and building activities cause noise, water, and air pollution, and for that matter, site control measures are supposed to be put in place to reduce them to a minimum level. Recently, South Korea and other nations have switched to some significant efforts by reducing environmental loads related to buildings by enacting a green building certification system (Kim *et al.*, 2020).

The growing body of evidence shows that new buildings that deliver superior environmental performance, known as "green buildings," provide a range of tangible and intangible financial benefits to investors, developers, and the occupants (Zhang,

Wu, and Liu, 2018: 2234-2239). Moreover, green buildings turn to be cost-effective in terms of their low maintenance level and energy efficiency benefits. Therefore, it can be assumed that based on cost-effective principle, many such effort can help achieve the set SDGs for 2030 by the UNDP.

Russell, Cameron, Socha, and McNinch (2013: 27-32) submit that buildings account for approximately 40% of the global warming emission. Building development is important, and its growth rate has an impact on the environment (Wu, Shen, Ann and Zhang, 2016:895-901). Due to its intensity and magnitude on the environment, measures to address environmental challenges have caught the attention of world leaders on both international and national levels to discuss and investigate ways to enhance the environment (Kim *et al.*, 2020: 1).

Zhang (2015: 1395-1396) compiles five (5) practical measures a developer can adopt to manage a development site to minimise environmental effects. They are as follows:

- The developer should base on ISO14000 environmental management standards by developing environmental management system, developing a sequence of environmental protection and prevention measures to be followed by the site workers;
- Measures such as building boundary fencing and adopting the use of well-maintained machines and equipment. This can control the noise level during construction.
- Construction vehicle access points should be located away from sensitive site areas, and the use of concrete mixers at the site should be kept minimum by encouraging the use of ready-made concrete;
- Wastewater settling ponds should be built in advance for waste treatment by avoiding wastewater being discharged into the natural water bodies and city gutters; and
- Solid waste should be concentrated in garbage tanks and should be removed periodically as soon as the tank becomes full. Each waste tank should be labelled with one waste material to avoid material mixing.

Apart from the above development site measures outlined, other measures are usually practised on the site to minimise environmental effects. These include

hoarding to prevent more dust exposure and re-growing of plants and ornamentals around the site's compound. Ornamental plant growing in this context is defined as the cultivated plants grown for decoration (Hernández, Morales and Saurí, 2014:7185-7189) and environmental purposes. In practice, a developer and his professional team have the duty and responsibility to take into consideration the nature of the land, such as the topography and soil type, when constructing the development. This means that a suitable site allocation is paramount to construct and maintain a sustainable environmental efficiency (Al-Azhari and Al-Najjar, 2012: 25-28).

The Environmental Assessment Regulations (EAR) 1999 of Ghana was passed to ensure that Commercial and Industrial Properties (CIP) construction projects meet all the environmental requirements set by the Environmental Protection Agency (EPA). Part 1-Regulation 3 of the EAR 1999 states that “the Agency shall issue no environmental permit for any of the undertakings mentioned in Schedule 2 to these Regulations unless the responsible person submits the environmental assessment report to the Agency in accordance with these Regulations in respect of the undertaking”. Schedule 2 mentioned in the quotation includes commercial building construction projects. The EAR further explains in Part 1- Regulation 4 that a developer has to apply for an environmental permit and be approved before a proposed project can be commenced, and the permit, if granted, shall be valid for 18 months. Therefore, the government of Ghana has legally empowered the EPA to evaluate projects with the environmental lens to determine whether or not a proposed project can be permitted to take off.

A 'polluter pays principle' is described as the legal principle used to address environmental problems at the international levels. The principle states that whoever is responsible for environmental damage should bear the costs associated with the effect. Khan (2015:639) argues that the polluter pays principle application makes rational economic and policy sense. Its application to the global problem of climate change would require that every country reduce pollution emissions stemming from its territory (Biermann, 2003). In addition, the principle may caution countries not to expose pollutants beyond their borders. O'Connor (1997: 450–455) was of the view that the principle proper application might require monetary evaluation and

estimation of the environmental damages that occurred through versions of expanded cost-benefit analysis.

2.5.7 Legal Factor Analysis Relative to Property Development

The term real estate is derived from legal terminology, and it refers to the means of acquiring interest in physical land and everything on it (Chynoweth, Oladapo and Olotuah, 2007: 331). The mineral right in the land remains to the state according to the laws in Ghana. Many years ago, the legal concept of land was viewed as the natural and artificial resources possessed on the earth's surface (Kline and Alig, 1999). Under this section of the literature, several laws affecting property development, ownership, management, acquisition, and transfer of rights are analysed from a wide range of perspectives. The purpose of the discourse was to bring to light the legal realities of the real estate industry.

Owning a property in the eyes of the law is seen as a right. **Article 17 of the Universal Declaration of Human Rights (UDHR) 1948** states that “everyone has the right to own property alone as well as in association with others.” **Article 21 of the American Convention on Human Rights (ACHR) 1969** upholds the right of everyone to use and enjoy his property and can lay down the possibility of subordinating the right to the interest of society. **Article 14 of the African Charter on Human and Peoples’ Rights (AfCHPR) 1981** also guarantees property rights and indicates that public need and the general interest of society are the legitimate grounds for limiting or restricting the said right.

The above legal quotations prove that personal property ownership right and the state power to make a compulsory acquisition for the public interest is internationally recognised and accepted. Some development activists advocate that governments in developing countries can use the eminent domain power at their disposal to claim lands situated at the strategic areas in the urban areas and redevelop such areas into first-class commercial properties (like tower buildings) as an attempt to solve urban congestion problems their countries face. **Article 26(1) of the 1995 Commonwealth of Independent States Convention on Human Rights and Fundamental Freedoms** follows the approach set forth by other regional mechanisms stipulating the right to property subject to the State limitations deprivation with compensational requirements.

The twentieth century saw the expansion and contraction of government land ownership in the UK (Home, 2009: 6). The Chinese Constitution also declares that the government owns all urban areas and that all lands in the rural areas are owned collectively by individuals unless otherwise specified by law (Lou 2008). It can be inferred from the two statements above that governments have the upper hand in controlling lands in UK and China. However, recognizing the exclusive mutual structure of property rights may provide a better grasp of property (Lundin, 2015).

Article 25 of the 1996 South African Constitution, for example, elaborates on the property right. Yet, in the same vein, expropriation is permitted by **Article 25**. In Ghana, the government draws her eminent domain power from **Article 20 of the 1992 Constitution of Ghana**. However, **Article 20** details the following conditions to fulfil before the compulsory acquisition can be exercised by the government:

(a) Unless the taking of possession or acquisition is necessary in the interest of defence, public safety, public order, public morality, public health, town and country planning or the development or utilization of property in such a manner as to promote the public benefit;

(b) Unless the necessity for the acquisition is clearly stated and is such as to provide reasonable justification for causing any hardship that may result to any person who has an interest in or right over the property;

(c) Compulsory acquisition of property by the State shall only be made under a law which makes provision for prompt payment of fair and adequate compensation and a right of access to the High Court by any person who has an interest in or right over the property whether direct or on appeal from any other authority for the determination of his interest or right and the amount of compensation to which he is entitled; and

(d) Any property compulsorily taken possession of or acquired in the public interest or for a public purpose shall be used only in the public interest or for the public purpose for which it was acquired.

Asabere (2004:673-676) puts it across that most African countries' land market is encumbered by customary rights. Ghana real estate law, for example, entails common and customary law philosophies. It has been reckoned that the vast

majority of land in Ghana is still customarily owned by stools, skins, and families, with a few portions compulsorily acquired by the state in the colonial and post-colonial era (The Real Estate Law Review Eighth Edition, 2019:126). Some economists believe that the African institutional structures are an outdated anachronism, impede economic progress, and there should be a change to be led by our political leaders (Asabere, 2004:673).

The second highest interest in land under Ghanaian land law is the allodial interest. But the right to exploit minerals, rocks, ores, and fossil fuels found under the land is vested in the President according to Section 1 of the Minerals and Mining Act 2006 (ACT 703) and Section 3 of the Exploration and Production Act 2016 (Act 919). Besides, property interest acquisition may take other forms. Usually, freehold and leasehold are common in Ghana. Land tenure is legally distinguished as being either freehold or leasehold (Home, 2009: 3). The owner of the freehold may exercise his or her rights of ownership over the land for perpetuity (The Real Estate Law Review Eighth Edition, 2019:126) while the leasehold rights are to the maximum term of 99 years for Ghanaian citizens and 50 years for non-citizens (The 1992 Constitution of the Republic of Ghana). The anecdotal evidence indicates that the trend after the independence of Ghana in 1957 was that most land purchase transactions at the cities scene were on a freehold basis until the 1992 Constitution of Ghana reversion to the leasehold titles (Asabere, 2004:674).

Industry practice shows many challenges associated with land ownership and acquisition in Ghana due to the absence of clear boundary demarcations among the customary landowners. This has presented a unique challenge, such as multiple land sales transactions. However, section 277 of **Ghana's Land Act, 2020 (Act 1036)** has been recently enacted to address such challenges by providing **sanctions and punitive measures to stop** fraud in land transactions.

Besides, understanding joint tenancy and common tenancy succession ownership registration is crucial when it comes to the joint acquisition of property. The joint tenancy enjoys the right of survivorship, meaning that if one of the joint owners's dies, the property becomes the bonafide property of the remaining owner(s) automatically. However, with the tenancy in common ownership arrangement, if a joint owner dies, his share of ownership goes to his estate and, it is transferable

(Leeds Day joint tenancy and tenancy in common Report, 2009). Therefore, joint commercial property developers and investors have to be abreast with these two property terms in determining ownership registration as far as succession is concerned. Purchase of real estate mandates the owner to have legal rights to the land and the improvements thereon (Tyvimaa, Gibler, and Zahirovic-Herbert, 2015). Tyvimaa *et al.* (2015) further mention the following four (4) elements that associate with the property right of ownership:

- 1) The right to use the property;
- 2) The right to change property form and substance to increase value;
- 3) The right to receive benefits from the property such as rent and capital gain on sale; and
- 4) The right to transfer all or part of the rights specified in (1–3) to another person.

A developer may apply for a change of use of the whole land or part of the parcel of land by applying to the Town and Country Planning Division of the Local District Authority (Section 93 of the Land Use Act and Spatial Planning Act 2016).

The land is legally permissible to easements, restrictions, and servitudes due to the nature of topography or the situation prevailing within the area where the said land is located. Easement occurs when a person owns a parcel of land by law, and other people may enjoy rights over the land, which may consist of a right of way and a right to water flowing (The Complexity of 'Easement' in English Law Report, 2019). One of the leading cases that establishes easement principles in the court of law is *Re Ellenborough Park* (1956) CH 131. In this case, the main characteristics of an easement were laid that there should be a dominant and servient tenement. The dominant tenement in this analogy is the erf (plot) of land whose owner enjoys the right of easement, while the servient tenement is the plot over which the easement is exercised. The illustration suggests that a commercial property developer may need legal eyes or legal assistance when the site for a development project.

Institutional requirements are to be fulfilled before a real estate development project can commence (The Real Estate Law Review Eighth Edition, 2019:130). This will help the developer avoid legal charges and penalty payments liabilities from the various institutional bodies such as the Municipalities and EPA. However, the

process of acquiring development permits in Ghana may be cumbersome. Therefore, this literature review conducted extensive discussions under the Governance Structural Factors section from pages 62 to 76.

A contract is one of the key documents property developers and investors are exposed to when it comes to the project preparation stage through to the re-development stage of the development cycle. Gao, Singh, and Mehra (2011: 333) submit that fair knowledge and understanding of contracts may help formalise business processes through its realisation. Contract tends to explain the expectations which are required from each party and serve as an evidence document to settle issues on legal recourse should those expectations not be met by any of the parties. **Section 12(1) of the Labour Act, 2003 (Act 651) of Ghana** states that a contract of employment shall clearly express the rights and obligations of the parties. Krähmer and Strausz (2011:1015), per their candid opinion, argue that professional practitioners managing procurement projects should stress the importance of pre-project planning.

The emerging proactive law representatives suggest that one solution to address the challenges of projects can be adopting a more proactive approach to contracts (Berger-Walliser, 2012:13-19; Lundin, 2015). Proactive contract per se is practice-oriented research based on formulating contract processes using organisational abilities and capabilities (Nuottila, Kauppila and Nystén-Haarala, 2016:151). In other words, companies need to improve their contracting capabilities to produce better contracts, and that lawyers should set business objectives instead of preparing for possible litigation to attend to (Berger-Walliser, 2012). In practice, it is always important for a developer to employ the services of a lawyer in complex and megaproject contracts. This will help the developer to understand every nitti grity in the project contract.

Experts of the law view law as an instrument not only to manage risk but also to create value in project execution (DiMatteo, 2010:727-732). Project contract helps to institute anti-avoidance of litigation and to ensure effective and efficient project delivery. Some scholars argue that the project contract approach leads to a better collaborative climate between all project parties and thereby facilitates the generation of maximising value creation in projects (Lundin, 2015). This implies that

commercial property developers and investors have to work with their lawyers to achieve efficiency as far as drawing and formulating work contracts for their sub-contractors and consultants.

A property attracts taxes worldwide, and the main one is known as property rate (Mabe, 2013:12). Wynter (2014) asserts that property tax payment can be traced from the Leviticus era in the Holy Bible. Dye and England (2010) states that it is as old as the old time when the tax was collected and used in Egypt and the Roman Empire to build tabernacles and palaces. These illustrations show that property tax payments in the past had its significance. Property rate is a levy charged by Municipalities on landed properties situated within their jurisdiction as a source of revenue (Kayuza, 2018). In Ghana, the property rate is administered by the Metropolitan, Municipal, and District Assemblies on the estimated value of a property depending on the classification of the area where the property is located. It is charged and collected annually. It is, therefore, the responsibility of the property owner to honour the payment promptly and regularly.

According to **Stamp Duty Act, 2005 (Act 689) of Ghana**, when a property is sold, the transfer of ownership stamp duty fee has to paid to the Lands Commission, and the charges usually range from 0.25% to 1% of the property value. **Section 22 of the Act** also indicates that lease agreement attracts stamp duty fees. Therefore, a property investor considering purchasing a property may need to factor into his expenses the stamp duty cost. Stamp duty is payable on almost all documents conveying rights and interests in land (The Real Estate Law Review Eighth Edition, 2019:131).

Capital gain tax is a tax the owner pays to the government based on his profit from the sold property as the extra value accumulated on the investment amount. Capital gain is invariably needed to ensure that income from assets in one's country is subject to tax (Wei, 2015: 3244-3248). The principle is actually based on the equivalence of income gain. It is commonly used to justify taxing capital gain realised by non-residents on the disposition of landed properties and business assets used in a permanent establishment situated in the country (Wei, 2015: 3246-3249).

The PESTEL analysis conducted above has shown that Ghana's commercial property development and investment projects are on their cutting edge. However,

economic and legal risks such as economic hardship among citizens due to low-income levels and land issues threaten Ghana's commercial property development and investment. This reason why Knack and Keefer (2003:56-60) proclaim that insecurity of property rights is a major obstacle for successful economic growth and development. Hence, there should be appropriate measures to be put in place to mitigate these threats by the property stakeholders.

2.6 VIABILITY REPORTING

A viability report is an evidence document critical for decision making in business. It aims to ensure efficient business strategy and sustainability (de Oliveira and Zotes, 2018:96-99). Usually, this report is prepared by professional consultants. In the property development field, property economists/valuers can assist in the preparation of the report. Factors including the economy outlook, property cycles, and markets, governmental policies and strategies, legislations, environmental impacts, and technology factors can affect the viability of the development project (Komisarov, 2016:50). The local economy performance and potential prospects can be useful indicators for the likelihood viability of any commercial property development project (Wilkinson and Reed, 2008). The location, where the proposed development is to be situated, is also a critical factor to analyse (Costello and Preller, 2010:174).

Critical analysis of the location may assist the developer in making an informed decision as to whether the proposed development may be able to generate appreciable rent of income or attract good market value. Currently, commercial rent for office buildings and first-class mall space range between US\$20 per m² per month and US\$45 per m² per month within the prime areas of Accra (The Real Estate Law Review Eighth Edition, 2019:133). Viability reporting covers the details of cash flows by conducting effective financial feasibility analysis and ensuring effective professional consulting throughout the project life cycle. Such details are provided in chapter three of this study.

2.7 CHAPTER SUMMARY

Taking efficient decisions in a particular situation is a difficult challenge in modern construction economics. This stands to be a key test of trial by almost all the property developers and investors in commercial property development industry. Decision to decide whether or not to invest in a certain commercial property development should be a result of thorough feasibility studies and investigations, so that risks associated with the development can be minimised.

It is also imperative to formulate a conceptual framework to forecast future trends for commercial property development projects by studying the changes in the macro-economic and environmental factors. In summary, this chapter has provided detailed accounts of factors that influence the viability of property development and investment projects.

The next chapter addresses the general risk management strategies in commercial property development projects.

CHAPTER THREE

GENERAL RISK MANAGEMENT STRATEGIES IN COMMERCIAL DEVELOPMENT PROJECTS

3.1 INTRODUCTION

The previous chapter dealt with the factors that influence commercial property development and investment viability. It mainly discussed the macro-economic and governance structural factors, PESTEL analysis, and viability reporting for property development projects.

Over the past two decades, many countries have experienced enormous expansion of international real estate investment opportunities (Brounen and De Koning, 2014: 197-204) and unprecedented integration of capital markets in their jurisdictions, which have brought emerging trends, coupled with opportunities and challenges to the real estate industry across the globe (Cashman, Harrison and Seiler, 2016: 1), in part owing to 21st century economic and technological trends (Cashman, Harrison and Seiler, 2016: 1-3; Brounen and De Koning, 2014: 199-205).

This chapter explores the various risk management strategies that can be used in commercial development projects and to establish the perspectives and views of the professionals involved in the commercial property development process (Costello and Preller, 2010: 172). In a practical context, property developers remain in contact with the field implementers to institute practical risk management strategies (Cashman, Harrison and Seiler, 2016: 1; Costello and Preller, 2010: 172).

This chapter addresses the risk management strategy considerations in commercial property development projects. These may include the effective application of construction project management techniques and PMBOK techniques, the effective implementation of project risk management concepts, real estate trends, cycles development, and the application of business management skills and general management techniques. Other areas discussed include financial feasibility analysis and the study's theoretical framework.

3.2 CONSTRUCTION PROJECT MANAGEMENT

According to the South African Council for the Project and Construction Management Profession (SACPCMP) policy document (2006: 3), "Construction project management is the management of projects within the built environment from conception to completion including management of related professional services". Voordijk (2009: 713-720) indicates that construction management has many practical challenges. These challenges are supposed to be handled and addressed by the construction managers. Lack of management-related indicators may include lack of planning and control, ineffective site management, and poor communication among the parties involved in the construction, and non-availability of materials (AlSehaimi, Fazenda and Koskela, 2014: 52). AlSehaimi *et al.* (2014) further contend that these indicators mentioned above can be controlled and that efforts should be taken to minimise their impact thereof (AlSehaimi, Fazenda and Koskela, 2014: 52; Voordijk, 2009: 713-720).

Construction project management competencies employed by a developer will determine the degree of the project's success. Although every project is unique, project management success and product success are interlinked since costs overrun and time affect the attainment of profit (Liljedahl and Moller, 2014: 2). Jha and Iyer (2006) are of the view that the attitudes of the project managers and project team members contribute to the project's success or project failure. Many construction management scholar's attention to developing management strategies for construction projects over the past decades has been growing (Abatecola, Caputo, Mari and Poggesi, 2013: 89-94; Caputo, 2013). This has created an opportunity to zoom into effective techniques of managing construction projects (Liljedahl and Moller, 2014: 2; Caputo, 2013: 65-67).

The design and construction of real estate can affect a variety of stakeholders' interests (Caputo, 2013: 66). Stakeholders such as investors' prime interest is to achieve quality of work and reduce risks to the minimum level. The growing tendency on the part of stakeholder groups in an attempt to influence the implementation of the construction project appears to achieve the set investment goals (Azadi *et al.*, 2011: 785-788; Onkila, 2011:379-383).

Construction is an important activity that needs effective and efficient management techniques to accomplish. Nations worldwide have realized the significance of the the construction sector in relation to the socio-economic and sustainable development perspectives (Khan, Liew, and Ghazali, 2014: 2). It is the backbone of every economy (Panayiotou and Medda, 2014: 425- 427). Ng *et al.* (2012) also supports the notion that construction projects improve the quality of life and enhance people's well-being in modern society.

Industries nowadays are becoming dynamic, and the construction industry is no exception. It is the most vibrant and complex environment where factors such as time, cost, and quality are critical when measuring success (Mavi and Standing, 2018: 751-754; Chan, Scott, and Chan, 2004: 153-155). Almost all the construction projects are site-oriented and executed with the involvement of stakeholders when compared with other sectors (Ribeiro, Paiva, Varajão and Dominguez, 2013: 603). Construction is more or less predictable, complex in nature, and requires effective planning and communication (Mavi and Standing, 2018: 753-755; Ribeiro *et al.*, 2013: 603).

A project is considered successful when it is completed on time within the bracket of the planned budget, and the quality satisfies the stakeholders (Chan, Scott, and Chan, 2004: 153-155). To improve construction projects' effectiveness, it is perhaps essential to study the experiences of project success and failure (Shahu, Pundir and Ganapathy, 2012: 123-126). This may help to draw preventive lines of practices and methods that led to the failures. The lesson learned can be used to improve a future project. Delay, budget overrun, low productivity, and product quality-related problems are noted to be often criticized in construction project management (Ribeiro *et al.*, 2013: 603).

The success of a construction project is an important result most governments, users, and the entire community members are interested in. In modern construction projects, there are significant challenges that face the clients and contractors in terms of the project delivery due to increased complexity in designs and the involvement of different stakeholders (Doloi, 2009: 1245-1249). The findings of the global survey conducted internationally show that the weak vein of construction projects is due to economic constraints, lack of new technology transfer, and

unskilled stakeholders (Armstrong, 2013). Projects are designed to respond positively to expected certainties (Turner and Müller, 2003: 1-6), while project activities demand proper planning and commitment from the project team members.

The increasing process of globalisation and the changing market trends are noted to be the main factors influencing the importance of commercial property development and management (Dziadosz and Meszek, 2015: 266-271; Zavadskas, Ustinovichius, and Stasiulionis, 2004:151). Commercial real estate objects are not only meant for rentals as a business centre but also considered as an inseparable part of any other business (Zavadskas *et al.*, 2004: 31). Developing a new commercial property involves developmental stages. The stages begin with acquisition and gathering of significant factors of production such as capital, enterprise, land, and labour (Costello and Preller, 2010: 171).

Technology is increasingly becoming an important factor (Kaplinski and Tupenaite, 2011:172) to consider in modern commercial property development. Installing technological equipment such as escalators, solar panels, and CCTV gadgets help to improve efficiency, provide constant flow of energy, and maintain security within the facility or development. Some significant cyclical factors have characterised property development in Australia for example, the process involves significant risk and is in the interest of market participants, capital markets, and the public sector (Costello and Preller, 2010: 171). When the developers and investor well understand the development processes, it assists them in allocating physical resources appropriately and efficiently at each stage of the development.

Yang (2011) believes that measuring the success of construction projects and their management is cumbersome due to the increasing complexity of projects. It is also imperative to recognise that more parties from multi-disciplinary fields are getting involved in projects (Singh *et al.*, 2011). That is why Chavada, Dawood, and Kassem (2012: 213-216) together with Chau *et al.* 2003), assert that standards and stringent measures on planning and communication are required. González *et al.* (2015: 681-684) believe that the construction sector needs competent professionals. Construction management in a broader perspective has emerged over the last decades coupled with the establishment of many disciplines aiming to cover a

multiplicity of tools, concepts, methods, and experiences whose borders are quite blurred (Drouin, Besner, and Hobbs, 2012).

Therefore, the above reasons call for competence in construction management industry to undertake effective planning, control, and monitoring techniques to minimise possible risks throughout the project (Atout, 2014: 515-518). Workers involved in the project are the executors, and, at the same time, they are may pose the highest risk factor if there is poor communication and lack of commitment among the workers (Atout, 2014). Aibinu and Odeyinka (2006: 667-670), in their investigation, identified that the effect of such incidence causes a delay in the project execution. Because of such incidence, Kenneth (2007) suggests that construction project managers should sharpen their management competencies to understand the dynamics and arrangement of project implementation.

The application of pre-construction approach and processes within the context of property development is another dimension developers can assess (Maududy and Gamal, 2019; Costello and Preller, 2010: 172). Usually, a housing development begins with the client's decision to invest in a construction project to satisfy an identified need (Pryke and Smyth, 2012: 305). This is similar to many commercial real estate development projects. Torp, Belay, Thodesen and Klakegg, (2016) claim that the duration for working on a construction project can be divided into three (3) main parts, which are before, during and after completion. The construction project development and building sector incorporate innovation through processes and products from initiation, planning, execution, and hand-over stages (Økland, Johansen and Olsson, 2018: 626). The discussion below explains the four (4) basic stages (initiation, planning, execution, and close-out) involved in construction project management and also highlights on the importance of ensuring competencies in each stage of construction.

3.2.1 Construction Initiation

The initiation stage is critical to a project's success (Pelken, 2013: 235-238; Colker, 2012: 35-37). In this first stage, the qualities of the proposed project satisfaction are established (Zainal, 2017: 177). This helps the project manager and the other stakeholders formulate and conceptualise the intent of the construction project in

order to meet the expectations of the client and end-user needs. In making the best decisions in construction project management, it must come from all the knowledge sources of specialists (Mulliner, Smallbone, and Maliene, 2013: 270-274). For instance, a need analysis report is conducted with the commercial property construction project, and the client design brief statement is formulated at this stage. The stage is viewed as the starting point of the project where the definition of the problem is analysed in an attempt to address the identified problem theoretically (Elmahroug, Tutesigensi, and Brookes, 2014: 937-942; Mulliner *et al.*, 2013: 270-274).

This implies that constructing a commercial property is not only to serve as a social facility in the community but also meant to address the economic problems potential users are facing in the property sector. Zainel *et al.* (2017) and Zainal and Rashid (2013: 15-22) are of the combined view that decision-making in the initiation stage demands a hard-thinking that needs the application of systematic knowledge technical know-how. Project ideology is drawn and assessed at this stage before the project moves into the planning phase (Zainal, 2017: 178). The process begins by exploring and assessing the development, followed by the development evaluation, pre-feasibility investigation, development schedule, and lastly, feasibility study (Shay, 2019: 19).

Stakeholders' consultation is done at this phase to establish harmonisation of the construction process. However, in practice, stakeholders' identification and project initiation may not appear to be harmonised (Lobo and Abid, 2020: 96-99; Elmahroug, 2014: 937). In addition, stakeholders must be able to visualize the bigger picture where the stages of the project can be inter-related to bring a total solution in the delivery of the intended benefits for all stakeholders (Lobo and Abid, 2020: 96-99; Aapaoja, Kinnunen and Haapasalo, 2013). The commercial property construction project's stakeholders include property developers, property investors, construction project managers, architects, structural engineers, building inspectors, property economists, quantity surveyors, artisans, property occupants, and users. Therefore, it is imperative to initially seek the interest of stakeholders and input them in the conceptual ideology of the development. Furthermore, due to the fact that projects nowadays take a whole lifecycle of the end product into consideration, it is necessary

to obtain the needs of the end-users (Aapaoja, Kinnunen and Haapasalo, 2013: 2; Elmahroug, 2014: 937-939).

3.2.2 Construction Planning

Planning is simply defined as the process of making a decision on what to do and how to do something before the proposed action is commenced (Lines *et al.*, 2015: 21-24; González, 2010: 1129-1133). The planning stage in construction project management allows the construction manager to determine all the activities, how the activities will be performed, allocate workers responsible for each activity, and identify other resources necessary to perform the activities. Effective planning enhances construction project performance by resulting into countless benefits such as time savings, change order frequency and project scope clarity (Lines, 2015: 21-24; Weerasinghe, Soundararajan and Ruwanpura, 2007: 123-126). Planning activity includes project duration estimation, materials, cost, number of workers and sequence of project activity formulation (Abdulkareem, 2020: 3; Lines *et al.*, 2015: 21-24).

Sometimes, construction projects are not well planned due to reasons such as lack of time and organisational expertise (Rahmat and Shah Ali, 2010: 273-277; Walewski, Gibson Jr. and Vines, 2006: 5-9). Lack of effective planning may lead to poor implementation and owner dissatisfaction (Lines *et al.*, 2015: 23-29; Wang and Gibson Jr., 2010: 341-346; Casinelli, 2005). Realising the project objectives becomes a challenge and poor planning impacts both contractors and owners' desires (Braumah, 2014; Braimah and Ndekugri, 2009: 1279-1283; Ndekugri, Braimah and Gameson, 2008).

Lines *et al.* (2015: 25-29) and Sullivan (2011: 210-214) reaction to the limitations of project planning indicate that unique planning methodologies have to be taken into consideration in the construction industry pre-contract period. Procurement processes to appoint a qualified contractors for the work are part of the construction industry's planning activities (Lines, Perrenoud and Sullivan, 2013: 27). However the unique way of timing every activity enables all the deliverables in the planning process to be attended to as part of the final contract that exists between the client and building contractor (Lines *et al.*, 2015: 22). The deliverable item of the pre-contract planning is the operational plan for the execution of the project (Lines *et al.*, 2015: 25-29; Sullivan, 2011: 210-214).

Wang and Gibson Jr. (2006) agree that the initial stage of project planning occurs when the client determines the need for a new development project. This means that milestones schedule set for operational activities and interactions are supposed to be supported with a technical plan delivery approaches that the contractor may apply to ensure productivity. In the same way, a construction risk identification and risk management plan are prepared at this stage (AlMaian, Needy, Walsh and Alves, 2015: 11-17). Literature in its rights suggests that the fundamental source of risk in projects stem from the uncertainties that sometimes difficulty to anticipate the future eventualities during the period of contract procurement and, it can render traditional contract inaccurate (Kaplinski, 2013: 533-536; Witt and Liias, 2011: 173-177).

Operational plan provides potential clarification on the duration and methods to be employed for a proposed construction with the aim of streamlining all activities involved. Meanwhile, planning activities often occur during the bidding process and pre-construction period (Lines *et al.*, 2015: 28-35). Therefore, pre-contract planning may be a viable methodology that can be appropriately incorporated in commercial property construction project management. Other construction management experts believe that activity planning is dynamic and can continue throughout the construction phase (Abbasian-Hosseini, Howell and Liu, 2016: 2129-2134; Cohenca-Zall Laufer, Shapira, & Howell, 1994).

Project owners, designers and specialist consultants conduct and analyse the project feasibility in detail to determine the level of viability (Lines, Sullivan, Smithwick and Mischung, 2015: 1170-1174). Preparations such as working drawing designs and cost of estimations, location analysis, site investigations, application for development permits and procurement processes are conducted at this stage. It is important to note that professionals' inputs in the construction project are solicited during the front-planning period (Lines *et al.*, 2013: 27-28).

Al-Reshaid, Kartam, Tewari and Al-Bader (2005: 351-355) believe that proper attention should be paid to the pre-construction stage. It is at this stage that majority decisions and planning are made. Proper pre-construction planning can be viewed as a major contributor to the success of every construction project (Wood and Gidado, 2008; Johansen and Wilson, 2006: 1305-1308). The pre-construction phase makes the implementors of the construction project identify their professional

monitoring and controlling responsibilities prior to the commencement of the proposed project (AlMaian *et al.*, 2015:17-19; Al-Reshaid *et al.* 2005: 351-353).

Pre-construction planning tends to influence cost savings and, for that matter, promotes sustainability and provides valuable information to the property investors (Daluwatte and Ranasinghe, 2018; Kreitler, 2011). It can be observed that pre-construction planning is done to project schedules of work and project costs. Such information obtained becomes a valuable guideline for construction work. Hence pre-construction planning is claimed to be a key determinant factor by Andersson and Rosenberg (2012: 18). Scheduling of a project is vital, and it is due to the fact that everything should be planned (Nicholas and Steyn, 2008).

Yu, Shen, and Chan (2010) claim that the design requirements which has satisfied the client needs together with the site and environmental requirements should be understood by the construction manager. Furthermore, the steps to design effective control techniques to establish valid work performance standards will help promote quality results (Seiler, Lent, Pinkowska and Pinazza, 2012: 6072-6078). Ineffect, when to commence work, how much the project costs, materials and equipment to use, and type of expertise required are determined at the project's planning phase (Abdulkareem, 2020: 3). Fulmer (2015) and Kenneth (2015: 23) classify planning into two (2) main categories; front end planning and pre-bid planning. These two (2) planning categories are described below:

3.2.2.1 Front-End-Planning (FEP)

According to Shenhar and Dvir (2007), FEP is defined as the process of formulating and analysing the objectives, goals and strategies necessary to drive a project to its successful end throughout the life cycle of such project. FEPF is the process of gathering accurate information for clients and investors to address risk and make decisions in allocating resources to maximise the probability of the project success (Sarde, Peth, Galli and Katta, 2016: 1). The purpose and the resources available for the project have to be taken into consideration when conducting an FEP for every construction project. Merrow (2011) affirms that the time factors and resources available in the pre-project planning stage will determine how the project's future goes.

Samset and Volden (2016: 297-299), together with Williams and Samset (2010: 38-41), submit that the FEP starts with the conceptual stage of the project where relevant information is generated and consolidation is done by the stakeholders. Information gathered at this point assists the main stakeholders (investors and developers) to make a final decision on whether to accept the project and for execution to commence or not. FEP is described as the initial planning process taken by the project stakeholders such as the client, various designers involved, and the independent consultants hired to undertake feasibility analysis and draw up the development's project scope (Samset and Volden (2016: 300-304). It is also pertinent to note that the client interest in the overall development should be well addressed as it has been put forth by Swedish government policy requirement (Levander, Engström, Sardén and Stehn, 2011: 753; Statskontoret, 2009).

The building contractor's input may be captured into consideration during the FEP efforts (Fulmer, 2015). Wang and Gibson Jr. (2006: 878-881, 2010: 343-348) proclaim that activities perform between project initiation and the designing stage fall into the front end planning activities. Therefore one may explain that the front end planning is also about the formulation of the strategic objective for the construction project by owners in an attempt to address the project risk at a high level of order while allocating the required resources to maximise the success of the proposed project (Griffith and Gibson, 2001: 69-72). Interestingly, the front end planning process covers budget formulation and the drawing of project scope.

Sarde *et al.* (2016: 1) cluster the FEP as feasibility analysis, conceptual planning, pre project planning, front-end engineering design programming, schematic design and front-end loading. This means that formulating the conceptual ideology of the proposed construction project and further steps to conduct feasibility analysis form a major component of the pre-construction stage. In contrast, some of the construction managers' inability to predict the feasibility results and success of the project is observed to be a contributing factor towards the failure of projects (Atout, 2014: 516). Therefore, Sarde *et al.* (2016: 1) outlines that the FEP process comprises; organisation, data generation, evaluation of alternatives, project definition and decision making.

3.2.2.2 Pre-Bid-Planning (PBP)

The PBP, according to the building contractor's perspective, involves the activity which takes place before bid submission (Lines *et al.*, 2015: 23-29; Kara, 2010: 1313-1318). Activities including the proposal formulation and the review of the project scope as well as pre-construction documentation form part of the pre-bid planning stage. Many authors, including Abbasian-Hosseini, Howell and Liu (2016: 2130-1235) as well as Laufer, Shapira, Cohenca-Zall and Howell (1993: 427-430), view it that initial project execution information preparation and resource allocation are not far away from the PBP activities. Any activity performed between the front-end planning and execution stages may be termed the PBP activity. It could be bottlenecked, therefore, so that effective and efficient contractor planning at the pre-bid stage can yield good results for high productivity in construction projects (Howell and Liu, 2016: 2136-1238; Thomas and Ellis Jr., 2007: 544-547).

Olawale and Sun (2010: 512-516) bring it to light that time spent during the briefing stage of the design to explain the complexity and scope of the proposed project while gathering information for designing leads to accurate budget planning. Budget planning at this stage of the construction will help the client to actually establish an approximate estimate for the various resources needed to commence and complete the project. Baldwin, Austin and Waskett (2009: 70-73), together with Choo, Hammond, Tommelein, Austin and Ballard (2004: 313- 317), express that planning and management of the design stage calls construction planners to take into detail the interactive characteristics of the process and the dynamic requirements of the project stakeholders. This instance usually occurs in property development projects where the economic conditions of the target clients change.

Kenley (2005:15-18) suggests that location-based planning system approach has to be taken for construction project management so as to prevent construction disruptions. However, Modern Construction Management Approach (MCMP) requires stakeholders to formulate the theoretical model before the actual work is executed so that possible scenarios can be drawn on how to address some of the likely risk events which may emerge. Procurement is one of the key processes in a construction projects which creates and manages project requirements at the planning phase (Ruparathna and Hewage, 2015).

The procurement process involves tendering to select consultants and building contractors for the proposed project (Ruparathna and Hewage, 2015; Uttam and Roos, 2015: 405-408). Rivadeneira and Garin (2019) assert that the tendering process focuses on where the building contractor begins to get involved in the bidding stage until the close-out stage tend to register his commitment to the project. Managing tendering procedures is sometimes cumbersome and uncertain due to the fact that it involves the coordination of many activities and personalities with different priorities and aims (Mohamad, Hamdan, Othman and Noor, 2010).

3.2.3 Construction Execution

The execution stage of construction is viewed as the third phase in the project life cycle (Ismail, Abdul Rahman and Memon, 2013: 2-7; Eadie, Browne, Odeyinka, McKeown and McNiff, 2013: 146-151). This stage is the lengthiest in the construction process because the actual work begins, conducted and is completed at this stage (Demirkesen and Ozorhon, 2017: 1642-1646; Banihashemi, Hosseini, Golizadeh and Sankaran, 2017: 1106-1110). Roslan, Zainun and Memon (2014: 8) also assert that the execution stage is normally the longest stage in the project life cycle and bears the highest cost implication. Cost estimate for construction execution is known to be more cost intensive than all other stages; because many resources, including time, materials, equipment and labour are involved (Demirkesen and Ozorhon, 2017: 1642-1646). The stage requires efficient monitoring and controlling systems to ensure quality and efficient performance.

In principle, the stage involves the fulfilment of all specifications and standards set in the Bill of Quantities (BOQs) of the project. That is why Chin, Spowage and Yap (2012: 18-22), together with Charvat (2003), state that the project team are to collaborate and work with the aim of achieving the building deliverables in order to satisfy the client's requirements. Charvat (2003) believes that the success of this particular stage depends on the planning stage since the execution stage is meant to implement the activities of the planning stage.

Usually, the activities to be performed at the execution stage are defined during the planning and designing stage. However, other construction components may be pre-constructed at the factory and later transported to the construction site for

assembling and fixing. A typical example is the pre-fabricated concrete slabs. Construction nowadays is taking different forms and models where pre-fabrication technology is increasingly gaining root to minimise the cost of production (Roslan *et al.*, 2014: 8-12).

Site execution serves to balance the conceptual ideology formed by the project stakeholders, and it starts from site preparation to completion level. Ismail *et al.* (2013: 10-15) identify from their study that execution is a critical factor in project life cycle. Issues that need attention to deal with in the execution period are schedule delay, improper site management and supervision, incompetent subcontractors, inadequate schedule planning and delay of payments (Roslan *et al.*, 2014:8). Ribeiro *et al.* (2013: 603) view that the construction industry is generally criticised due to the delays, budget overrun, low rate of productivity, and product quality issues. This shows that there is a lack of efficiency in the application of effective construction project management tools.

Hence, the construction manager has to develop practical steps to address such challenges. Kim, Van Tuan, and Ogunlana (2009: 40-45) perceive that the competencies of subcontractors are an important factor as far as the completion of the proposed construction project within the required time is concerned. Construction may appear much less predictable due to its complex nature and can lead to inefficiencies (Ribeiro *et al.* (, 2013: 603). The success of construction project execution is heavily impacted by the appropriate decisions taken during the tendering processes (Mohamad *et al.*, 2010). In contrast, construction project problem factors such as labour shortage, inadequate supply of materials and financial difficulties are all related to the non-performance of the economy, financial institutions and the labour market in the developing countries (AlSehaimi *et al.*, 2013).

A construction project is considered as a blend of many site activities; hence project activities need to be clear in order to determine the constraints as early as possible (Atout, 2014: 518). Example of such activities includes all the substructure and superstructure ranging from the foundation construction, walling, roofing and finishing. Notwithstanding, the industry is characterized by high variabilities such as the changing resources, lack of information, legislative frameworks and

unpredictable weather conditions (Dallasega, Matt and Krause, 2013: 8). Therefore, the construction manager is expected to organise resources so that there may be no interruptions during the execution process.

It is also essential for the construction manager to adopt proactive measures to control and monitor the condition of any project under his control. AlSehaimi, Koskela and Tzortzopoulos, (2013: 409-414), in conjunction with Koskela (1992), highlighted that the construction management process is the act whereby the detailed design has been transformed into a construction plan through the day to day coordination and control approach at the site or in a factory. This means that adopting a monitoring approach to coordinate construction activities is the hallmark of construction project management.

Therefore, construction management entails all processes, including the off-site and the on-site activities such as site construction, inspection, and operation (Yaman, Abdullah, Mohammad and Hassan, 2015: 1054). However, it is imperative to supervise the on-site activities effectively in order to achieve construction work efficiency at each level of the project, whether the project is small or large in size? The demanding nature of the actual construction stage necessitates an all-rounded competent manager to lead and act as a moderator between each party involved in the process (Farooqui, Ahmed, and Saqib, 2010: 5-9). Hassan *et al.* (2010: 230-241) support the notion that the concept of competency is frequently interpreted in the areas of education and experience.

3.2.4 Construction Close-out

The construction close-out is seen as the last stage of the project, and it refers to the period where the project is officially handed over to the client (Kostalova and Tetreva, 2018: 3-7; Kaul, 2014). Therefore, it is also considered the final stage. However, the key steps to do assessment and compilation of documents are done at this period as well if the project was assigned to a contractor. The construction closeout stage begins when the main contractor substantially finishes the work on the project and sometimes can extend long after the work has been completed on the site (Shay, 2019: 1; Moura and Catalá, 2013).

Shay (2019: 1) and Kaul (2014) have realised that not all construction projects are able to meet completion deadlines scheduled for the closeout time. The problem may be due to the lack of financial commitment, ineffective flow of construction materials supply, and weak workforce from the contractor's end. Many attempts have been made to overcome these problems (Shay, 2019: 1). According to Rogers (2012), the most prominent strategy to ensure the completion of work on time is by employing 'owners retain age strategy. The owner withholds certain percentage of payment due to the contractor for work not completed. This is to guarantee that sufficient fund is available to employ a third party to complete the work in case the contractor is not able to deliver on time. The adoption of financial bonuses to be paid to the contractor for completing the work early has also been proposed by (Shay 2019: 5; Rogers, 2012).

When poor execution of construction work by a contractor is realised during closeout, it could have the effect of spoiling his relationship with the client; destroying the goodwill built during construction period (Shay, 2019: 3). Therefore, a contractor needs to use the time available during the execution stage to deliver quality and efficient work for his clients for the sake of goodwill and work posterity. Although final completion is rarely achieved on schedule in many commercial and industrial construction projects, resulting in negative consequences for the parties involved (Kaul, 2014: 22-25), it is expedient for the contractor to do what is expected from him. It is almost always true that each party's interest in the project is best served at the closeout phase in the best possible way (Shay, 2019:1; Kaul, 2014).

No matter how long the period scheduled for many mega-projects completion is, their delivery lifecycle gradually ends only when the client finally accepts the deliverables (Fahri, Biesenthal, Pollack and Sankaran, 2015: 50). This means that a construction project close-out marks the stage at which the work output is delivered irrespective of the size of the project - small or large (Fahri *et al.*, 2014: 51). However, because the close-out is the last part of the construction lifecycle, some large construction companies often underestimate its importance, especially in a situation where they operate in multiple project environments (Shay, 2019:11).

Ugonna, Matipa, and Shah (2017: 5-11) observed that close-out comprises two main procedures; commissioning of the project and documentation of project experiences.

In addition, activities such as final payment documentation and handing over are considered as part of the close-out phase. Shay (2019: 14) and Gustafsson and Yadav (2013) assert that the project teams have failed to recognise the end without a formal close-out process. In conclusion, Shay (2019: 24), Rogers (2012), and Busansky (2003) generally agree that the following activities below are performed during the construction close-out phase period:

- Performing of joint inspection with all the subcontractors;
- Preparing and finalising documents for retention;
- Performing final building site clean-up exercise;
- Obtaining a certificate of occupancy;
- Conducting post-construction meeting with the owner (s);
- Providing final payments to subcontractors and vendors;
- Preparing final project report including financial details;
- Signing the construction completion certificate;
- Obtaining owner final payment release; and
- Completing other building commissioning tasks.

During construction closeout, constrained resources are encumbered in funds for the project (SHAY, 2019: 11).

3.2.5 Resources Management in Construction Projects

Literature shows that resource management in projects is a complex phenomenon to handle, and it is difficult to describe its dimensions with one economic theory (Bower and Gilbert, 2006; Jonas, Kock, and Gemünden, 2012: 216, 2013). This portion of the study features the various resources that are commonly used in construction projects and how they can be managed effectively. Several arguments are raised to probe how resources are utilised in the construction project processes as well.

One of the questions raised by construction management experts is about the fundamental reasons why some construction projects fail. Atout (2014: 516) opines that it is due to the insufficient attention towards the activities involved in the conceptual stages of project implementation and lack of proper planning at the take-off stage. Right people with the right technical skills and appropriate equipment are needed to deliver construction projects on time (Donyavi and Flanagan, 2009: 11).

Kasim, Liwan, Shamsuddin, Zainal, and Che Kamaruddin (2012: 449) suggest that the application of Information Communication Technology (ICT) in construction projects execution can help to reduce labour cost materials cost and time-consuming. Hence, this part of the literature below is structured to discuss the various resources commonly used in construction and how they may be efficiently managed (Kauskale and Geipele, 2016:39-42) in order to minimize cost risk.

3. 2. 5.1 Materials Management

Having the right materials at the right time is equally important and, enhancing effective material management improves construction profitability (Prasad, Deshpande, and Singh, 2018: 13). Undertaking construction for commercial property projects, materials such as cement, bricks/blocks, mild steel, paints, and roofing sheets are commonly used. Managing these materials properly and efficiently at the construction site will ensure cost-efficiency. Material management is the act of planning and controlling materials right from the supply point to the production point in the timely manner required (Donyavi and Flanagan, 2009: 11). Kulkarni, Sharma, Hote, and Civil (2017: 474) also define material management as a process of planning, executing, controlling, and handling materials in a suitable place. The genesis of material management usually starts from ordering correct specifications from the supplier, transporting, delivering, storing, giving out to the workers, and ensuring its effective use.

Most construction companies use an inventory system to track and manage materials from the suppliers to the usage point at the construction site (Mohopadkar and Patil, 2017: 232-237). Therefore, materials vis-à-vis inventory management plays a significant role in construction process (Kasim *et al.*, 2012: 447). It is important, especially in large and complex construction development projects where the amount of money invested in every activity stage is huge; an example is when constructing a first-class complex shopping mall. In other words, on-site materials and inventory management may become quite complicated as the project size increases (Kasim *et al.*, 2012; Radziah *et al.*, 2012: 447).

Because materials constitute a large portion of construction cost (Lu, Yuan, Li, Hao, Mi, and Ding, 2011: 683-688), it is necessary to track and locate them every single

period at the job site so as to ensure their availability and effective use (Razavi, Young, Nasir, Haas, Caldas, Goodrum and Murray, 2008; Song, 2005; Song, Haas, Caldas and Liapi, 2005: 3-9). Undertaking such action may contribute towards the effective use of the construction materials at the site (Lu et al., 2011: 688; Nasir *et al.*, 2008).

On the contrary, it is noted that inventory management in a construction project may be influenced by many factors such as lack of adequate storage facilities (Kasim *et al.*, 2012), over-ordering and double handling (Donyavi and Flanagan, 2009: 11), and lack of complete up-to-date data completion regarding on-site stock taking (Kasim, 2008). However, most times, the lack of complete up-to-date data regarding on-site stock taken is caused by the storekeeper's inability to track and locate materials in the construction site. This implies that there is a need to implement a proper inventory management system in order to be able to track all the materials and locate them easily without incurring any additional time and financial cost (Kasim *et al.*, 2012: 448). This can be achieved if the construction manager of the project goes the extra mile to coordinate, monitor, and evaluate the work of the on-site storekeeper.

Poor handling of materials may influence the overall performance of the construction project in terms of cost, time, productivity, and work quality (Kulkarni *et al.*, 2017: 475). Materials wastage needs to be minimised during construction execution process to reduce loss of profit for the construction companies. Patil and Pataskar (2013: 96-100), in conjunction with Kasim, Anumba, and Dainty (2005: 793-802), are of the view that materials form 50% of the total cost of the construction, which is a major cost component in a construction project. However, Razavi et al. 2008 and Song (2005) provide a range from 50% to 60% of construction materials contribution to the project's total cost. Analytically, one may argue that the percentage estimate of material cost out of the total cost of construction projects varies from one project to another. This may mean that strategic and practical approaches to managing materials in construction projects to improve the efficacy of the operation process need to be developed and adopted. Materials should be sourced at a reasonable cost and made available for use when needed (Donyavi and Flanagan, 2009: 11).

3. 2. 5. 2 Human Resource Management

Human Resource Management (HRM) is the strategic approach to manage the organisation's valuable asset known as people to achieve the organization's set objectives (Othman, 2012; Othman, Idrus, and Napiah, 2011: 1). In an equitable manner, a formidable HRM system is classified as the most valuable plan for organisations in this twenty-first century (Chen, Liaw and Lee, 2003: 2302-306).

Although the construction industry is viewed as an industry that uses a large number of human resources due to low application of technology, attention given to its human resource management challenges is still inadequate (Tabassi and Bakar, 2009: 472-476). The HRM department is purposely set-in construction companies to ensure work efficiency purposely. Effective HRM can ensure employees performance and reduce company risk on return on investment (Ling, Ning, Chang and Zhang, 2018: 655). Moreover, a well-trained workforce in a company reduces negligence risk, which may occur during operations.

The cost incurred in the corporate real estate operation is often perceived to have been linked to human resources issues (Caputo, 2013: 73). The construction industry operations are labour-intensive (Jamshidi, Zeinahvazi, Aadal and Sabet, 2012), and it usually relies on human capital to achieve project deliverables. Skillful construction workforce such as the construction managers, supervisors, foremen, and artisans are to be well motivated and trained periodically on new construction trends and technology in order to increase quality work and output. Human capital is considered to be one of the most challenging resources to manage at the construction site due to individual characteristics of each workforce member (Ling *et al.*, 2018: 654; Raidén and Dainty, 2006; Loosemore, Dainty and Lingard, 2003). The individuals who form the workforce as workers have different characteristics and behaviour. Othman, Idrus, and Napiah (2011: 1) acknowledge that factors such as human resources, planning, health, and safety need to be taken into consideration as far as construction project success is concerned.

Ling *et al.* (2018: 656) argue that the five (5) fundamental constructs needed by the HRM department to support good work performance systems are work design, compensation, staffing, training, and performance management. In large organisations, human resource management is described as Personal Management

(PM). The description of PM is the process of managing people in organisations (Othman, 2012: 1). In simple terms, HRM is all about employing workers, developing their competencies, utilising, motivating, and maintaining them in the job (Slotte, Tynjälä, and Hytönen, 2004) to improve and increase productivity.

Many studies indicate that job satisfaction and retention of workers with a good working environment promote productivity (Caputo, 2013: 73). However,, many authors claim that project-oriented companies' work activities are dynamic and demands temporary employees for their mainstream work (Othman, 2012: 1). Construction work is a typical example, and this course makes construction companies employ casual workers when undertaking specific projects.

It poses a difficult challenge to apply formal HRM principles to maintain competent personnel in construction companies. Meanwhile, it is generally known that employing HRM principles and practices could increase productivity and enhance a company's competitiveness (Pournader *et al.* 2015: 421-424; Wilkinson Johnstone and Townsend, 2012: 508). However, the desire to ensure workforce flexibility is meant for outsourcing, and subcontracting arrangements could be a central business recipe for the industry (Mann and Graham, 2016: 534-537; Druker, White, Hegewisch and Mayne, 1996: 405-409).

In developing countries such as Ghana, the construction sector uses human power or labor on a large scale compared to other sectors. The sector involves a variety of personnel, starting from office-based administrators, planners, designers, engineers, contractors, construction managers, supervisors, foremen, artisans, and unskilled labourers (Othman, 2011: 1). All these personnel have different experiences, qualifications, and behaviour. This complexity has a potential far-reaching ripple-effect on the human resource management strategies a construction manager has to employ. The manager's strategies affect work performance (Wilkinson, 2012; Marchington, Kynighou, Wilkinson, and Donnelly, 2016). A construction manager is expected to exhibit HRM skills such as effective leadership, teamwork, communication, motivation, and workers' treatment skills to achieve work efficiency and productivity at the construction site.

The construction manager's ability to adapt and implement effective management strategies discussed above may ultimately help to curtail and manage production costs to an optimum level.

3.3 PROJECT MANAGEMENT BODY OF KNOWLEDGE APPLICATION

Project Management Body of Knowledge (PMBOK) is the set of key knowledge areas used by the project management professionals as project management competencies in managing projects effectively (PMBOK Guide, 2017; Liljedahl and Möller, 2014). Project Management (PM) is described as the process of achieving project objectives through a set of operations that commence and end at a certain point in time and produce both quantifiable and qualifiable deliverables (Liljedahl and Möller, 2014). Again, authors such as Dominguez, Ribeiro, Paiva, and Varajão (2010) and Garg *et al.* (2007: 547-548) define project management as a unique effort taken to undertake a prescribed activity that has a starting and ending dates with the aim of achieving the pre-defined objectives that relate to the schedules, cost, and specifications.

The aim can be achieved through following the set of plan drawn for activities (Ribeiro *et al.*, 2013: 604). In other words, project management entails the use of several processes that actually optimize the allocation of resources and methodologies based on an interconnected system of actions purposely designed to achieve all the specific objectives set (Cruz and Marques, 2013: 475-479; Dominguez *et al.*, 2010: 45-49). The PM methodology, in simple terms, is the application of knowledge, skills, equipment, and techniques to achieve the set project objectives.

Field experience shows that effective implementation of PM concepts helps to minimise risks and costs in many project undertakings. Kerzner (2018), together with Meredith, Shafer, and Mantel Jr (2017), state that project in a context-based can be defined as the operation of activities that are conducted within a limited time with resources such as people, materials, and equipment through the uses of good project management processes. These project management processes can be feasibility analysis, initial design preparation, procurement management process, and execution of the operational process.

Project Management as a discipline has gained remarkable attention over the last decades, and it is due to the increased number and size of projects which have been carried out in both organisational and industrial sectors (Desalegn, 2018: 10). It is evident that many modern organisations nowadays carry out their business activities using project-based techniques (Kerzner, 2018; Muszynska, Dermol, Trunk, Đakovic, and Smrkolj, 2015: 1360; Meredith, Mantel Jr., and Shafer, 2013). It suggests that the appropriate implementation of project-based techniques is of critical importance to the success of any project. Despite the use of many techniques in project management, research still shows that some project techniques used by project managers are not quite effective (Turkulainen, Ruuska, Brady and Artto, 2015: 1818-1823; Cruz and Marques, 2013: 475-479; Ruuska, Ahola, Artto, Locatelli and Mancini, 2011). This proves that project managers need to look for other new and modern techniques to do effective management.

In recent times, most organizations have resulted in new PM as a way to structure and manage their investment projects. PM set of concepts are practically used to harness and implement real estate development because real estate is viewed as an investment by its financiers and developers. In real estate development project, effective cost management, time, and quality management are imperative because it is capital intensive, and the return on investment is their prime purpose of implementation.

Project success has long been discussed globally in the project PM industry, and the process of conventional wisdom over the advantages of cost-time-quality determinants and derivatives have been challenged in many platforms (Langston, 2013: 1). Al-Zwainya, Mohammed, and Raheem (2016: 245) the view is that there are a number of reasons why international project management methodologies are significant, and they are; due to the increasing efficiency of construction projects implementation, developing new and existing re-organisation and improving the maturity of project management processes (Ribeiro *et al.*, 2013: 606; Langston, 2013: 1-3).

In sectors such as Engineering Construction (EC), where Project Manager (PM) plays a major role (Arabiya, 2013), the ability and capability of the PM to effectively deliver projects is intrinsically interwoven with the firm's project management

capacity. To guarantee sufficient human resource is important in the project management sector due to many factors (Pournader, Tabassi, and Baloh, 2015: 419-424). The least leach without caution can collapse a project (Kangari, 1988: 172-176). In fact, this may vary according to the characteristics of each sector. To address this, the abundance of complex and technological multi-million projects are designed and built globally for corporate clients whose ability to execute projects efficiently can be traced and tracked (Madter, 2012: 639).

These EC firms find strategies to maintain appropriate project management capabilities within their workforce professionals in order for them to survive, thrive, and further develop their capabilities and competencies through continuing professional development (Madter, 2012: 639). This suggestion sounds laudable due to the fact that complex projects keep on emerging in these modern times. Project managers are to continue sharpening their tools to combat new trends of challenges in construction and real estate fields (Halpin, Lucko, and Senior, 2017).

A project manager has to employ techniques that are likely to assist him or her to achieve high-quality standards on deliverables accepted by the industry best practices. According to Al-Zwainya, Mohammed, and Raheem (2016:245), almost all projects follow the same route of the project life cycle: initiation, planning, execution, pre-construction, construction, and post-construction, control, and closure. It is emphatic that these project processes follow each other and, they are usually interrelated. Although PMBOK and PRINCE2 are the two approaches that focus on project management processes, they appear to have a similar methodology matrices (Al-Zwainya, Mohammedb, and Raheemb, 2016: 247).

The use and application of project management principles have been employed worldwide in heavy industries and service sectors. Furthermore, the principles are used by many organisations in fields, including the construction industry (van de Rijt, Witteveen, Vis, and Santema, 2011). In addition, project management has gained recognition and popularity as an enviable management discipline used to drive economic objectives and developmental projects such as infrastructure in developing countries like Ghana (Ofori, 2013: 14). Hence this chapter is structured to bring light on the exploration of PMBOK into real estate development projects.

Experience has shown that the real estate and construction industry makes good use of project management principles. The PMBOK Guide, published in 2017, contains thirteen (13) content chapters. After considering all the 13 chapters, eight (8) of them have been selected for critical examination relative to real estate projects due to their relevance. The chapters selected are project integration management, project scope management, project schedule management, project cost management, project quality management, project communication management, project procurement management, project stakeholders management, and project risk management. The content chapters' discussions are as follows:

3.3.1 Project Integration Management

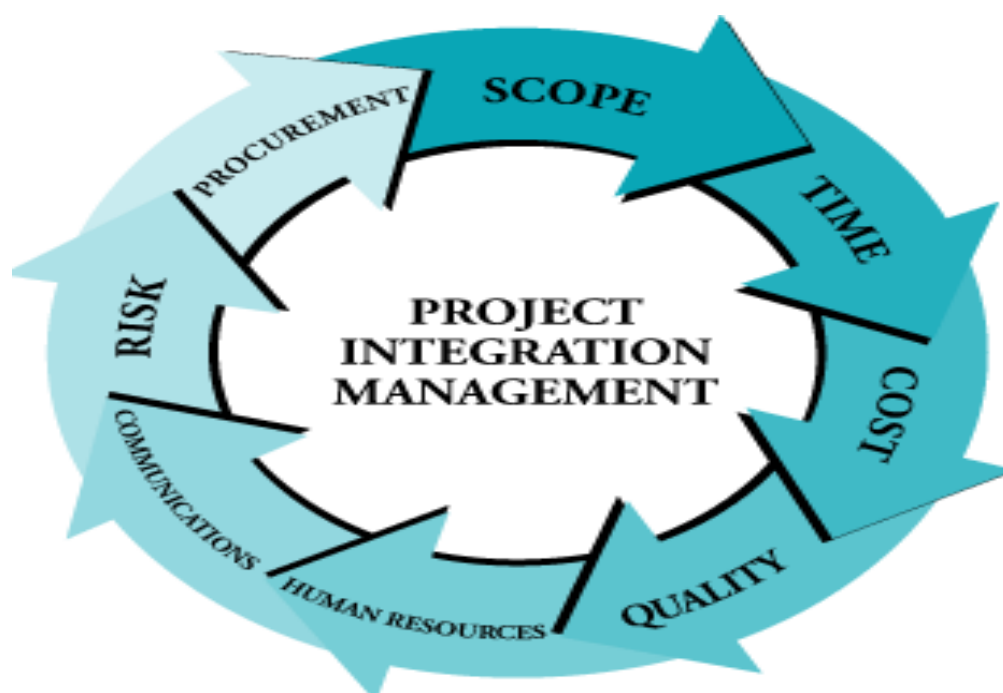
Project Integration Management (PIM) is one of the components of project management that focuses on how to coordinate the other individual components during the execution process for the purpose of attaining project success (PMBOK Guide, 2017). PIM from a professional perspective, is described as a knowledge area within the PMBOK as published by the Project Management Institute (Langston, 2013: 1). It tries to unify other knowledge areas with the view of ensuring successful outcomes of a project. According to the PMBOK Guide (2017:69), PIM includes the processes and activities of identifying, defining, combining, unifying, and coordinating the process activities within the Project Management Process Groups (PMPGs). In the context of PM, integration involves unification, effective communication, consolidation, and inter-relationship.

The important theme through much of the literature suggests that property development is an integrated process revolving around numerous concepts that have a distinct relationships among the phases in the development cycle (Costello and Preller, 2010: 172). This research identifies and evaluates the key performance areas that make up the integrated property development project. PMBOK Guide (2017: 70) and Langston (2013:70) outline the following seven (7) PIM processes:

- 1) Develop project charter – This is the process of developing a document that authorises the existence of a project and provides the project manager with authority to apply organisational resources for the project activities.

- 2) Develop project management plan - The process of defining, preparing, and coordinating all plan components, and consolidating them into an integrated project management plan.
- 3) Direct and manage project work – Is the process of leading and performing the project task defined in the project management plan and implementing approved changes in order to achieve the objectives of the project
- 4) Manage project knowledge - The process of using existing knowledge and creating new knowledge to achieve the project’s objectives and contribute to organizational learning.
- 5) Monitor and control project work - The process of tracking, reviewing, and reporting overall progress to meet the performance objectives defined in the project management plan.
- 6) Perform integrated change control - The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating the decisions.
- 7) Close phase - The process of finalizing all activities for the project, phase, or contract.

Yasir (2013:1) explains that PMI is a key concept and skill that can be seen as a hallmark for project management professionals. It includes the processes that are purposely required to ensure that all the various elements of the project plan are well coordinated. Figure 3-1 indicates how the various elements of project management knowledge areas are inter-connected to give birth to PIM.



Source: Yasir, 2013:1

Figure 3-1: Flow Chart for PIM Concept

Integration management circulates through to the life cycle of project management, from the initial to closure phase, it becomes the most significant in the planning phase (Ismail, 2009: 269-274). This is because whether a project can become insolvent or successful depends on the project planning. Hence, the ultimate purpose of implementing project management practices is to achieve project success (Kerzner, 2018:28-33). However, project management methodologies are critical in achieving the successful implementation of projects. These methodologies are not designed for generic requirements only but to be applicable to all projects at any given time in order to project success consistencies in project management processes (Kerzner, 2019; Kerzner, 2018:23-25).

Project integration management in the construction industry involves assembling infrastructure (Enshassi, Arain, and Al-Raee, 2010: 540-544), and it serves as the basis for property development to take of in such areas as atoms integrate with each other for the chemical bonds to take place in chemistry, so as integration management is the most important knowledge area that provides a platform for processes and activities to integrate and coordinate the various areas of project management in one chain order (Kerzner, 2017). The project management role is primarily integrative oriented, and Stretton (2016) makes a case that integration is the capstone skill for every excellent project manager.

Most literature suggests that property development is an integrated process revolving around quite a number of concepts linking distinct phases of the development cycle (Costello and Preller, 2010: 172). Therefore it confirms this research attempts to identify and evaluate the key performance areas that make up the integrated commercial property development process. Hence, much focus is on the application of construction property development principles and processes within the context of commercial property development in broader terms (Kerzner, 2019; Costello and Preller, 2010: 172).

It has been discovered through formal studies that project management techniques used in Small Medium Construction Enterprises (SMCEs) were quite ineffective, while other contend that formal techniques are equally important in large

organisations (Corvello, Javernick-Will, and Ratta, 2017: 19-25; Baird, Lyles and Orris, 1994: 21). However, other authors suggest that the formal integrated project management systems are not frequently applied in SMCEs (Kerzner, 2018). One may therefore deduce that the challenge is not actually about the project management techniques adoption but how to implement the techniques to yield effective results in diverse projects is what needs to be addressed. Furthermore, some studies even claim that formalised project management practices accepted as international standards are unsuitable for SMCEs (Turner, Ledwith, and Kelly, 2012).

3.3.2 Project Scope Management

Project Scope Management (PSM) is described as the activities set to run all the processes of a project on how the individual work component can be accomplished effectively and efficiently (Artto *et. al.*, 2001). PSM has many advantages. For example, PSM ensures that the project scope is adequately structured and mapped for the purpose of enabling project managers to allocate and channel resources such as labour and finance necessary to commence and complete the project successfully (Nicholas and Steyn, 2017; Sanchez and Terlizzi, 2017: 1610-1615). Categorising the work components involved in the project at the initial stage is a concerning priority for every competent project manager. It defines the project life cycle, and for that matter, defining the accuracy of the project scope will influence the overall performance of the project (Ul Musawir, Serra, Zwikael and Ali, 2017: 1659-1665; Zwikael and Unger-Aviram, 2010: 415-419; Zwikael, 2009). The overall performance of a project has a link with the project scope definition. In defining the scope of the project, inputs from all the stakeholders are a critical task that needs to be accurately done at the initial stage (Fageha and Aibinu, 2013: 195).

The purpose of the project scope definition is to make adequate information available to draw up a work plan for the project (Wang and Gibson Jr., 2006). Such preparation is done to minimise major challenges that may likely negatively affect the project's performance. The empirical evidence indicates that challenges associated with the definition and management of project scope is primarily caused by the poor project performance in the construction industry (Olawale and Sun, 2010; Hsieh, Lu, and Tzeng, 2004: 574-577).

Based on the above comments, some studies consider poorly defined project scope one of the key challenges facing construction project management (Corvello *et al.* 2017: 19; Khan, 2006: 1216-1219). More specifically, researchers find out that poor PSM may lead to work delays (Enshassi, Kumaraswamy and Al-Najjar, 2010: 35-39), calling for rework (Love, Edwards, and Irani, 2011: 560-564; Love and Edwards, 2004) and most a times yield to poor work production and quality (Le, Caldas, Gibson Jr., and Thole, 2009: 904-906). Such issues may be addressed by conducting more studies on the causes of small and medium construction companies (Hwang, Shan, Ong and Krishnankutty, 2020: 615-623; Hwang, Zhao and Ong, 2015; Serrador and Turner, 2015: 32-37).

This assists in establishing the causes of poor project scope management and their remedies. Poor project scope management cannot be overlooked due to the fact that PSM helps to ensure the work required to accomplish the project is dully performed in order to obtain the results planned to achieve (Corvello *et al.* 2017: 19; Artto, Kulvik, Poskela and Turkulainen, 2011; 4010-414; Artto *et al.*, 2001: 256-259).

Generally, constraints can sometimes set into project implementation and gradually affect the entire project scope management. Such constraints can be a shortage of resources like expert human resources, time, cost, equipment, and many more. These factors can either limit the actions of the project team or, as a result affect the project scope (Atkinson, Crawford and Ward, 2006: 688-692). Khan (2006: 1216-1219) described lack of resources such as time, cost and scope as triple constraints. A Proactive Project Manager (PPM) should be able to find measures to lead and coordinate the project in a way that project quality can be maintained even if the project experiences triple constraints shock along the project process (Corvello *et al.* 2017: 22-24; Atkinson *et al.*, 2006).

It has been presumed that the triple constraints work hand in hand, which means that a change in one factor directly affects the other two remaining factors (Omondi, 2017). Time constraint in construction management is viewed as an obligatory deadline at which the project is supposed to complete (Atkinson *et al.*, 2006; Khan, 2006). The deadline is enhanced and ensured by the senior managers in the company. The scope element that defines the project boundaries and deliverables determine the extent of duration execution may take (Atkinson *et al.*, 2006).

The PSM has a direct influence on other areas of project management such as project scheduling, cost, and quality management (Love and Edwards, 2004; Cho and Gibson, 2001). This means that PSM is a fundamental platform for project setup vis-à-vis its success factor. The decisions that relate to PSM positively are viewed as plausible to project performance. Thomas, Jacques, Adams, and Kihneman-Wooten (2008) emphasise the importance of considering PSM as a prime factor when writing a letter of intent for a proposed project.

Scope determination becomes very important in a large construction project where the mother company thinks to outsource part of the project to subcontractors. Many studies show that lack of planning and changes in owners' requirements are the main causes of sub-contractors schedule and cost flow overruns (Olawale and Sun, 2010; Hsieh *et al.*, 2004). Furthermore, an effective PSM can lead to a more concise definition of the tasks and a reduction of amendments in project requirements (Corvello *et al.* 2017: 20; Artto *et al.*, 2001). Fittingly, the study of project management practices proves that scope management is rated to be number one among four important practices (Storm and Janssen, 2004: 25-28).

Consequently, if the project team loses control of the project scope, it may lead to work disorder and project failure (Alp and Stack, 2012: 2428). Regardless of the allocated resources for a project, proper planning and scope definition effort can stimulate and support the project life cycle. There is a considerable difference in resource availability among employees in an organisation compared to other organisations (Hofaidhllaoui and Chhinzer, 2014: 7-13; Heavey, Ledwith, and Murphy, 2014). However, the employees are expected to use the shared resources given to accomplish the activities within the scope of work assigned to them.

The concept of PSM is a vital aspect of project management. Fraz *et al.* (2016: 2-6) noted that project management practices could not be taken in isolation rather, the correct conditions for the emergence of usual project scope management must exist in project management setup (Manley and Chen, 2016; vom Brocke and Lippe, 2015: 1025-1029; Barrett, 2003). Project management setup with appropriate project scope definition helps to ensure a smooth project take off. Alp and Stack (2012: 2427) believe that the two areas in project management that require the most attention are scope and change management. These two pillars have detrimental

effects on other areas of the project such as project schedule, cost, and project quality management (Fraz *et al.*, 2016: 2-6; Manley and Chen, 2016).

Corvello *et al.* (2017: 21-25), in conjunction with Hardie and Newell (2011), highlight that the size of an organisation will determine how tasks can be performed relative to the project scope designed. Hence the size of the organisation is likely to influence the use of PSM practices (Corvello *et al.*, 2017: 21-25; Manley and Chen, 2016). For instance, a large construction company with modern tools and equipment may use a different PSM approach to manage projects compared with the small-scale construction companies. Although small organisations often handle small projects, there are other considerable numbers of small organisations that undertake large and complex projects (Turner *et al.*, 2010 29-33). This implies that organisations with the right resources coupled with effective planning and management have a competitive advantage over other organisations in the same industry, especially when it comes to project execution and management.

Corvello *et al.* (2017: 21), per their knowledge in project management, affirm that effective PSM is highly beneficial even if it is applied occasionally in projects. Proper scope development appears to enhance the efficiency of projects management in general. However, it calls for a certain level of learning among the project team members in order for PSM processes to be fully effective (Patanakul, lewwongcharoen, and Milosevic, 2010: 45-48). If a process turns out to become routine, it shows that its effectiveness and efficiency has increased (Becker and Zirpoli, 2008: 132-136; Corvello *et al.*, 2017). Besides, work effectiveness and efficiency are usually achieved when employees tasked to perform the various activities within the operational chains are proving to be more competent.

As a matter of fact, regular evaluation of PSM is expected to yield a better impact on project performance as perhaps compared to the occasional adoption of PSM (Patanakul, lewwongcharoen, and Milosevic, 2010: 45-48). Therefore this study of literature, in another way round, zooms into the relationship between the PSM processes and project performance, particularly in the construction and real estate development projects. Project performance is fundamentally defined as the level to which project objectives set in terms of scope, cost, duration, and quality are

achieved (Silva, Warnakulasooriya, and Arachchige, 2016; Nghiem, Van, Viet and Nghia, 2015: 2-8; Zhang and Fan, 2013).

Field project management experts are also of the opinion that project performance is measured at every stage of the project so that waste can be minimised and quality work can be achieved incrementally while the project execution is proceeding to the final expectation. Therefore, some experts try to expand the list of project performance criteria by adding factors such as the quality of stakeholders' management (Corvello *et al.*, 2017:18-23; Sdrolas, Sirakoulis, Trivellas and Poullos, 2005: 47-53). This stakeholders' management requirement may be adopted for projects that are more inclined to address social issues.

Zwikael (2009) and Bryde (2008) agreed that the systematic approach to achieving project objectives is 'bottled' with the proper application of project management principles, including PSM. Furthermore, several empirical studies and analysis investigations have shown a positive relationship between effective project management principles and project success if all things were equal (Corvello *et al.*, 2017: 21). Therefore, the application of effective project management principles in practice should be the basic requirement to fulfil an attempt to ensure project success. Nowadays, project requirements have become more tedious as clients' expectations and demands have increased (Alp and Stack, 2012: 2424).

In practice, other construction and real estate companies take much time to develop a schematic project scope diagram that will be used to conduct the project activities right from the planning stage. Fageha and Aibinu (2016: 195) view that adequate front-end planning with clarity of project scope definition alleviates the possibility of losses, inadequate planning approach and work delays. Project managers should bear in mind that project scope development should be made flexible to leave room for effective changes (Corvello *et al.*, 2017: 23; Fageha and Aibinu, 2016: 195). A change on the other hand is often reflected due to uncertainties that occur during the stages of the project life cycle (Ismail *et al.* 2013).

Changes occur in project activities as a result of the variable and inputs concerns usually raised by the various stakeholders due to their different perspectives. Therefore, Fageha and Aibinu (2016: 195) clarify that having a well-defined project scope at the initial stage of the project serves as a guide and may change as the

project progresses. In a nutshell, project scope covers all the required activities that create project deliverables, and it is measured against the project plan (Mirza, Pourzolfaghar and Shahnazari, 2013: 723), while project scope management is all about planning and controlling mechanisms put in place to run project activities (Ismail *et al.* 2013).

3.3.3 Project Schedule Management

Project Schedule Management (PScM) is a process of outlining the project's milestones, tasks, and deliverables from the expected commencement dates to their anticipated completion dates (Heldman, 2018; Ssempebwa, 2015) and at the same time developing strategies to achieve completion on the set target dates. Usually, the project manager draws the PScM plan based on the client's requirements, project budget, and resource allocation. Production refers to operation planning, while resource scheduling is viewed as the logistical planning approach for administering resources for the various tasks or activities of the project (Khalilzadeh *et al.*, 2012; Ziarati, Akbari and Zeighami, 2011: 3724-3728). Project scheduling, therefore, requires the identification of all the necessary activities at the earliest stage. The discussion below explores the various common PScM techniques and the importance of ensuring PScM in construction projects.

Schedule creation links the time set against unforeseeable delay called schedule-variance, and it is based on the concept of the critical path method (Livengood, 2016: 179-184). The critical path method and Programme Evaluation and Review Technique (PERT) are the common techniques used in the network-based project management scheduling (Ramani and Kannan, 2014: 37). The critical path method network is determinate in nature, and PERT is dynamic. Another schedule technique known as Gantt Chart (GC) was originally introduced in factories for batch production management (Spalek, 2016; Ong, Wang and Zainon, 2016); however, it is also highly used in the construction project planning and control sector (Ong, Wang and Zainon, 2016: 40; Maylor, 2001: 94-97) due to its visual effectiveness in nature.

Acebes, Pajares, Galán and López-Paredes (2013: 182-185), together with Keng and Shahdan (2015) in their opinion, submit that the best managerial technique to yield effective project resource planning and scheduling is non but the Earned Value

Analysis (EVA). Their opinion may be rebuttable because every type of project may require different or its own appropriate corresponding schedule technique depending on the characteristics of the variables such as resources and client specifications. Despite all the unique attention received by EVA in project management field, some scholars including Acebes *et al.* (2013) and Ong *et al.* (2016) argue strongly that EVA does not produce effective results in project portfolio management. Hence the combination of EVA and Gantt techniques called Earned Value-Gantt (EV-Gantt) is highly recognised and adopted in practice because of its multiple clarifications.

The Building Information Model (BIM) is the modern model used for multiple purposes in the built environment industry. It features many functions such as schedule management and cost planning for a construction project based on the several steps using Vico Office R4 software (Pučko, Šuman, and Klanšek, 2014: 960). Microsoft Project could be an effective tool that allows users to align organisations projects activities with the allocated resources, and it helps the project managers to prepare project schedules (Ramani and Kannan, 2014: 37). This helps the project manager keep a close check on the project's progress at any time without any deviation whatsoever (Pučko *et al.*, 2014: 960).

Fakhouri *et al.* (2012) put it forward that Scheduling is the act of arranging, optimising and controlling workloads in a production or manufacturing process by judiciously allocating resources such as plant and machinery, materials, and labour to meet the required date of production. Therefore proactive companies must have good schedule preparation (AlNasser and Aulin, 2015: 61-64). In the course of preparing schedule in general, certain factors such as work- space and working time have to be taken into full account so that the schedule can be compiled in accordance with the requirements and logical order for the project (Zhang and Liang, 2018: 47; Ke, Wang and Huang, 2015: 73-77). Therefore, the project's objectives and the clients' requirements should be viewed as the two (2) main pillars as goal-posts when developing a work schedule plan for a construction project.

The PScM involves the processes of managing the completion time allocated for the project, and it consists of schedule planning, defining activities, sequencing the activities, estimating activity durations and managing schedule (PMBOK Guide, 2017: 173). This serves as a springboard for construction companies to have a good

flare for managing time effectively throughout the project process. Because delays in construction project delivery appear to be one of the most frequent challenges in the construction sector (Al-Kharashi and Skitmore, 2009: 5-9), some companies notoriously conduct construction projects on a fast-track and implementation schedule basis (Alp and Stack, 2012: 2427). Such fast-tracked construction projects usually happens in Ghana during the political-campaign year.

The accelerated schedule basis of project implementation could cause the work environment to become complex and perhaps cumbersome to manage (Alp and Stack, 2012: 2427). Project managers must act professionally to create a congenial atmosphere on site if such an instance occurs. It is also interesting to note that prolonging project execution time may result in unusual cost overrun for either the contractor or the client due to the extra expenses on human resources, materials price escalations, contract penalty payment, and the like (Singh, 2009). In developing countries for instance, delays during construction of public properties such as hospitals and schools may also result in social unrest; such facilities are usually needed urgently (Solís-Carcaño, Corona-Suárez and García-Ibarra, 2015: 1) to address social problems. Looking at the above reasons, it is imperative for public projects to be completed sooner to satisfy the social needs in developing countries.

Schedule constraints in construction projects pose many challenges but it needs to be worked out (Nguyen and Chua, 2014: 18; Alp and Stack, 2012: 2427) as early as possible. The appropriateness of time management in projects can be observed as a very relevant indicator that can be used as a reference point to assess building contractors' ability, capability and efficiency to succeed in project performance (Solís-Carcaño et al. 2015: 2; Carcaño, Delgadillo and Fajardo, 2009: 41-48). One may argue that a contractor's ability to produce quality work within the set time limit justifies his or her great management performance.

3.3.4 Project Cost Management

Cost management is the process of controlling expenses on the project at all the stages starting from the feasibility to handing-over in order to ensure that the set budget is relatively kept in place (Vasista, 2017: 42-46). Cost management process collects and establishes project activity component costs information, classifies,

measures, reports and continually controls them to ensure cost efficiency (Abdul-Rahman, Harun and Kho, 2017) to satisfy the client value of money objective.

In practice, a clear definition of work scope serves as the fundamental basis of identifying cost components to determine the total baseline cost for a project, such as constructing a commercial property. A baseline cost is described as a cumulative time scheduled budget that may be used to measure and monitor the current and future cost performance for the proposed project (Khamidi, Waris and Idrus, 2011: 125-126). The total baseline cost and the determined contingency cost have to technically managed by the cost managers to minimise cost overrun (Vasista, 2017: 42-46; Anifowose, Ola-awo and Mohammed, 2013: 67).

According to the PMBOK Guide (2017: 231) and Arto *et al.* (2011), Project Cost Management (PCM) involves planning, estimating, financing, managing and controlling cost in such a way that projects may be completed as budgeted. Hence, this section of the literature aims to discuss cost management functions, challenges associated with project cost management, and the techniques employ to curb cost overrun. Usually, in the construction and property development industry, the PCM professional discipline has been preferably run by quantity surveyors, cost engineers and construction economists (Smith, 2014: 488).

A quantity surveyor is a professional term of UK origin and used in the commonwealth countries at large. Cost engineer on the other hand is a title used by the North and South America while construction economist is used by some few European countries in particular. These project professionals' try to use scientific methods to estimate the approximate cost of projects prior to the projects' commencement and during the execution of the work (Tesda, 2018: 81-84). It is interesting to note that cost estimation requires extensive knowledge of the construction principles, material cost, labour cost and sound judgement (Tesda, 2018: 81-84). In addition, equipment cost and calculation skills are also important in cost estimation.

Project cost management is viewed as a professional expertise and capability project management section in charge of estimating project cost, planning and controlling cost with the sole aim of analysing potential risk factors to reduce capital cost swelling during the construction process period (Vasista, 2017: 42-46; Gbahabo and

Samuel, 2017: 20-21). The process in managing cost cuts across the initial stage, planning, execution, monitoring and controlling, and the completion stage (Brook, 2016). Traditionally, the Cost Managers (CMs) are mainly responsible for preparing the Bill of Quantities (BOQs), valuation and variation certificates for claims. However, CMs functions further extend to the level of advising clients on cost implication of the project with the purpose of making the better value for money decisions without compromising project quality standards in both architectural and engineering specifications provided (Anifowose *et al.*, 2013: 67).

Cost managers' value management performance in construction project delivery plays a pivotal role in the construction team. Cost management as part of his or her responsibility, manages the cost variance (Khamidi *et al.*, 2011:125-126). Cost variance in project management can simply be explained as the difference in worth between the work done and the amount of money spent. Moreover, CMs provide information to internal stakeholders who need accurate and detailed information for economic decision-making purposes (Kujala, Brady and Putila, 2014: 49). Cost management purposes tally up with the general project management performance. For this reason, (Khamidi *et al.*, 2011:125-126) affirm that an effective project management performance control may not be obtained only by monitoring the physical infrastructure but also managing the spending component aspect.

One of the major challenges in PCM in infrastructure and construction projects across the globe is cost overrun and scope creeps (Smith, 2014: 487). A global survey in twenty countries from both developed and developing countries indicate that there is a constant substantial cost escalation of construction and infrastructure projects with no exception (Flyvbjerg, Garbuio and Lovallo, 2009: 171-174). Flyvbjerg, Skamris Holm and Buhl (2005: 132-135) outline that Boston's Central Tunnel project went up to 275% budget overrun amounting to US\$11 billion budget overrun. Project cost overrun may strain clients financially, and Kenny (2010) quantifies it to be around US\$1.7 trillion worldwide and hence emphasizes that it is a major global construction industry problem.

The increasing recognition from financiers and clients' perspectives on effective PCM and cost control has called for the employment of qualified, specialised and expert professionals in order to address cost overrun deficiency in project management

(Smith, 2014: 488). In construction projects, for instance, cost overrun is caused by both internal and external factors. However, cost overrun in general comprises three (3) parts called early-stage cost overrun, construction implementation cost overrun and post-construction stage cost overrun (Larsen, Shen, Lindhard and Brunoe, 2016: 35-39).

The causes of cost overrun to large extent can be linked to ineffective managing and controlling of clients' needs and project scope definition (Brook, 2016). Numerous budget cost blowouts affecting major construction projects across the globe have raised concern and attention at both local and international levels (Smith, 2014). Many governments, financiers, major private developing entities including the World Bank, World Trade Organisation and the United Nations have recognised the importance of effective cost control in construction projects.

Large construction project management faces cost management challenges due to the increasing number of suppliers (Iyer and Jha, 2005: 283-286). In addition, other cases such as the wide and varying work scope, multiple specialised machinery usage, and variable technical experts brought on board may pose cost overrun risk to cost management. According to Yismalet and Patel (2018: 54), cost overrun occurs on construction sites due to the following:

- Error in designs;
- Changes in scope;
- Change orders;
- Design delay;
- Disputes at the construction site;
- Material price fluctuations; and
- Increase in labour wages.

In such complex situations, the company aims at achieving cost efficiency and profitability according to the fundamental business principles (Artto *et al.*, 2011) becomes difficult, especially in the property development business cycle. Kujala *et al.* (2014: 48-59), in their research findings realise that cost overrun may be curbed by making sure that the actual cost determined for the project are properly monitored during the planning and implementation stages, updating cost estimates and forecasts constantly and evaluating invoices before releasing contingency costs.

Since cost management has become more complicated in this era due to technology advancement and shortage of resources, construction contractors and developers are to hire seasonal professionals to manage costs in running projects (Yismalet and Patel, 2018: 52).

The above considerations may help to at least reduce the high cost overrun burden stakeholders experience in most projects. Othnan (2016) asserts that a good estimate may not exceed 10% of the actual cost estimate provided there is a limit to the unforeseen circumstances. Records indicate that most domestic contractors lack financial management skills (Yismalet and Patel, 2018: 52); hence, they need financial management training to boost their cost management skills in project execution. Shanmuganathan and Baskar (2016: 743-746) suggest that cost management techniques such as cost planning, cost flow forecasting and cost control are important in managing cost.

3.3.5 Project Quality Management

Project Quality Management (PQM) is the process of incorporating the organisational quality programme in respect of planning, controlling and managing project and product quality requirements to fulfil stakeholders' aims and objectives (PMBOK Guide, 2017: 271). PQM, in simple interpretation, is meant to provide continuous support for improving project activities. Quality Management (QM), on the other hand is viewed as a sub-section in management cycles that is enviable and insightful. It is backed with modern research on different methodologies and theories that are based on field and theoretical discoveries (Taniguchi and Onosato, 2018: 5-9). Therefore QM is relatively known as a young discipline in project management, and it is carried out by project managers, inspectors and supervisors when managing projects.

Some of the fundamental aspects of QM are well described and established by well-known and accredited international management standards like ISO 9001 and ISO 14001 (Ingason, 2015: 193). The ISO 9001 is applicable in many kinds of business organisations worldwide. To elaborate on the usefulness and the recognition of ISO 9001, Priede (2012) made a remarkable comment on the total number of ISO 9001 certificates issued in countries worldwide from 1993 to 2010, respectively. It is evident that the issuance of the certificates has surged from more than forty-six

thousand (46,000) certificates in sixty (60) countries in the year 1993 to 1.1 million certificates in one hundred and seventy-eight (178) countries in 2010 approximately. Based on the numerous quantities of the ISO 9001 certificates issued worldwide (Alolayan, 2014), can one confidently conclude that quality management protocols in many operations have also increased? This question leaves a gap in both literature and practice, especially in the construction and property development project management industry.

For example, Psomas (2013: 769-773) and Priede (2012: 1466-1469) conducted an extensive literature review on ISO 9001 studies, and they were able to analyse 100 research papers in an attempt to establish the overview of ISO 9001 certification. In the same way, Al-Rawahi and Bashir (2011) took a study of comparative analysis on the implementation of ISO 9001 in Oman. Ingason (2015: 192-195) also followed steps to involve research about the implementation of ISO 9001 in small firms with special emphasis on the benefits and influencing factors. These cases presented different results and outcomes as far as viewing ISO 9001 certificates and implementing quality management is concerned.

The fundamental proposition of this literature study explores the conceptual meaning of project quality management and how it can be ensured in construction and real estate development projects. In project quality management evaluation, literature often classifies the process, input and outcome as performance variables according to (Bou-Llugar, Escrig-Tena, Roca-Puig and Beltrán-Martín, 2009: 14-22). Therefore, in order to ensure quality performance in project activities, effective evaluation exercises through the process of the various activities should be adhered to. For this reason, Jonas, Kock and Gemünden, 2012: 215; 2013) argue that it is insufficient to evaluate the end product but the process that produces the product should rather be evaluated.

Quality performance in construction management entails how the project quality and environmental factors are managed appropriately. Managing technology, materials, and equipment to assure and improve project quality by employing team members' knowledge and technical skills capabilities is necessary (Halpin, Lucko and Senior, 2017). Most organisations in this modern world apply Process Approach Techniques (PATs) in their operations to ensure continual quality management in their project

management (Ingason, 2015: 193). The aspect of PATs synergy demonstrates how organisations nowadays implement quality management systems in their operations (Ingason, 2015: 193). The fact that the application of PATs is massively gaining popularity in many organisations as an antidote to the quality management problems in managing projects cannot be considered the most appropriate technique to use. However, there could be other QM techniques that are equally effective as PATs.

Therefore, the quality management model measures the impact of changes in portfolio success antecedents and validates the construct using a longitudinal sample (Jonas *et al.*, 2012: 216). This could imply that a project portfolio success depends on the quality management mechanism put in place to achieve its outcome (s). Ofori (2013: 16) declares that quality has two different attributes called subjective and objective. Only the project team members can determine the subjectivity quality attribute while the objectivity quality (Ingason, 2015: 193-4) attribute has been determined and measured by the project's key stakeholders. The key stakeholders for a commercial property project, for example, consist of the client, tenants and potential users.

Quality as a requirement is considered one of the important outcomes of a project since performance measurement is usually based on cost, time and quality and, they are also known by (Ofori 2013: 16; Orwig and Brennan, 2000) as the iron triangle. However, quality is critical in respect of the iron triangle elements. Another important period to measure quality is at the stage of conducting assessment in the project life cycle. Although Ogunlana (2010: 229-233) and Heravi, Coffey and Trigunarsyah (2015: 985-988) believe that project quality is usually evaluated at the completion stage, however, it is efficient to evaluate quality period by period during the process of executing the project in order to avoid major defect at the completion stage.

It is, however interesting to note that the most significant time to make quality making decisions in a project is during the planning and designing stages (Ofori, 2013: 16) because laying a quality foundation through the formulation of specifications and standards at such an initial stage will pathway in achieving quality in all the aspects of the project. Generally, almost all the quality management efforts are put into the project during the implementation stage (Taniguchi and Onosato, 2018: 5-9 Ogunlana, 2010: 229-233). In ensuring project quality, the onus lies on the project

manager and the front line team members. Finally, (Ogunlana (2010: 229-233) brings to light that the main cause of the quality management system is to identify and define techniques and strategies that will ensure quality results and products in project execution management processes.

3.3.6 Project Communication Management

According to the PMBOK Guide (2017: 359), Project Communication Management (PCM) is the process taken to ensure that the relevant information needed to run the project into success is flowed throughout to all the stakeholders. The flow of the information should start from the initiation stage through to the implementation and the closeout stage. PMBOK Guide (2017: 359) further categorises PCM into two (2) fundamental parts as developing a strategy for ensuring effective stakeholders' communication, and the other part is implementing the development strategy. These two PCM parts are equally important and they should work hand in hand with each other.

Communication management is considered crucial to the success of projects due to the increase of stakeholders' involvement (Muszynska et al., 2015: 1359-1363). However, Monteiro de Carvalho (2013) believe without any doubt that communication processes and practices should be formalised by the project managers in the company's project management domain. But it is not always the case in many property development companies. It has been discovered that practices related to communication are not properly given enough attention (Muszynska et al., 2015: 1361-1364). The subsequent literature tries to bring the gap closer in addressing the underlining issue. According to Levie, Burke and Lannon (2017: 875-879), project managers and team members use approximately 90% of their working time to engage in communication. Project management success is drawn from effective communication. Zulch (2016: 3) proposed a construction project management communication model in the South African construction industry.

Formal communication is grouped into horizontal and vertical (Tubbs and Moss, 2008: 477- 490). Vertical communication is described as the upward and downward flow of communication between different hierarchy segments of an organisation. Campbell (2011: 287), in conjunction with Higgin and Jessop (2013), comment that

downward communication commences at the top and descend through to employees in lieu of providing information to achieve organisational strategies and goals according to the organisation's policies. This style of communication flow in building construction project management occurs during the time where the top managers send work guidelines and instructions to the artisans through to the supervisors and foremen.

The upper management level receives information through the upward communication channel (Campbell and Ling, 2011: 287; Zulch, 2016: 3-5). However, horizontal communication occurs between groups of people at the same lateral level in an organisation (Higgin and Jessop, 2013). This means that a typical example of such communication can exist among supervisors working on a project at a different line of work. Formal communication may not necessarily follow the chain of command (Campbell and Ling, 2011: 287). Informal communication on the other hand may imply the use of channels that are unofficial. But it is ideal to use formal methodologies to disseminate information in project management in order to minimise and avoid rumour and anxiety syndrome, which is likely to affect workers in an organisation.

Improvement factors of a project, such as finding solutions to many problems in the construction project paradigm, is the miscommunication concept (Iqbal, Raffat, Sarim and Shaikh, 2014: 1079-1082). Hence, Letouze (2011: 338-343) asserts that project managers have to communicate effectively. Communication simply entails receiving and understanding information in a desirable order (Goetsch, 2004: 66-67). Effective communication is a key factor to promote team performance in project management (Chiocchio, 2007: 97-103). Communication as a medium of instruction can be interpreted in many different authors' forms and types. Raluca. And Romulus (2018: 428) points out that communication occurs within the same department but is found at the same hierarchy and is described as horizontal communication.

Authors such as Senaratne and Ruwanpura (2016: 5-9), Cheung, Yiu and Lam (2013: 943-946) and Den Otter and Emmitt (2007), in an attempt to illustrate the full details of communication in project management, tried to categorise communication into the following five (5) classifications below:

- Public communication: This kind of communication takes place when the project manager shares information with a large group of people by addressing the known audience (Macnamara, 2017). For example, giving out speeches, lectures, and presentations are forms of public communication. Den Otter and Emmitt (2007) argue that audience feedback also takes part in the public communication process. A project manager may do public communication during assembling at the construction. Hence, a project manager has to improve public communication skills (Macnamara, 2017).

- Organisational communication: This kind of communication is interdependent related, which means that organisational communication is creating and exchanging information within a certain network of relationships. It is usually an internal way of communicating in an organisation (Fulk and Boyd, 1991: 408-410). Memorandum communiqué is an example of how organisational communication is ensured. Communication network usually influences the effectiveness of communication and is done through channel accessibility (Raluca. and Romulus, 2018: 429).

This implies that the channel through which communication is done is very instrumental. For example, if the project manager chooses to use writing through email, memorandum and reports, simple words are to be used to avoid ambiguities. Furthermore, Den Otter and Emmitt (2013) posit that effective communication tends to build bridges between cultural and organisational backgrounds among stakeholders in project execution.

- Interpersonal communication: This is the communication that takes place between individuals. The project manager uses this kind of communication in explaining a task to a worker. It involves detailed explanations. Authors including Bedwell, Fiore and Salas (2014: 174-177); Matin, Jandaghi, Karimi and Hamidizadeh (2010: 388-393); Bambacas and Patrickson (2008) state that, although interpersonal

communication can include oral, written, and non-verbal forms of communication; the term is largely related to the spoken communication between two or more individuals.

Ren *et al.* (2012: 842-84) research confirm that communication with a causal relationship between workers is interpersonal, and the communicator should exhibit

show motivation, satisfaction, and positive attitude. Hynes (2012: 471) also alleges that interpersonal communication is face to face communication between two persons. In addition, literature on interpersonal communication mostly highlights and investigate much on subject areas such as cross-cultural communication, self-concept, building rapport, active listening, empathic listening, verbal and non-verbal communication (Conrad and Newberry, 2012: 114). Moreover, other behavioural factors, including emotional intelligence and respect, help to demonstrate good interpersonal communication.

- Group communication: Grigorescu and Lupu (2015: 479), in conjunction with Den Otter and Emmitt (2007), describe this kind of communication as people interactive, whereby each group may influence one another. In office and site meetings, this kind of communication is mainly used. Jaeger and Adair (2012: 2) and Melin Emilsson and Lilje (2008: 259-264) discovered the use of theories in social sciences to assist group-oriented learning as a relevant factor for effective communication skills in the engineering and construction field.

- Mass communication is a kind of communication received through sources such as television, radio, and newspaper purposely to enhance public acceptance and understanding (Den Otter and Emmitt, 2007). It is emphatic that quality communication is one of the key factors in construction project success (Nielsen and Erdogan, 2007: 19-24), while poor communication appears to be one of the common risks in construction project management (Senaratne and Ruwanpura, 2016:7-13; Ceric, 2014: 828-834). In other words, poor communication leads to lower performance. Therefore, communication challenges during the project execution may directly maximise unexpected expenditure and affect the progress and quality of the work (Senaratne and Ruwanpura, 2016: 3).

Practically speaking, it is envisaged that interpersonal and group communication are common among the construction project workforce on site. The workforce communication skills can be improved by recognising communication training and workers commitment performance (Jaeger and Adair, 2012: 2). These two factors show positive dimensions of ineffective communication. Ye, Jin, Xia and Skitmore (2015), and Yap and Skitmore (2018: 218-223, proclaim that project contractors must consider office management and project execution management and

encourage project communication to minimise demolition and rework. Meyer's (2014: 29-36) research on project leaders' competencies showed that communication was rated among the highest competencies. This perhaps indicates that effective communication in project management is paramount.

Muszyńska (2016: 1179-1183) and Muszynska *et al.* (2015: 1359-1363) point out that effective project communication help to let information reach the right people at the right time in a less cost-effective manner. In the project implementation process, communication is a priority key to the stakeholders. It ensures work efficiency and opens ways to identify issues, risks, misunderstandings among workers, and other problems confronting the project completion. Furthermore, effective communication is an important element for team effectiveness (Muszyńska, 2016: 1182-1187). Ochieng and Price (2010: 449-452) also realise that communication is the pivot to construction projects' effective and efficient performance.

The work scope designed for the construction project is communicated by means of detailed drawings, specifications, contract documents and addenda (Tipili and Ojeba, 2014). This means that there is the need for the professionals in the construction sector to effectively communicate with one another so that they can accomplish their operations and social functions within the organisations on time. Tipili and Ojeba, (2014: 2) submitted that the role of effective communication in project management could never be overemphasised.

Communication processes may include conversations, listening to people, networking, information collection, giving directions to subordinates, writing memorandum, transferring information through electronic equipment such as computers and telephones (Akinradewo, Ojo and Oyefusi, 2017: 51-58; Tipili and Ojeba, (2014: 1). Communication can take place in many ways. Such ways are usually the common ways managers and their subordinates use to express their thought and intentions to each other through communication. Communication in other words deals with the transfer of information (Cheng, Li, Love and Irani, 2001) from one point to another point. In oral communication, for example, clarity of language expression is a key factor. Jallow, Demian, Baldwin and Anumba (2014) indicate that the geographic distribution of work teams and the lack of common language could be considered a major problem for project communication.

Using common language structure as a medium of instruction would be appropriate. Similarly, the firm has to provide three (3) simple communication structures: upward, downward, and lateral (Lunenburg, 2010: 4-7) to ensure the easy flow of communication channels. For example, the upward communication channel to send information from subordinate to superior in providing feedback to the management (Dupe, 2015: 8-14) is considered the bottom-up approach of sending information. On the other hand, the lateral channel of communication is the way through which information can flow among the peer group workers found in the organisation (Jallow *et al.*, 2014:21-24; Lunenburg, 2010: 4-7).

Other authors believe that it is about time to institute Information Communication Technologies (ICTs) to manage communication, especially for virtual construction teams dispersed geographically (Senaratne and Ruwanpura, 2016: 5). ICTs are gradually gaining recognition in the construction and property development industry due to monitoring and evaluation purposes. For example, Hosseini, Chileshe, Zou and Baroudi (2012: 5-9) detailed the ICT implementation requirements in construction. On the other hand, Senaratne and Ruwanpura (2016: 5), as well as Gustavsson, Samuelson and Wikforss (2012: 522-526), argue that to address the practical communication challenges in the construction industry, the perspective should be shifted to a broad-based context from ICT to the organisational and management perspectives.

Communication planning and distribution of information should be seen as a vital aspect of managing projects. Meyer (2014) asserts that project managers and their teams have to have a project communication management plan as well using the most appropriate and preferred techniques when communicating. PMBOK Guide (2017: 359), together with Hosseini *et al.* (2012: 6-9) suggest that the project managers should consider using communication plan as a meaningful tool in managing and contributing to the project success. Distribution of information also assists the execution team and external stakeholders to get focused on the delivery steps and provide the necessary support required while delivering (Senaratne and Ruwanpura (2016: 6). Based on the importance of information in the project delivery process, it is clear that information should be limited from misinterpretation and misrepresentation.

3.3.7 Project Procurement Management

In the first place, procurement is about making decisions to buy items or outsource services for entities usage. The entity in this instance may be public or private. According to PMBOK Guide (2017: 459), in conjunction with Naoum and Egbu (2015: 6-9) claim, procurement management comprises the processes required to buy goods and services for entities. The request entity, therefore, determines what to procure and when to procure by documenting product requirements as well as identifying potential sources, receiving quotations, bids, offers and proposals where appropriate and selecting from potential sellers (Owusu-Manu, Badu and Edwards, 2011: 291; Turner, 2006).

The evolution of procurement management got known in the early 90s, when government institutions worldwide saw the need to ensure transparency in government procurement systems (Amemba, Nyaboke, Osoro and Mburu, 2013: 289). The private sectors also tolled to the same line since transparency in procurement has been viewed as important in ensuring cost efficiency. Furthermore, because authorities are expected to provide efficient services to their constituents, resources such as finance are to be effectively managed in a transparent manner by adopting the use of Information Communication Technology (ICT) (Amemba *et al.* 2013; Hagén and Zeed, 2005).

Amemba *et al.* (2013: 569) argue that procurement is an acquisition process of acquiring assets and services. The process begins when an entity identifies a need and decides to prepare and follow its procurement requirements. These procurement requirements often cover the continued process of evaluating alternative solutions, awarding contracts, receiving delivery, and issuing payments (Amemba *et al.*, 2013: 290-293; Monczka, Handfield, Giunipero and Patterson, 2015: 12-15). Evaluating alternatives to establish quality products and services delivery in a cost-effective manner to acquire the value of money should be a prime factor in every procurement system. In another way round, the procurement system also extends to the ultimate stage where the entity disposes the used asserts at the end of its useful life (Monczka *et al.*, 2015).

The procurement system varies from one country to another. In Malaysia, for instance, the system is categorised into three (3) namely; direct purchase, tender

and direct negotiation (Hui *et al.* 2011: 568). Tender is further grouped into the open and close tender. The open tender is unlimited to potential contractors and service providers while the close tender is limited to the few contractors with a certain level of experience, qualifications and specialities. Most procurement scholars and practitioners have realised over the years that a one-size-fits-all strategy does not yield effective results (Wagner, Padhi and Bode, 2013: 35-38). That procurement system should always be under the intense scrutiny of different stakeholders to pave the way for transparency and accountability in addressing issues (Hui *et al.* 2011: 569).

The long-standing issues such as improper methodologies used to allocate projects, pricing in tenders, and poor delivery of projects in the procurement management system in developing countries such as Ghana are increasingly unbearable despite enacting the procurement Act and its implementation. The Public Procurement Law, 2003 (Act 663) is enacted purposely to eliminate the inherent shortcomings and weaknesses found in Ghana's public entities procurement management system (Ameyaw, Mensah and Osei-Tutu, 2012: 55). To affirm the full functions of the Act, Eyaa and Oluka (2011), together with Bolton (2006), emphasise that public procurement needs to be operated in an environment driven by technology and reviewers free from political influence. This perhaps could ensure public sector accountability and service improvements.

Public-Private-Partnership projects too have to follow a suite of ensuring equitability, accountability and cost efficiency through tendering processes. Invitation to tender is opened to the public in order to provide the opportunity to many qualified bidders (Hui *et al.* 2011: 570) expect, in special cases where special bidders are only allowed to bid. To maintain cost efficiency and equitability in project management procurement, payment of the awarded tender has to be based primarily on the work done by the contractor on the ground (Hui *et al.* 2011: 572). Usually, contractors submit his or her claims attached to the progress report and, it is necessary to correlate his work done with his claim request without fear or favour. These procurement principles must be effectively applied through the property development processes (Naoum and Egbu, 2016; Hui *et al.*, 2011: 571-574).

The arm's-length contracting called e-procurement might be appropriate for effective and efficient procurement management (Uyarra and Flanagan, 2010: 136). In this case, it is paramount to ensure enough transparency of data on contract opportunities to promote competition and guarantee the best bidders for the exercise. Procurement laws are generally enacted to select the best bidders. The European Union (EU) Public Procurement Law (PPL), for example, is formed for the purpose of reducing trade barriers and to explore comparativeness among the member states by opening the markets up to the competition as far as the international contract is concerned (Knutsson and Thomasson, 2014: 243; Arrowsmith and Quinot, 2013; Arrowsmith, 2010). This means that the fundamental concept of competition in procurement cut across almost all procurement laws in both developed and developing nations.

The presumption is that procurement can be actively employed to promote innovation at the policy-making levels is emphatically viewed as significant and, demand for new requirements to ensure quality standards is usually allowed for the greater variety of solutions (Uyarra and Flanagan, 2010: 135). In other words, procurers may influence the quality of products and services demanded based on the generic requirements and the chosen procurement methodologies. In fact, the choice of procurement methodology is a critical decision to make in the construction projects procurement due to its potential economic impact on the project (Baiden, Abdul-Razak and Danku, 2015: 732). Therefore, based on the above assertions, it can be deduced that adopting effective procurement methodologies can help curb economic risk on construction projects.

Hence, procurers are encouraged not to lose sight of the economic and financial impact throughout the procurement process so that such risks may be minimised accordingly (Uyarra and Flanagan, 2010: 135). The procurement process begins with the need initiation by the needed organisational department, and the department's supervisor then approves it; the procurement committee purchases and delivers the items to the needed department (Amemba et al., 2013:44-47). The procurement process, however, varies from one organisation to another.

Some organisations, however, have their layout requirements, methods and rules in going about procurement and its management. Cavka, Staub-French and Poirier

(2017: 170-173) and Cheng and Li (2004) indicate that procurement is a primary activity organisations follow in selecting appropriate suppliers to provide goods and services to ensure that a project is completed successfully. It may be argued that appropriate suppliers supplying appropriate goods and services may contribute to the project success (Cavka et al., 2017: 170-173; Naoum and Egbu, 2016). Therefore choosing criteria to ensure efficiency through the entire procurement management system is vital.

3.3.8 Project Stakeholders' Management

Stakeholders' is the term used to describe individuals and groups of people that have a direct or indirect interest in an organisation (Jolanta, 2015: 780-783; Fassin, 2010: 39). Stakeholders of an organisation can be internal or external. Employees of the organisation are the internal stakeholders, according to Jolanta (2015: 784.787), while all the other people and groups having interest and relations with the organisation are known as external stakeholders. For example, in a commercial real development project like a hotel facility, the internal stakeholders (Steghöfer et al., 2018: 3-6; Jolanta, 2015: 780-783) will include the property investors, professional consulting engineers, quantity surveyor and the site workers.

The external stakeholders include the potential occupiers (customers), the jurisdictional municipality, competitors, and the environmental agency. These clusters of stakeholders are to be managed to achieve the project's objectives (Jolanta, 2015: 784.787). Therefore, it is quite important to develop efficient management tools that allow the firm to minimise real estate problems and disputes arising from the interest of the external stakeholders (Caputo, 2013: 69). For the firms to develop adequate external stakeholders (Steghöfer et al., 2018: 8-13) management process, the firms have to analyse the needs and interests of every stakeholder's objectives.

Fageha and Aibinu (2016: 195) suggest that stakeholders are involved in defining the project scope at the conceptual stage. In addition, authors such as Fageha and Aibinu (2014: 2-6); Sharma and Lutchman (2006) believe that project definition is incomplete if the stakeholders are not involved. This means that stakeholders play a major role in defining project scope. In other words, other authors support the notion that stakeholders expectations should be taken into consideration in project

development at the early phase to eliminate stakeholders risk (Fageha and Aibinu, 2013: 195; Atkinson *et al.*, 2006).

Project stakeholder management involved all the processes needed to identify the individuals, groups, and organisations that could impact or be impacted by the implementation of the project, analysing stakeholder expectations and developing probable management strategies for engaging the stakeholders in project decision-making (PMBOK, 2017: 503). Undertaking such a process helps assess and determine the level of engagement for every stakeholder's decision and support at every stage the project reaches. According to the studies conducted by Mok, Shen and Yang (2015: 446-449); Yang, Shen, Drew and Ho (2010: 779-783); Yang, Shen, Ho, Drew and Xue (2011: 901-905) show that there are different stakeholders with their different levels of investments and interests in any project they are involved. This means that their expectations would be different depending on their level of investment in the project.

According to PMBOK (2017: 505), the definition of stakeholders includes but is not limited to project team members, suppliers, regulators, financial organisations, lobby groups, media and environmentalists. The reason is that they all perceive to have a share of the project outcomes. Hence, managing stakeholders' expectations accordingly will reduce the risk associated with the project failure and eventually help them achieve their objectives and goals (Senaratne and Ruwanpura, 2016: 6). To establish a project's objectives and goals, each stakeholder has his own interest to protect and achieve in the project, which may lead to different priorities and conflicts (Karlsen, Graee and Massaoud, 2008: 106-110). Therefore, conflict resolution forms part of the stakeholders' management. Therefore, the project manager has to find proactive ways to resolve such conflicts if they emerge during the project execution process.

Because real estate development is viewed as a business by investors and the utmost importance of every business is to overcome today's market turbulence (Caputo, 2013: 69). It is for this reason why financial investment stakeholders strive to set their priorities right before they start. The integrated stakeholders' management may require pragmatic steps for solving the proposed problem (Golinelli, 2000). The underlying presumption to adopt a pragmatic and systematic

approach in resolving the stakeholders' interactions is that it ensures fair satisfaction among the parties (Bellucci and Manetti, 2018). Both internal and external stakeholders' economic, environmental, political, and cultural conditions are to be addressed in project realisation (Bellucci and Manetti, 2018; Caputo, 2013: 67-72).

Caputo (2013: 71) claims that the external stakeholders in the housing development projects were obtained from the theories of corporate analysis concerning stakeholders. Walker, Bourne and Shelley (2008: 645-648) made a positive contribution in an attempt to identify accurate mechanisms for shaping external stakeholders' in property development projects in general. These effects are purposely meant to establish efficient ways to lead the main stakeholders to meet their investment goals. The property developer and the financial investors are considered the main stakeholders of the proposed project in this context.

3.4 PROJECT RISK MANAGEMENT

In practice, it is important to have a risk management plan for every stage of a project. This may enable implementors to lower the impact of risk at every level of the entire project. Many studies continue to prove the positive relationship between PRM and the success of research and development projects, according to Mu, Peng and MacLachlan (2009: 170-174) and Teller *et al.* (2014: 67-70). However, integrating risk management into the project portfolio management process mandates the portfolio manager to adopt evaluation and selection of projects, allocating resources, and driving the projects according to the PRM principles (Teller *et al.*, 2014: 67).

Project Risk Management (PRM) assists institutions to minimise the negative impact of uncertainties on the balance of probability whiles aiming to anticipate the outcomes of the project opportunities (Teller *et al.*, 2014: 68; Petit, 2012:539-543). Koul *et al.* (2018: 1722), in conjunction with Teller *et al.* (2014: 68), found out that the PRM process consists of the following; risk identification, risk analysis, risk definition, risk response implementation and risk monitoring. There are a number of approaches a project manager may be used to go about the PRM process. For example, the brainstorming approach can identify risks and the probability matrix

approach is usually employed to analyse risks (Teller *et al.*, 2014: 68). The decision tree approach may also help to determine a particular risk response to apply.

Bowers and Khorakian (2014: 25-26) highlight that organisations should not avoid risk as a strategy to avert risks in their operations. Rather, they should adopt a project risk diagnosis management plan to adjust the balance between success and failure. The extensive application of effective and explicit risk management strategies may decrease failure and expenditure (Bowers and Khorakian, 2014: 25-26; Mu *et al.*, 2009: 179-182). Technically, it is notable that an inappropriate risk management strategy could also disturb and stifle innovation (Bowers and Khorakian, 2014; Taplin, 2005); hence there is a need to find a balance. This caution is relevant when running many projects, including construction and real estate projects. On this basis, one can proclaim that the PRM plan should be flexible in the cause of application. The discussion below elaborates on various types of risks that affect commercial real estate development projects.

3.4.1 Types of Risks that Affect Commercial Real Estate Development Projects

Various types of risks affect real estate development projects. Belás *et al.* (2015: 47), together with Botha (2013: 258), identify business risk, financial risk, liquidity risk, inflation risk, interest risk, time delay risk, cost risk and management risk as types of risks affecting property development projects. These risks mentioned can be consolidated in a bulk form. Figure 3-4-1 illustrates a risk consolidation chart.

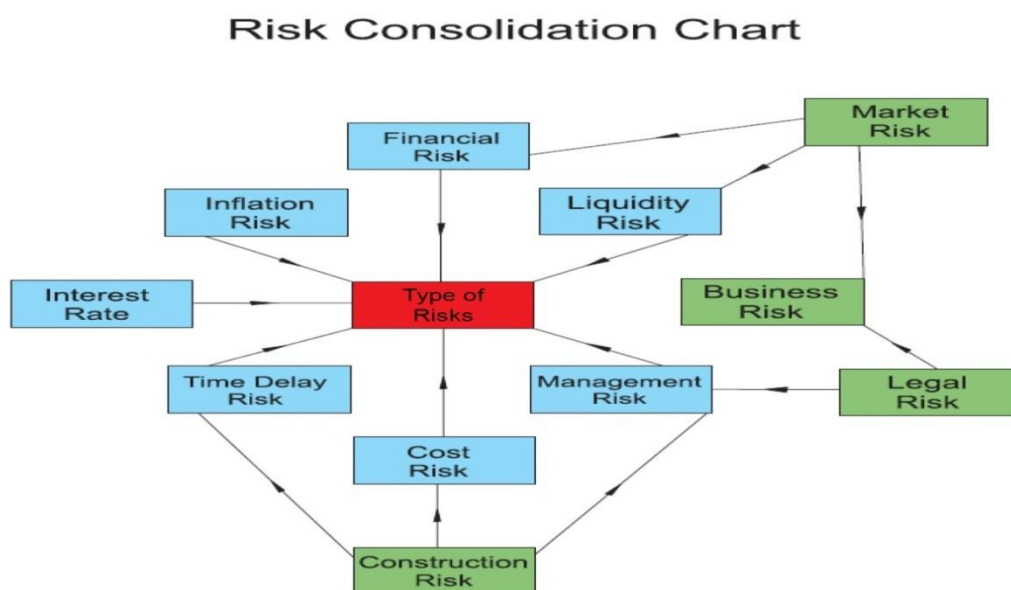


Figure 3-4-1: Risk Consolidation Chart

Business risk can be defined as uncertainty that is likely to set in to disrupt the actual returns projected to receive as a minimum return (Belás *et al.*, 2015: 47). For example, in the commercial property development industry, a facility manager may anticipate achieving a certain maximum occupancy rate for a facility as a target, and if the rate falls, it can be described as a business risk associated with the property rental market. According to Belás *et al.* (2015: 48-50), business risk sources can be attributed to a number of factors such as lack of strategic management, poor quality planning, inadequate monitoring by the supervisors, poor flexibility of decision making, lack of effective communication, improper reporting and lack of technical skills amongst staff. In this light, Botha (2013: 258) and Arias and Stern (2011: 62-64) state that risk has a repo-effect on the investor's return.

The basic and functional business commitments, including high tax payment burden and high management cost, may link to the yield of profit. Therefore, Watkins (2012: 6324-6327) reports that incorporating risk management in business operations is by creating a way to optimize resources to transform expenditure activities into positive returns. Managing risk is considered beyond long-term financing issues because engaging in risk management strategies and practices to address the convergence of risks should be considered a priority (Watkins, 2012: 6327). In addition, risk prioritization produces rank ordering of the potential risk items identified in advanced to be analysed (Arias and Stern, 2011: 61).

Financial risk is described as an umbrella term for multiple sets of risks associated with financial transactions: market risk, underwriting risk, credit risks, operational risks, liquidity risks, strategic risks, and legal risks (Mwangi, 2019; Wani and Ahmad, 2015: 1425). It can be defined as the chance an investor has of losing money invested in an organisation whose cash flows are initially inadequate to meet its obligations. Financial risk is one of the biggest risks property developers and investors experience due to the fact that property development projects are capital intensive, and it takes a considerable number of years to generate returns through rentals and property sales. Therefore, financial risk entails the risk of cash flow insolvency (Wani and Ahmad, 2015: 1425). Hence, commercial property investors may have to look for options such as anchor tenants at the initial stage of the project

to leverage their investments.

Inflation risk premium may be experienced due to either the result of a higher level of inflation or as a result of an increase in investors' aversion in bearing risk (Hördahl and Tristani, 2012: 635). It has been observed that higher inflation risk has a reflection on an increase in the uncertainty of the macro-economic environment as a whole (Hossain and Arwatchanakarn, 2016: 2792-2795; Alesina and Passalacqua, 2016: 2599-2651; Kabir *et al.* 2015:1-18). In fact, inflation and interest rate effects have been extensively discussed in chapter two of this study.

The prime liquidity effects have a strong link index to financial markets such as stocks and bonds (Hördahl and Tristani, 2014: 2); however, property development and investments are relatively known to be highly illiquid in nature (Collins and Ghyoot, 2012: 12; Chan, 2011: 2). This may imply that property investment in general faces liquidity risk. Akhtar, Ali, and Sadaqat (2011: 35) claim that liquidity risk is the outcome of the disparity maturities in two sides. The disparity in this context may refer to the excess cash needed to be invested or result in cash deficiency needed for funding. It has been realised that liquidity risk surfaces from complexities through logical means. Some property companies worldwide enlist their property shares on stock markets to decrease the companies' illiquidity risk. To decrease risk, it is always important to identify and develop techniques to mitigate them accordingly.

3.4.2 Risk Identification Techniques and Mitigation

There are various risk identification techniques and they include but are not limited to the use of structured checklist instruments, cause and effect analysis tools, influence diagrams and, hazard and operational ability study techniques (Bowers, 2013: 29; Makui, Mojtahedi and Mousavi, 2010: 109-112). Koul (2018: 1722) suggests that the main purpose of risk management is to identify project risks and develop techniques that may either minimise risks or attempt to avoid risks. In practice, it is impossible to avoid risk entirely (Mishra and Moktan, 2019; Koul, 2018: 1722). However, measures to minimise risk are of critical importance.

The checklists instrument prepared to identify risk categories affecting projects at each level can be an effective and practical mechanism to be used by a property

development company (Ackermann *et al.*, 2014: 290-294). However, the checklist needs to cover project specifics and the generic critical success factors that encourage project team members to consider the apparent issues and probable sources of risk. Qazi, Quigley, Dickson and Kirytopoulos, (2016: 1183-1187) and Ackermann *et al.* (2014: 290-294) agree that initial risk identification provides the basis for recording project risks and managing risks. Koul (2018: 1722) argues that risk analysis is a step to assess the magnitude of a project risk depending on the availability of quality data. It has been further acknowledged that qualitative risk analysis may have to be conducted in the initial stages of the project for the purpose of understanding the severity of risk (Edwards and Bowen, 2013; Bowers and Khorakian, 2014).

Quantitative risk analysis, on the other hand requires a substantial statistical analysis of relevant historical data to be processed. Meanwhile, such data may be unavailable due to a lack of technology and innovation when managing projects (Bowers and Khorakian, 2014: 29). Project risk analysis is followed by risk management action. Such action can be adopted for a suitable response to each risk factor specified and recorded in the compiled risk register. Many authors believe that project risk management actions are characterised by innovation concepts (Pyra and Trask, 2002: 42-48; Fang and Marle, 2013: 239-245). Consequently, it encompasses a wider range of financial, market, and technical risk and organisational issues that pose a serious threat to the successful implementation of projects.

Risk mitigation is the process of determining possible ways to reduce, share and distribute risk impact. Reducing the impact is the fundamental object, and it can be done by conducting many critical activities (Bowers, 2013: 31). Activities such as developing a project communication plans and project scope serve as initial mitigation strategies in every project. Chan *et al.* (2010) realise that a clearly defined scope of work presented during the client's project briefing demonstrates prior risk mitigation measures contractors intend to use. It is for this reason why (Chan *et al.* (2012: 12) emphasize that early involvement of the contractors in the project design development process is the most effective tool to mitigate risks (Bowers, 2013: 31-32). Other mitigation strategies include ensuring that a quality feasibility analysis report is obtained before the project takes off and that experienced and skilled professionals are hired to undertake the project.

Insuring the property after completion is one of the major ways to share the risk associated with commercial and residential properties (Born, Bradley Karl, and Klein, 2018). In the early 1990s period, many States of the US were impacted by an awareness increase of natural disasters risks due to the earthquakes and hurricanes that sparked in the West, East, and Gulf coast areas (Grace and Klein, 2003: 1). Other disasters such as flood, wind, and fire have a devastating effects on real properties and for that matter, taking insurance to cover may serve as a window of hope in case in-eventuality occurs. Property owners usually are required to pay a premium on their insured properties to the insurers (McAneney *et al.*, 2016: 3-9) on a monthly basis based on the estimated cost of replacement determined by the insurer's valuers.

Many authors in numerous cases argue that the main factor involved in property insurance market is the drastic rise event of catastrophes and its continual occurrences (Born and Klein, 2016: 2, 2019; Born *et al.*, 2018). This causes insurance prices to rise. In addition, the premium or the price of insurance could also rise significantly due to the availability of cover tightened with the highest risk locations (Grace and Klein, 2003: 1). However, the rising cost of insurance in the US has become a hot debate (Grace and Klein, 2003: 2). Moreover, this trend of high insurance cost to property owners seems to find its way in many sub-Saharan Africa since most insurance organisations are multi-national companies with subsidiaries in counties such as Ghana.

3.5 REAL ESTATE TRENDS AND CYCLES

Real estate trends and cycles in modern times are increasingly taking a unique dimension due to economic factors, human endeavours and technology. It is driven by the rapid pace of urbanization (Rogerson, 2014: 234; Freire, 2013), especially in Sub-Saharan Africa. For this reason, developers may have to become more creative and innovative in designing and constructing commercial real estate by seeking to use space more economically, according to the PWC Report (2015:14) on Real Estate, building the future of Africa. The report also stated that construction techniques like pre-fabricated building designs and 3D printing offer faster, cheaper and eco-friendly development currently being employed. Wiley (2017: 77-82) indicates that underwriting cycles play a significant role in asset pricing for the

commercial property development sector.

Real estate attracts a significant amount and degree of attention in many contemporary arenas and is often perceived as romantic archetypal figures' realm (Drane, 2013: 2). There have been a series of calls for a new paradigm of real estate development techniques in this contemporary era (Weaver, 2012). Contemporary decision-making in solving challenges in the field of engineering and construction is possibly linked with a diversity of processes, incommensurable variables, structures, conflicting development objectives and constraints (Kaplinski and Tupenaite, 2011: 170).

The establishment of value and utility level of construction projects, the priority order of their implementation, Multiple Criteria Decision Making (MCDM) methods can be used effectively (Kaplinski and Tupenaite, 2011: 171-174). Therefore, it can be observed that the development and application of new methods, models, and techniques are important in order to ensure the proper development of the construction sector. The MCDM is defined as the set of methods that allow the aggregation of several evaluation criteria to choose, rank, sort or describes a set of possible alternatives in construction projects (Chatterjee *et al.* 2018:46; Kaplinski and Tupenaite, 2011: 170). In a broader context, it deals with studying the construction activities as a decision aid tool for the decision-maker being an individual, firm or organisation. Therefore, the main objective of the MCDM is to make available to the decision-maker with tools that enable him to advance in solving a decision problem of a selected investment project taking into consideration several conflicting multiple criteria (Puška, Beganović, and Šadić, 2018: 7-12).

A new method of multiple criteria complex proportional is used to evaluate projects that enable the user to attain a reduced criterion and determine the project's overall efficiency percentage (Kaplinski and Tupenaite, 2011: 167). The criterion obtained is directly proportional to the relative effect of the weights and values of the considered criteria and the efficiency of the project. In addition, the programme may also determine the price that enables a project to be competitive in the market (Chatterjee *et al.*, 2018).

Some of the emerging real estate projects are built by integrated designs balanced with an array of systems to achieve bottom-line performance goals having

interconnections of energy, water and other amenities balancing efficiency and productivity (Mills *et al.*, 2018: 24). This creates opportunities for the users of such buildings to have access to multiple uses of resources with less or high cost depending on variable factors best known to the developers and the investors. The growth and model of Real Estate and Investment Trusts (REITs) development in the United States, for instance, has inspired many of the European countries and Australia to follow suit (Theurillat and Crevoisier, 2014: 504; Aveline-Dubach, 2016) by restructuring them with modernisation and fund creation (Herbert and Murray, 2015: 473-478).

Major financial investors such as pension fund trust operators are involved in large real estate development infrastructure development (Theurillat, Corpataux and Crevoisier, 2010: 189-193). Other financial investors, including banks and insurance companies, are also into commercial property projects. For example, in Ghana, Social Security and National Insurance Trust (SSNIT) and Ghana National Association of Teachers (GNATs) are some organisations known to invest in commercial properties such as office block development residential development.

Investors recognized the long-term need for more office spaces in Ghana, the state agencies and private investors were encouraged to participate in the market by becoming development partners (Karley, 2016: 24). As a result, the SSNIT entered the office sector development as an investor to increase its market share in the large property market in Ghana. Real Estate Investment Trust (REIT) is another wide coverage of real estate development, and several studies examine the mergers with regard to their competitiveness and sales (Mulherin and Womack, 2015: 151). These organisations involvement in property development and investment to generate revenue over the years has brought a new real estate trend worldwide.

The green building concept gradually influences design trends. A range of studies across Europe, Australia, and North America show a growing trend in greening commercial property development projects (Rogerson, 2014: 235). Such commercial developments include hotels, offices and industrial buildings. In London, for instance, green buildings have proven to be economically significant in the real estate industry (Rogerson, 2014: 235; Chegut *et al.*, 2014: 23-25). It is observed and accepted that green building designs, construction and operations conserve many resources such

as land, materials and energy (Geng, Ji, Wang, Lin and Zhu, 2019: 500). In addition, green building reduces environmental pollution and provides natural air and healthy comfortability to the occupants.

3.6 BUSINESS MANAGEMENT SKILLS SET

Business management skills set are the skills a business owner or operator requires to successfully manage his or her business activities. Drucker (1985), far back, contributed that business entities must fulfill four (4) requirements: active marketing activities, effective business management teams, strong financial planning, and active entrepreneurial role to become successful. Zahra, Nouri and Imanipour (2014: 43) support the fact that marketing, financial, negotiation and accounting are relevant skills in business management. In the real estate business sector, all such skills are necessary skills property developers need to run their projects for success. Mamabolo, Kerrin and Kele (2017:3-9) emphasize that business owners need some financial management skills, human resource management, interpersonal, leadership, personality, marketing and technical skills to explore in their business pursuit.

Some authors believe that small-scale business operators should acquire financial management skills to survive (Kirsten, 2018: 3-8, 2013: 826; Motimele, 2010). Details of financial management acumen such as profit planning, record keeping, financial statement preparation and analysis, working capital management and break-even analysis (Kirsten, 2013: 826) must be understood by the property developer, project manager and the facility manager. This helps the developer track and monitor the cash flow performance of the project and seeks clarity from qualified financial analysts if need be.

According to Kirsten (2013: 826-827), business operators must perform record keeping and prepare basic financial statements as a result of monitoring business performance. Small-scale property developers can take heed to Kirsten's (2013: 826-827) advice. They can do so by acquiring basic financial management skills through education and training as key interventions (Kirsten and Fourie, 2012: 460-465). Mohd Harif, Osman and Hoe (2010: 16-21) emphasize that proper financial management skills are a deciding survival factor for small businesses. Financial management has both internal and external aspects called accounting system implementation and management, and the generation of information for decision-making purposes (Brijlal, Enow and Isaacs, 2014: 2; Padachi, 2010).

Brinckmann, Salomo and Gemuenden (2011: 218-225) define financial management

as managerial activities that cover the acquisition of financial resources and the assurance of their effective and efficient use in ensuring a positive cash flow indication. In other words, financial management is the process of managing all the finances of an entity with the sole aim of achieving the financial objectives of the entity (Brijlal *et al.*, 2014: 2). The primary function of financial planning is forecasting incomes, expenses, determining financial sources and profit panning.

Reporting is one of the business management skills needed by the property developer and his/her team members. Reporting is the keeping of channels for communication both internal and external of an organisation. Reporting as a management measure helps to promote work's progress, thereby allowing to make necessary modifications to plan ahead (Kerzner, 2018; Bettinger, Boston, Siry and Grebner, 2016). In addition, reporting gives a leeway for all the vital information to be exchanged among the employees in an organisation and easily shared with the necessary parties within a limited period with less distortion (Abualoush *et al.*, 2018:220).

Property developers need other necessary business management skills. Gong, He and Hsu (2013) point out that the essence of business negotiation is a presentation of human relationship and that habit, the art of language and demand for psychology has to be linked with the specific culture of the people. Jiang (2013: 109) and Shore *et al.* (2009: 289-294), with the same length, outlined the cultural resources of business negotiation and tried to formulate strategies for variable thinking methodologies. Business communication skills can also be considered one of the business management skills set for real estate professionals. Because they contact clients regularly. Conrad and Newberry (2012) argued that effective business communication is the key to planning, leading, organising, and controlling organisational resources.

Bharadwaj (2014: 184-188), in conjunction with Conrad and Newberry (2012), allege that effective communication helps advertise and manage the crisis in business. An entrepreneur is a person who takes the risk to bear all impacts of creating a new venture (Memon *et al.*, 2015: 1). An entrepreneurship skill is also considered one of the significant contributors to the performance and success of any business operation (Unger, Rauch, Frese and Rosenbusch, 2011: 342-345). Globally, there

has been a siege in understanding entrepreneurs operating in an emerging economy (Mamabolo *et al.*, 2017: 1). Business owners with entrepreneurship skills are quick to identify organic and inorganic business opportunities and use economic scope to explore. However, some business owners encounter entrepreneurial skills challenges (Adendorff, Emuze and Vilakazi, 2013: 242- 245). This challenge does not make them think out of the box if the market they are operating in becomes stagnant and saturated.

Efficient entrepreneur creates sustainable businesses. Mills *et al.* (2016:68) report that organizing resources for business provide raw materials, capital, equipment and personnel, and anything useful for the business functioning. Research on entrepreneurship skills may lead one to view human capital theory philosophy, which states that skills are the main products of education investment and work experience (Chell 2013; Unger *et al.* 2011).

Property developers' entrepreneurial skills may help them to negotiate affordable loans and secure joint partners for commercial property development projects. In this light, Morales and Feldman (2013: 129-133) proclaim that entrepreneurs need a variety of business skills to turn things around. However, according to Morales and Feldman (2013: 129-133), there is no clarity on the specific skills required by entrepreneurs.

Lack of entrepreneurial skills may be due to inadequate training (Brière, Tremblay and Daou, 2014). However, creative and problem-solving skills are the baseline skills for a successful business venture (Mamabolo *et al.*, 2017: 2; Marivate, S.P., 2014: 53-57). Hence commercial property developers may require entrepreneurial together with other business skill sets to run his or her development projects to success.

3.6.1 Strategic Factors

Strategic Factors may be considered as factors organisations, or business entities need to succeed in achieving their set goals and targets. These factors can be customer satisfaction, competent employees, constant supply of raw materials, effective marketing and strategic leadership. To achieve the highest optimum level of success in every organisation, strategic leadership and management are critical (Pournasir, 2013: 67-72; Daft, 2011: 350). On the other hand, strategic management can be simply described as the process of forming and executing the necessary

evaluated changes that put the organisation on a sustainable competitive advantage and achieve its long-term goals (Pournasir, 2013: 66).

Fundamentally, strategy is the set plan to achieve excellence, while strategic leadership stands as the thinking and making decisions required to implement and articulate the set plan (Lear, 2012). The researcher deems it important to explore the practical concept of strategic leadership and effective marketing as the main strategic factors to address risk factors that influence commercial property development and investment projects viewed as a business venture. Strategic leadership and effective marketing are discussed below:

3.6.1.1 Strategic Leadership

Authors such as Setiawan and Yuniarsih (2018: 63- 66) and Daft (2011: 350) define strategic leadership as the ability of an organisation to be able to anticipate and envision the future, become flexible, think ahead and initiate positive changes that are likely to position an organisation on a competitive edge in the future. This definition emphasizes that strategic leadership is all about putting measures to ensure organisational posterity and sustainability. This is usually uncommon. Strategic leadership appears to be one of the critical challenges organisations face today. Despite several kinds of research on leadership, scholars have only recently begun to single out strategic leadership as a focus of attention (Palladan, 2017).

According to Sanders and Davey (2011: 41), strategic leadership has a linkage with organisational effectiveness. The effectiveness and dynamic behavioural complexity of the causal link between moderators and mediators suggest that the main reason for the difficulty in obtaining and maintaining effective leadership (Sanders and Davey, 2011: 45) is due to lack of an effective succession plan. Organisations including real estate development and management companies may need a leadership succession plan to align their vision and values to deviate from their set goals (Lear, 2012).

Leaders in organisations are to set a vision, think strategically, plan and lead in administering the operational activities for followers (Jabbar and Hussein, 2017: 100). For example, in the commercial real estate industry, the developer himself/herself together with the project manager, construction manager, site

supervisor, property manager, and the property marketer are classified as leaders. Leaders are responsible for guiding and directing their subordinates to undertake the organisational duties effectively and efficiently (De La Harpe, Mason and Peterson, 2011: 5-9). Furthermore, leaders' business organisations have to boost the morale and spirit of their subordinates by using appropriate leadership strategies. More importantly, they serve as motivators and teachers jointly to the workers (Jabbar and Hussein, 2017: 100).

Motivation is the process of energizing a person's intensity to work in an effort to achieve the set goals (Rey-Martí, Porcar and Mas-Tur, 2015: 810-814; Staniewski and Awruk, 2015: 583-588). Others think that motivation is the act of encouraging a person to perform a task by himself/herself efficiently, and the passion for accomplishing the set goal should come from within. For example, Lunenburg (2011:3-9) argues that goal-setting theory could be the most appropriate theory to explain motivation best. However, motivation impacts such as personal fulfillment, personal values and management skills and, in the end, put more performance weight on businesses as far as productivity is concerned (Asah, Fatoki and Rungani, 2015: 309). In the same vein, applying motivation as a strategy when supervising real estate project activities may help workers work effectively and complete tasks on time to cut delay costs and other associated costs.

Leaders need to have a clear mental approach to the change they wish to make in their organisation's capabilities (Jabbar and Hussein, 2017: 100-104). Strategic leadership with effective strategies usually serves as the fundamental springboard for a fruitful strategic management process to take off (Azhar, Ikram, Rashid and Saqib, 2013; Jabbar and Hussein, 2017: 99). Proactive leaders are able to expedite action to initiate suitable strategic growth in their organisations by specifying proper ways of ensuring such strategies and their implementation. Strategic leadership also creates an efficient evaluation system that runs parallel with implementing the strategies at every stage of the organisational activity (ies) and minimizes risks and lapses throughout the management processes (Jabbar and Hussein, 2017: 100).

Strategic management leaders perform the role of formulating the vision and strategy through the help of a visionary process by understanding the organisation as a whole (Yadav, 2015). The key technical leaders in the real estate organisations

spearheading development projects in the same way ought to formulate development vision and strategies that promote cost effectiveness based on the professional feasibility analysis reports. This action may aid the development team in coming out with viable projects. Leaders, however, should adopt a realistic approach in identifying the strategic gaps so that effective strategies can be employed (Bouhali, Mekdad, Lebsir and Ferkha, 2015: 72-78). This procedure and implementation may be quite easy (Azhar *et al.*, 2013) and sufficient in the real estate market.

New policy implementation may be effective if leaders introduce the need for change by possibly creating a culture that integrates strategy and operational activities (Jabbar and Hussein, 2017: 100). In such instances, effective communication may play a major role. Within the leadership communication cycle, behavioural factors such as motivation, power to influence, leading the change, cultivating trust, creating collaboration, leading through crisis and turmoil, mentoring and discovery of different leadership styles are to be exhibited by the leaders to cause the change (Conrad and Newberry, 2012: 114). Furthermore, leadership due to sustainable business purpose requires special attention in order to promote long-term involvement and value for all stakeholders so as to keep up with the challenges (Lloret, 2016: 418-422; Popescu *et al.*, 2020: 6). Kerzner (2013), for example, confirms that construction project managers must have leadership skills and perform leadership roles to fulfill their functions.

3.6.1.2 Effective Marketing

The American Marketing Association (2015) defines marketing as planning and implementing the the concept of selling, pricing, promotion and distribution of information, goods and services to satisfy individual and organisational goals. Baumann and Hamin (2011:181-183) elaborate that marketing comprises the management of activities and decisions directed to meet opportunities and threats in a dynamic environmental setting to satisfy market offerings for identified consumers. In the world of the estate sector, the term marketing is historically and basically related to the use of postcards, a property flyer and a computer website to market property sales, rent or lease (Florentino, Casaca and Empresa–Universitário, 2014: 2).

Today, many real estate professionals such as property brokers, property developers, property managers and facility managers have seen the need to incorporate technology to complement their way of conducting business (Laban, 2017; Florentino *et al.*, 2014: 2-4). Modern real estate consumers are quite knowledgeable in information and technology and, they may know how to access information online. In this regard, real estate professionals base on advertising their services and products through the internet nowadays (Florentino *et al.*, 2014: 2). Effective advertisement of property offerings to consumers such as commercial property space for rentals, may help minimize vacancy rate while strategic and effective marketing for residential accommodation could shorten the market rental period to a minimum level.

Potential buyers and tenants trends have evolved, and for that matter, marketing mix including multiple listing, databases and networks have to take different forms to congruent the changing demand. This trend has changed the manner in which property brokers communicate with their clients (Florentino *et al.*, 2014: 2; Goodwin and Stetelman, 2013: 92-96). The off-line approach, the use of telephone and internet are the strategies marketers employ to increase sales (Frost and Strauss, 2016). Goodwin and Stetelman (2013: 93-96) acknowledge that the use of new technologies and applications such as Global Positioning System (GPS) technology, social networking, tablet computers and smartphones have come to change strategies real estate businesses are conducted in this twenty-first century.

Empirical evidence in the market orientation industry shows that stakeholder orientation construct may pose different relationships with sales results relative to general profit performance (Cadogan, 2012: 338-341; Kumar, Jones, Venkatesan and Leone, 2011: 23-26). Performance measurement in marketing actually depends on the output of the marketers. Under certain market environmental conditions, strategic orientations may be less beneficial due to the changes in conditions (Cadogan, 2012: 342). Hence, a marketer may have to study the environmental conditions influencing the service or product to adopt an appropriate marketing strategy.

3.7 GENERAL MANAGEMENT

Tortorella and Fogliatto (2014: 4625- 4629) explain management as the act of planning, leading and organising resources effectively and efficiently in achieving organisational goals. In another context of expression, Koontz and Heinz (2010:2-3) put it that management is the act of planning and maintaining a congenial environment for people to work individually or to work in teams to accomplish tasks efficiently with the purpose of achieving the set aims. Alnoukari and Hanano (2017) and Boddy (2017: 11) try to define management as a universal human activity, either domestic, social or political setting for achieving a goal. Kaehler and Grundei (2019: 7) subject the above definitions and other similar definitions into critical thinking and argue that such definitions may appear unsatisfactory since management is viewed as a complex concept (Hitt, Black, Porter 2012: 22).

Most times, lack of management skills set to lead to poor management decisions in many business organisations (Kirsten, 2013: 826; Ihua, 2010: 3-7). Some commercial real estate projects cannot achieve their economic objectives due to a lack of effective management. This challenge can be narrowed to a minimum level if real estate project managers can realise that they are the drivers of change. In this study, the ultimate priority is to achieve effective general management skills by the various managers in the real estate development project team. Moreover, the skill of planning, forecasting, organising, motivating and communicating activities to achieve the set management objectives (Austin and Pinkleton, 2015: 19-24) in the real estate management cycle is the focus of this study.

Managers act as agents in a setup organisation and they need to have the necessary skill set to plan activities, organize resources, control resources, and lead people to achieve the set goals (Shamim, Cang, Yu and Li, 2016: 5310-5315). Management skills set may be described as a set of characteristics that are needed by managers to achieve better performance to become successful (Omotayo, 2015: 5-12) in their field of work. Examples of such management skills set include but are not limited to attention to detail, confidence, ability to motivate people, emotional intelligence, self-awareness and interpersonal skills (Popescu *et al.*, 2020: 1-2).

Bharwani and Talib (2017: 394-395), with further elaboration identified analysis skills, conceptual, technical, interpersonal and professional as the four fundamental skills

managers need to become successful. In other words, management skill is perceived to be a significant factor for organisational success at large (Agbim, 2013: 8). Moreover, managers' management skills are considered critical resources for their performance in organisations (Asah, 2015: 309). The general rule is that managers with high management skills tend to perform better in many organisations. That is why Dzansi and Dzansi (2011: 2109-2114) establish a significant relationship between managers' management skills and company performance.

It is believed that managerial skills bring the difference between a successful organisation and an unsuccessful one. The significance of managerial skills in emerging economies is quite elaborated in literature, suggesting that managerial skills tend to play a key role in the adoption and implementation of modern technologies in sub-Saharan Africa (Popescu *et al.*, 2020: 2). Interestingly, managers' fundamental duties are to mobilise resources to achieve collective goals by defining and allocating tasks appropriately to the employees through effective communication (Popescu *et al.*, 2020: 3).

Management skills set mentioned above are needed to organise day-to-day work (Zahra *et al.*, 2014: 46) to manage property portfolio so as to achieve the maximum return and minimum portfolio risk (Ariyawansa and Dilhani, 2009: 30). Based on the above deliberations, it is significant for managers in real estate development organisations to be continuously trained in order to get or sharpen their management skills. Furthermore, empirical studies conducted by Roman, Samy and Soliman (2016: 125) and Parida *et al.* (2010: 132-137) indicate that managerial competencies can be measured by experience, education and knowledge of the industry and, they have an impact on the business performance.

3.7.1 Anchor Security and Negotiation

Negotiation is a positive capability to communicate effectively and is one of the pillars in the business exchange process (Peleckis and Peleckienė, 2016: 88; Fang, 2006). In negotiation, parties try to influence each other by means of communication power with the prime purpose of achieving their goals. Such goals may link to the exchange of information, services, capital, skills and other similar resources. Quite often than not, business negotiations are done by the various sectors' representatives (Agndal, Åge and Eklinder-Frick, 2017: 487).

The developer's ability to use negotiation skills may help him acquire low interest rate funds from financiers and sometimes attract partners for development. Business negotiations are also relevant and applicable in the real estate industry. Today, real estate appears as financial assets such as bonds, company securities, and derivatives that allow investors to diversify their investment portfolios (Theurillat and Crevoisier, 2014: 502). The relationship between real estate and other investment portfolios is relatively proportional but with few different characteristics.

The portfolio impact of financialization on urban settlement has not been thoroughly researched within urban geographic scope (Theurillat and Crevoisier, 2014: 502). This particular issue has received less attention from the sustainable development point of perspective. Hence negotiation on commercial property development at the urban areas, which forms the basis for anchor security as capital, should be explored.

The anchoring players are considered as urban collaborators having a direct interest in the new project becoming a reality (Theurillat and Crevoisier, 2014: 507). These players may be public, private companies, promoters and future users. The developer could use his negotiation skills and abilities to bring such players on board during the initiation and planning stage of the project in an attempt to secure funds. This may assist the developer not to use much or no interest paying capital to finance the entire project. Strategic creation of partnerships to undertake construction activities promote community-investor growth (Halbert, Henneberry and Mouzakis, 2014: 421-424; Guironnet and Halbert, 2014). The investor pull approach called the anchor security and negotiation is usually used to construct big and complex shopping malls, stadia and blocks of residential facilities in many countries.

Urban property development may become liquid (Theurillat, Vera-Büchel and Crevoisier, 2016: 1510-1515; Guironnet and Halbert, 2014; Halbert, Henneberry and Mouzakis, 2014: 421-424) if investors can create a logical portfolio management on the financial markets. An attempt to list commercial properties investment on Ghana's financial markets may promote property liquidity in the country as practiced by countries like South Africa and the UK. The business network developed by Inkpen and Tsang (2016) to categorise the formality of network governance by sharing positions and power of resources among its members (Besser and Miller,

2011: 114) can be applied in the commercial real estate development industry, especially in the developing countries such as Ghana.

Because to mobilise capital by a single developer or investor to undertake complex and decent commercial development projects in Ghana is extremely challenging. This means that a commercial developer could think of involving other stakeholders like the Municipalities, financial institutions and individuals as corporate partners to develop commercial properties. Such business networks are very prominent in East Asia, Italy, Germany, Sweden, and France (Besser and Miller, 2011: 114).

Business organisations are expected to be more creative and innovate in order to survive (Batkovskiy *et al.*, 2015: 243; Bowers, 2013: 25) in this twenty-first Century, where resources are gradually becoming scarce and expensive. This assertion also cut across all sectors, including commercial real estate development business organisations. In an economic recession period, for example, innovation may help to convert a crisis into an opportunity (Fontainha, 2019: 74-78). Hence all the above business innovations discussed in this section can be viewed as remedies in determining ways to share and distribute economic risk factors affecting commercial property development and investment projects in a wider scope (Wiegelmann, 2012:25; Khumpaisal and Chen, 2010).

3.7.2 Outside Advice and Professional Mentorship

Property development project is complex in nature and that developers require professional consultants to provide them outside advice and mentorship assistance (Abrey, 2015: 30; Botha, 2013: 82). Sourcing consultants' advice and establishing a professional mentoring approach helps the developer to maintain cost efficiency and quality performance in the development process. Quality constraints may cause long-term damage to the developer's reputation and any structural defect requires financial and technical resources to rectify (Khalid, Ahmad, Khalid and Odimegwu, 2018; Alaloul *et al.*, 2016).

Professional mentoring is a developmental process through which an experienced person shares his or her knowledge with the less experienced person in the same field (Ilieva-Koleva, 2015: 448). The experienced person does not share his knowledge alone; he shares his skills as well as guides the less experienced person

to acquire the necessary aptitudes and attitudes in building up in the said field. In rare cases, mentoring could also be in partnership learning among professional peers. Business mentoring for instance, targets people who are well-grounded in their fundamental technical skills but need further help in other knowledge areas, skills or expertise (Ilieva-Koleva, 2015: 446; UK Business Mentoring Guide, 2011).

The adoption of the mentorship approach in the real estate industry may urge young professionals to improve their capabilities and at the same time minimise work defects in real estate project execution. Realising the importance of professional consultants and mentoring in the property development business cycle, this section is meant to share more light in the various specialised consulting (Botha, 2013:83) whose professional advice and services to the developer may be critically important. This section further explains the importance of the various professional reporting and consulting and their applicability in the real estate business cycle.

3.7.2.1 Real Estate Professional Reporting and Consulting

Real estate development cycle is capital intensive (Omboi, 2011: 37). However the majority of property developers may not have all the expertise required to carry out mega development projects. Hence consultants with specialised skills needed in the development cycle can be consulted. Consultants play an important role in the entire construction (Khalid *et al.*, 2018: 81) and the real estate development cycle. It is argued that a developer has to hire consultants who have a valid professional indemnity insurance certificates. This serves as a way of ensuring that risks can be equitably shared in the development cycle.

Property developer usually hires consultants to provide an ad-hoc services such as feasibility studies (Georgakellos and Marcis, 2009), designs and drawings, supervision, estimation, sale and transfer of ownership. These consultants include the property development consortium, property economist/valuer, architect, quantity surveyor, engineers, estate agent, facility/property manager and property attorney.

- Property development/Project management consortium: The project management consortium has a broader variety of roles and responsibilities to play during the proposed construction process (Nikumbh and Pimplikar, 2014: 15). Among such responsibilities are preparing the design brief, work-breakdown structure, baseline

project schedule, full-time project supervision and project close-out report preparation. In reality, new commercial property development implementation has to meet current needs through investment analysis (Rogerson, 2014: 234-236). Therefore, property development/project management consultancy usually offers a cluster of services to the property developer throughout the development process.

Large and well-established property development organisations have their in-house project management department, while some developers hire property development project management consultants due to a lack of professionals and a way to minimise the cost of production. The management of project portfolios may be considered a challenging and novel area in practice. The emerging challenges associated with project management need to be tackled by managers in order to lease out opportunities for increasing organisational effectiveness (Alexandrova, Stankova and Gelemenov, 2015: 19).

Consultancy as a whole plays a multifaceted part in the construction project and it is relevant right from the initial stage to its completion (Nikumbh and Pimplikar, 2014: 16). Some of these emerging development consultants blend their service offerings by providing development feasibility studies in addition to the project management delivery. Interest in project management is increasing significantly late, especially in the construction industry (Bakar, Razak, Karim, Yusof and Modifa, 2011: 164). But to ensure cost-effectiveness in property development projects, it will be appropriate to consult a property development consultant in seeking professional advice.

Property development consortium assists the developer to oversee construction phases, monitor and reviewing the progress of the development (Khalid *et al.*, 2018: 81). However, the developer's performance is distorted if the consortium is unable to deliver with regard to the designated information needed to ensure the smooth running of the construction work. Consultant's negligence on the site may halt the progress and eventually affect the developer's performance (Khalid *et al.*, 2018: 81). Therefore, a developer has to appoint a qualified and experienced development and project management consortium since poor communication among major challenges affecting the performance of the developer's work (Mushtaq *et al.*, 2018; Khalid *et al.*, 2018: 81-83).

- Property economist/valuer is a professional in the built environment who provides services such as determining economic/feasibility analysis report for potential property development or determining market value by using several methodologies (French and Gabrielli, 2018: 391-396; Jiao and Xu, 2015: 1969-1973) for both built property and proposed property development. Fundamentally, a valuer is usually based on the time value of money called present and future value to discount, forecast, predict and project and forecast figures gathered from reliable sources in arriving at the value. The process of valuation is described as the art and science because the account of all features affecting the subject property (Adegoke, 2016: 276) and scientific methods is used.

Property valuation exercise is highly relevant in the real estate development cycle because a business property developer always needs to establish economic value for any development he/she intends to embark on before thinking to commit financial resource into it. Hence a property valuation consultant can be contacted at an early stage to conduct both the feasibility and the development valuation reports. The valuer will conduct due diligence to establish the highest and best used of the subject land value and, more importantly, determine what the land has lent itself for in yielding returns. The property economist examines all the interrelated factors, including the real estate global trends, national demands, provincial demands, and the local demands relative to the income level of the population, interest and lifestyle of the population (Adetiloye and Eke, 2014: 1881).

The current market equilibrium conditions can be examined by looking at the current housing unit availability, rental vacancies, absorption rate and rental trends in gauging the likelihood of short-run value movements that may influence the development value (Adetiloye and Eke, 2014: 1881). The property economist follows the logic and systemic steps to carry out both the macro-economic and micro-economic factors in assessing the proposed development project so as to minimise economic losses that are likely to arise in the future. In other words, Tajani and Morano (2017) propose that it is necessary to conduct investment evaluation, but it features to be rare in most cases. As a result, could lead to a high vacancy rate in already built commercial properties. Some of the commercial properties are unable to meet users' demands and that many of them fall short of users' requirements (Karley, 2016: 24). Currently, most of the commercial properties in Ghana are

continuously experiencing similar conditions.

A developer may decide to buy an existing property and do redevelopment. In such an instance, the developer critically needs the service of a property valuer to assist in determining the threshold value limit to buy such property. Buying a property to turn it into high economic value in practice is known as property flipping. The valuer in such a situation examines the submarket, normally undertaking neighbourhood analysis to datum point of reference of the subject property relative to the key properties including retail centre, hospital and educational in order to establish proximity (Adetiloye and Eke, 2014: 1881; Hui and Zheng, 2012: 85-89). This will guide the valuer when forming value-cardinals for the subject property.

Austin (2012: 78-88) mentioned and explained processes involved in conducting valuation in general while Floyd and Allen (2008) reported that there are six (6) procedural steps valuers follow to arrive at value estimation. These are; problem definition, data selection, data collection, highest and best use, application of valuation methods, and values reconciliation. Adetiloye and Eke (2014: 1882) further submitted that the property valuation process should be viewed as systematic steps, namely; property legal and physical identification, properly delineated by beacons and document of title identification, right to be valued identification- freehold or leasehold, purpose of valuation, market analysis (Costello and Preller (2010:175), estimating the value and finally adopting the value. In practice, however, the use of these steps mentioned varies and differs depending on the valuation's purpose. Therefore, the purpose of valuation determines the steps and the methods to use.

After the development is fully constructed and completed, a market valuation (French and Gabrielli, 2018: 391-396) report is needed to help the developer establish fair market rental values in negotiating lease agreements if the developer intends to build operate development policy. In the same way, if the developer wants to build and sell, a property valuer has to assist in determining the new development market value. In fact, the valuer is trained to advise on how to monetize property on external effects basis (Omboi, 2011: 4). The role of valuers in the real estate industry encompasses the studies of market factors on how these factors influence both present and future value of properties.

The global financial crisis which occurred in 2008 and other financial

mismanagement in many developing countries have wreaked the real estate markets over the years and these have called for a new approach of valuation exercise and its regulation (Żróbek, Adamiczka and Grover, 2013: 38-42) in determining property market value. Market value has been defined as the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arms-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion (International Valuation Standards Council (RICS), 2016).

Property development can be observed from the investment point of view where its rental or sale is meant to generate profit on the invested capital (Omboi, 2011: 6). Therefore the valuer uses several investment formulae such as Internal Rate of Return (IRR), Capital Asset Price Model (CAPM) and Discounted Payback Period (DPP) to demonstrate capital ratios and period of payment during the preparation of feasibility analysis report is paramount. This report is prepared as part of the initial activities to provide green or red light in determining whether a proposed development project can take off. Hence, the developer's interest to consult property economist/valuer service is paramount, especially in this time when the property market is fashioned with competition and uncertainties.

Another important role property economics consortium has to perform in the Ghanaian setting is by conducting effective due diligence checks for the developer before any financial commitment is made in acquiring land. Because the acquisition of land in Ghana is gradually becoming a fleet of war between many self-acclaimed owners, this has presented land acquisition risk (PWC Report, 2015:10; Ghosh, 2014: 130-134) in the the property development industry. Hence much more elaboration was dealt into on chapter two under land acquisition and registration in Ghana. In addition, as part of the due diligence function, the property economist should examine lease contracts to establish how the terms and conditions could affect the property value and viability of net income of the subject property (Mills, Finlay, Lowe, Majersic, Moore and Winters, 2018: 30-31).

- An architect is the professional person in the built environment industry who receives clients' objectives of the proposed development and designs the building to suit the clients' specifications. Usually, the firms registered and accredited to offer

architectural services are called Architectural Firms (AFs). AFs have a team of professional architects endowed with design and drawing knowledge and skills to solve unique problems (Von Nordenflycht, 2010: 157-161) in achieving professional and commercial goals (Ribes, 2020: 882-887). Hence there is the need to consult an architect for designing clarities in an early stage of the development process to obtain the best design value. In a more coherent order, the architect has to be part of the initiation stage, where the majority of designing and planning activities go on. This will help the developer to minimise the developmental waste that is likely to emerge.

Architectural firms in recent times are increasingly taking new roles in responding to ongoing societal and industry-level of changes (Duffy and Rabeneck, 2013: 115-119). Their new approach of rendering services is accompanied by business models meant to serve and satisfy clients in running a business. Such business models are coupled with a duality of practice (Bos-de Vos, Volker and Wamelink, 2016: 5-7). This indicates that a seasonal and business-oriented architect in practice can provide the developer with a classic kind of commercial property development design that creates available space for retailing standards and adequate and comfortable accommodation to match residential demand trends. This may not expose the proposed development to economic defects after completion.

Some of the architectural firms in practice offer interior design work and project management services in addition to their main building design function. This multi-purpose service function may be convenient, but many developers may prefer to assemble their own team of professionals (Botha, 2013: 85) to build strong and sustainable in-house professional teams. Besides, large property development companies and corporations employ their in-house architects. Therefore, in ensuring quality design work and risk distribution in the development process, it is appropriate to do quality checks and due diligence to appoint or nominate an architectural firms or architects having a good track records and unexpired professional indemnity insurance certificates.

- Quantity surveying consortium: Quantity Surveyors (Qs) can be described as building accountants and cost managers (Reddy, 2015: 85). In other words, Qs cost building designs, providing property developers valid information on the

proposal cost estimate and preparing and approving payments for the work completed by the sub-contractors. Conventionally, QSs functions include the preliminary estimates preparation, feasibility studies, bill of quantity preparation, schedules and cost plans (Olatunji, Sher and Gu, 2010: 67-70). In addition, QSs further compile and draft contracts and help in analysing construction contract tenders. These modern times also offer advice in contractor selection, providing financial management advice in large development projects.

Employing QS in the development team may help the developer and the investors to receive an approximate project cost estimates and at the same time assist in getting value for money by managing the budget through the minimisation of cost overrun. Quantity surveying consultants, in simple terms, gauge and screen the cost of construction from the practicality point of perspective through the development completion period (Reddy, 2015: 5). An experienced QS present in the design team may provide practical suggestions and solutions in turning down expenses (Reddy, 2015: 5). This could be an opportunity to minimise waste, cost overruns and financial mismanagement in the development process.

Nagalingam, Jayasena and Ranadewa (2013: 84) report that the main role of a QS is to ensure financial control, manage cost from the inception to the completion stage. More importantly, the QS is known to be an expert in costing at all stages of the development and he or she offers advice that relates to life cycle costing, cost planning, contract administration for tender (Nagalingam *et al.*, 2013: 84; Abdul Rahman *et al.*, 2012). In addition, an investigation conducted by Ashworth (2010) indicates that pre-tender estimates preparation provides probable construction cost for the various stages of the project.

- Engineers: There are a cluster of professional engineers who are needed to provide advice and construction service to the development design and building team. Examples of these engineers are civil, electrical and mechanical engineers. The engineers do the structural and service designs in the large and complex development projects in addition to the supervision work (Botha, 2013: 85). To curb the unsuccessful construction project losses and failure many countries face (Zhang, Mao and AbouRizk, 2009: 262), engineering designs and supervision ought to be taken seriously.

Obtaining value engineering throughout the development process requires the developer to consult or employ professional engineers with property development knowledge and practical experience to deliver. However, value engineering is described as the systematic, creative and teamwork-based methodology of solving problems to minimize cost and improve the quality of the project simultaneously (Rad and Yamini, 2016: 262). Obtaining value requires maintaining the balance between quality and cost parameters to achieve strategic optimisation (Rad and Yamini, 2016: 262; Cheng, Li and Love, 2000: 85-89). For the developer to ensure value engineering throughout the development process, it is important to bring structural, electrical and mechanical engineers on board to work hand in hand with the quantity surveyor (s). Under normal circumstances, seeking regular engineering assistance helps to minimise structural failure and building defects.

Construction engineering such as electrical and mechanical installation engineering is critically in large commercial real estate projects since the property and users safety is highly needed after completion (Li, Wang, Li, Zhang and Zhou, 2018: 1-2). Construction outcome includes economic, environmental and human benefits, and quality mechanical and electrical installation should be adhered to early by having detailed drawings and understanding (Zhou, 2020; Li *et al.*, 2018: 1). This technical work can only be done by employing related engineers full-time or part-time through consultations.

A developer may decide to undertake redevelopment on an existing building to resurrect its economic usage due to the change of the neighbourhood characteristics. In such cases, A building engineer is supposed to be consulted to conduct Property Condition Assessments (PCAs) on the subject property and prepare an engineering-based due diligence assessment report before the redevelopment exercise begins (Mills *et al.*, 2018: 31). A civil engineer renders an engineering supervision role for the development company, especially when the developer is constructing development projects such as five-storey residential blocks, four-storey office blocks and complex shopping malls.

- Estate agents: Are the agents accredited and registered by the Estate Agency Affairs Board to market land, building, and vacancy for rental, sale, or buy in exchange for a commission. The property owners consult estate agents to sell their

properties for them through advertisements in magazines, newspapers, and the internet (Dilek, 2014: 95). Emphatically, real estate agents have a traditional responsibility to market property for sale or lease purposes (Alfred, Badu, and Mensah, 2015: 69). The agent acts as an intermediary between the seller and the buyer to negotiate a sale agreement for the two parties.

Estate agents and valuers are familiar with the local property market data and, the agents, in particular, understand consumer behaviour patterns since they usually communicate with customers at different levels in the market. This means they are valuable sources of collecting data that can be processed to draw up property demand trends. Besides, the estate agent helps the developer sell new flats within newly built properties and ongoing market development that is yet to be built (Cook, 2015: 296). Such an attempt helps the developer to dispose of his or her products quickly immediately after the development is completed.

Therefore, based on the above information, the developer needs to create a strategic business alliance with the estate agents around. This may leverage the developer to access all market data required to predict future market trends in line with his development decisions. Some of the agents are better placed in a position to do investigations on property research backed with purchase advice in addition to their normal property marketing (Botha, 2013: 84). However, one can argue strongly that the agent is likely to breach his fiduciary duty and perhaps commit conflict of interest in this manner if the agent further provides purchase advice to the prospective customers. Valuers should advise and evaluate any development-related project work (Wilkinson, Reed, and Cadman, 2008).

- Facility/Property manager: Facility Management (FM), in a broader perspective, entails the management of real property, incorporates controlling services for a successful business operation intending to minimise operating expenses and enhance cost efficiency (Lavy *et al.*, 2010: 440; Amaratunga *et al.*, 2010).

The FM is defined as a discipline that seeks to amalgamate a number of activities in one system to provide supportive services that interest a particular organisation (Hofer and Gerber, 2015). Such services include the provision of building

maintenance, cleaning, and security services. Other authors view FM as an integrated approach in operating, maintaining, and improving infrastructure and building facilities of an organisation in order to establish an environment that strongly supports the purpose of which the organization serves (Thanyawatpornkul, Siengthai, and Johri, 2016: 683; Barrett and Baldry, 2003). This means that the FM strategy is usually formulated to match the building facility to the service-use operation through customisation.

The above elaboration indicates that a professional called a facility manager is needed to render such critical services in the realm of real estate, particularly when it comes to commercial properties. In recent times, it has been noted that the interest in effective FM of office buildings is gradually increasing due to the significant demand for increased performance and reliability and performance in enhancing productivity (Shin, Lee, Park, and Lee, 2018). In this light, Lavy, Garcia and Dixit (2010) stress that ineffective facility management can lead to inadequate support functioning, low productivity, and unavailability of future space.

The FM performance needs to be measured periodically to remedy challenges militating against effective commercial property FM systems in developing countries. Major FM performance measurement mechanisms and practices include but are not limited to post-occupancy evaluation, a balance score-card approach, and benchmarking (Lavy, Garcia, and Dixit, 2010: 441). On this basis, one may argue that the FM system should be designed to identify the appropriate course of action and find the best approach to yield the best value for money and support creation for the core operations (Chotipanich and Lertariyanun, 2011: 285). This better FM system matrix can be effectively drawn, monitored, and managed by a seasoned and highly experienced facility manager.

Many facility managers face challenges implementing their organisational strategies to achieve their objectives (Wang, Meng, and McGetrick, 2018: 806-809; Hui, Zhang, and Zheng, 2013; Barrett and Baldry, 2009). However, they still play a significant role when it comes to the operationalization of the FM strategies. The available literature relating to the FM strategy is mostly conceptual and theoretical ideologies rather than an empirical study based on practice, and this leads to a gap in understanding the features of FM strategies (Chotipanich and Lertariyanun, 2011: 283). Therefore,

the services of a facility manager in commercial properties management are of critical importance as far as cost-effectiveness is concerned.

Historically, FM as a full-service sector in the real estate industry did not exist in the United Kingdom (UK) a quarter of a century ago (Eley, 2001: 164-168), not to mention it in many developing countries Ghana. However, FM services and the FM profession have emerged in the country's real estate industry due to Most of these developments are dotted along the southern part and gradually swing through to the country's middle part Chotipanich (2004) and Chotipanich and Nutt (2008), in their view, submitted that the prime purpose of FM service is to provide support to the organisation's physical needs in both the short and long term. In addition, FM strategy should provide a decision framework that can determine a viable marketing approach and position on how the organisation can compete very well with similar business operations (Chotipanich and Lertariyanun, 2011: 284; Edwards and Ellison, 2009).

In simple terms, a good property management service is about serving the occupants and users rather than the building (Ojekalu, Ojo, Oladokun, Olabisi and Omoniyi, 2019: 311). This assertion can be argued strongly in the sense that property management, as the name implies, is fundamentally known as the process of managing the property itself. Lui (2004: 2-6) opined that property management practice had experienced sudden graduation from an ancient style to the modern management approach. Property management companies in practice usually strategise their model of work to achieve customer satisfaction, facility promotion, proper tenancy mix, enhancing the income of the property investment and at the same time maximising value generation through administrative work performance (Ojekalu *et al.* 2019: 311; Higgins, 2014: 45-47). Examples of administrative work to be performed by the property manager are keeping maintenance records, property income and expenditure, preparing financial statements and ensuring tenancy lease agreements.

Flowing from above, it is presumed that property management and facility management service provision are inter-related and interwoven. Hence almost all the FM service providers or facility managers usually perform the same functions in a well commercial property management setting. However, some authors have

predominantly. Meanwhile, the industry experience has proven that customer satisfaction and quality service delivery in property management have been the top priority for tenants renting large commercial properties in Ghana. Therefore, retail property management needs to be examined despite the rising significance of the service sector coupled with competition factors (Ojekalu *et al.* 2019: 311).

One of the functions of a facility manager is to conduct an energy audit report to make recommendable suggestions of minimising energy usage in the building facility for cost efficiency. The increasing energy efficiency is identified and addressed by the Sustainable Development Goal 7 (United Nations Division for Sustainable Development (UNSD), 2017) and investing in energy efficiency is the ultimate key to address climatic change (United Nations Framework Convention on Climate Change (UNFCCC), 2016). Therefore the function of a facility manager is also to economise energy usage and management of the entire building.

- Property Lawyers; there are quite a number of certain professionals and experts who are directly or indirectly involved in the property development and management process in ensuring transparency (Theurillat and Crevoisier, 2014: 505). One of these professionals is the property attorney specialist, commonly known as the conveyancer. Conveyancing, in other words, is the legal process of transferring property from one owner to another owner (Amadi-Echendu, 2013:4). For example, a developer may need the services of the property attorney when it comes to a season of acquiring land or existing property for developmental purposes.

The process and delay in transferring landed property from one person or a group of persons to another person (s) is tedious and cumbersome (Amadi-Echendu, 2013: 3). Usually, the role players and the parties involved in the conveyancing process starts from the estate agent, property seller, buyer, financial organisation and other government agencies such as deed office registry, municipal authority and internal revenue service (Amadi-Echendu and Kruger, 2016: 3-8; Titus, 2007: 93-95). In instances where the seller is deceased, the court also plays a role. In all, the attorney is said to be professionally trained to spearhead the process to a successful end.

It appears that a common symptom of the conveyancing processes is that a single property exchange can take up to 120 days to be finalised. This duration seems too

long when compared to, for example, ten days for the Netherlands (Amadi-Echendu, 2013: 4; Stoter, Ploeger, Louwman, Van Oosterom and Wünsch, 2011). However, practical experience has shown that the conveyancing process in Ghana is not straightforward and sometimes last for years due to many challenges associated with land acquisition and land registration at the Lands Commission. Although the inability of customary land right records necessitated the formalisation of land to guarantee security and certainty of land title (Kasanga and Kotey, 2001), the situation on the ground proves in contrast.

Upon this practical fact, a lawyer who is a specialist in properties may be recommended to undertake due diligence and handle property transactions. Because, despite the historical study of Ghana's land economy (Obeng-Odoom, 2014: 119-123), the road to land title registration has remained very difficult at all times. The process has been wider in context than conventional organisational-level processes (Amadi-Echendu, 2013: 19). Since the Conveyancing process in Ghana is not clear cut, it requires a lawyer who is fully knowledgeable in the property industry and also familiar with the issues in order to be able to sail through in the process.

Agreements often have an effect on the benefits therein, and the cash flow rents factor should be considered carefully (Mills, Finlay, Lowe, Majersic, Moore and Winters, 2018: 30-31). Property attorney could assist in reviewing and preparing lease agreements for tenants, service level agreements, bond and mortgage origination, leading property development negotiations, contracts and representing the developer at the court of law. The lawyer is more knowledgeable in determining the merit or the likelihood of success should in case the developer gets a lawsuit (Abraham and Pane, 2014: 132-135) and,, basedd on it to advise accordingly. The property lawyer may also provide legal advice to the development team and owners on rendering and executing their duties without infringing or breaching the laws governing construction activities, negligence, environmental, sub-contracting, labour employment, and insurance claims.

Based on the functions of the property lawyer outlined above, it may be very important for a developer to be a lawyer in the real estate development and management processes on an Adhoc basis. Because almost every aspect of real

estates, such as the land acquisition process, construction contract, ownership transfer, and management, are legally related.

3.8.2.2 Mentoring in Real Estate Practice

Mentoring today involves both formal and informal developmental partnerships where employees receive guidance, information, and advice from an experienced professional, usually within an entity with the expertise and a strong desire to assist others to grow in their career pathways (Ilieva-Koleva, 2015: 50). Sometimes, mentors can be nominated from different entities or organisations. Mentoring entails sharing ideas and, more importantly, transferring knowledge, skills, and wisdom to the mentee (Ilieva-Koleva, 2015: 50). The mentee communicates freely to the mentor. For example, infant property developers can find an experienced developer who will mentor them for a certain period for the purpose of gaining industry root. This can help the infant developer avoid venturing into riskier property development projects that may luck up his/her finances.

Mentoring differs from other forms of discrete assistance such as teaching and coaching; however, in mentoring; the mentor takes the mentees' interest as his complete priority (Memon, Rozan, Ismail, Uddin and Daud, 2015: 1; Hezlett and Gibson, 2005: 446-448). More specifically, mentoring can be taken in many forms. In real estate professional practice, new, young, and fewer experienced professionals in all sectors could be helped to have their mentors either in the same organisation or another organisation. Nowadays, many mentoring programmes are initiated in large organisations to transfer industrial skills to employees through psychological and professional career development (Ilieva-Koleva, 2015: 1). This approach gives the real estate graduates the first share opportunity to acquire hands-on skills the industry demands for productivity.

Successful industry mentoring programmes match mentors with experienced staff employees to speed up competency-building while transferring knowledge and maximising internal capabilities and talent (Gutner, 2009). Moreover, developing internal professional capabilities and talents through one or two development projects equips the property development team to minimize both construction and cost risk on the similar project execution in the future (Ghosh, Chasey, and

Mergenschroer, 2015). Industry mentoring programme can be viewed as a forum for observation, gaining experience, mastering professional thinking skills, communication, decision-making, teamwork building (Ilieva-Koleva, 2015: 446), and economic risk management skills.

Memon *et al.* (2015: 1-2) argue that mentoring relationships are normally static in nature, unlike relationships built by mere human beings that may include faults and good qualities that change over time. Therefore mentors need to constantly build and adjust their medium of communications to level their needs to meet trends of demanding a deeper understanding and the willingness to observe the behaviour of their mentees objectively. Furthermore, this may help to build trust and confidence between mentors and mentees at all times. In such instances, communication enhances forming deeper understanding in a more friendly manner for both the mentor and mentee, according to Briones and Janoske (2013).

Mentoring relationship sometimes becomes symbiotic where mentors associate with more than one employee and themselves also are mentees (Schooley, More and Vitti, 2010). This situation creates successful and long-term benefits due to the structured programmes through mentor and mentee profiling, training to attain mentorship best practices. In other words, industry mentoring structured programmes will assist the mentors and mentees in building their professional and potential capabilities and upgrading the field of expertise (Ilieva-Koleva, 2015: 449). For instance, a senior construction manager being a mentor for the junior construction managers in the same construction organisation allows them to share ideas and brainstorm in providing appropriate solutions to identified problems.

Mentorship serves as developmental support (Nabi, Walmsley and Akhtar, 2019: 1; Eller, Lev and Feurer, 2014: 815-817; Crisp and Cruz, 2009: 525-529). In business operations, Vadnjal (2011: 95) reports that mentoring helps the mentees acquire entrepreneurial resilience and develop their entrepreneurial career path. Several studies show that there is a wide range of entrepreneurial outcomes through mentoring, and these outcomes can be counted as cognitive and affective measures (Wilbanks, 2013: 93-94; St-Jean, 2011: 65). This means that mentoring can evaluate and measure mentees' performance in the property development business. Botha

(2013: 83) crowns that a developer receives advice, direction, motivation and moral support from his mentors.

3.8 FINANCIAL FEASIBILITY ANALYSIS

Financial feasibility analysis pertaining to commercial property development and investment in this research is viewed as a combination of market and practical viability of consideration analyses that can be used to establish the validity or invalidity of a project after putting it on the reporting balance scale. The market analysis consists of all factors that influence the development decisions, including the macro-economic factors mentioned and discussed in chapter two. The practical viability considerations also represent the internal technical, structural analysis the developer has to do to achieve efficiency in the development of operational processes.

Costello and Preller (2010:175) argue that market research and marketing research are integral components fused together in promoting the success of commercial property development projects. Formulating and evaluating market options segments within a broader market is known as a key component for any business organisation's strategic decision making (Enz and Thompson, 2013:6; Ghyoot, 2000), which means that efficient market research produces enough information as evidence-based document property developers require to marketing decisions (Costello and Preller, 2010:175). To achieve effective financial feasibility analysis, market research should be greater relative to the macro-economic environment.

Comprehensive market analysis conducted by the property economist is used to determine whether the selected location is suitable for the development and which property product best meets the market's demand (Gawron, 2011:7-11). Market analysis takes into consideration a lot of factors such as demand and supply levels, vacancy rates, characteristics of vacant stock, absorption of space, proposed projects duration, market rents or sales prices, legal considerations and other market forces which affect the property (Komisarov, 2016; Gawron, 2011:7-11). Comprehensive market research cuts across almost all the areas that are likely to influence the success or failure of the proposed project.

According to Botha (2013: 133), feasibility analysis helps to determine whether a project conforms to the physical, socio-economic factors, marketing standards and restrictions vis-à-vis complying with the developer's financial budgets. Botha (2013:133) went further to provide five (5) steps involved in project financial analysis as follows:

- Estimating the total project cost;
- Estimating the total project income;
- Preparing the cash flow projection for the investment period;
- Estimating the profitability of the project and comparing the profitability with the investor's objective, and
- Preparing an estimate of the risks involved in the project.

The five (5) Botha's steps try to simplify the process a property developer could go through in conducting a feasibility analysis. However, it is of vital interest for the developer to employ scientific methodologies as well as using scenario analysis approach in estimating or quantifying risks involved in the project at the fifth stage of Botha's financial analysis outline.

Historically, Graaskamp (1970) said that feasibility analysis of a real estate project is feasible when the real estate analyst is able to determine that there is a reasonable likelihood of satisfying the explicit objectives set by the developer when a selected course is tested and proven to fit into the specific constraints and the limited resources available.

Costello and Preller (2010:176) argue that each phrase in Graaskamp's definition needs to be importantly re-defined because:

- a) Feasibility never demonstrates certainty; it means that a project is feasible only when it is likely to meet its goals.
- b) Feasibility is established by satisfying objectives that should be identified before commencement by all stakeholders in the process.
- c) The selected course and testing to fit the specific included in the definition implies logistics and timing are important.
- d) The selected course is tested to fit in the context of legal and physical constraints.

The explanations given by Costello and Preller (2010:176) call for re-definition of feasibility analysis defined by Graaskamp (1979) may hold, but it also depends on situations and circumstances one is eyeing it from. (Costello and Preller, 2010; Miles *et al.*, 2000: 338) elaborated that Graaskamp's definition of feasibility went far beyond the simple ideology of value exceeding cost constraints and supported that constraints dimension in Graaskamp's definition meant to satisfy legal, physical and ethical constraints in real estate development process.

The feasibility analysis is, therefore, a formal process to determine whether a project is viable or not viable based on the practical evidence determinants than just on the theoretical financial viability concept (Costello and Preller (2010:176). Successively, some authors such as Cui (2018: 773-776) and Teja & Rahul (2017) indicate that financial feasibility analysis is a systematic approach to determine the profitability of proposed property investment to find out whether the project will satisfy the financial requirements of the developer. In other words, financial feasibility analysis zeros into the probable cash flows to ascertain whether the development will generate enough income to pay back the debt service and provide an appreciable return to the investors (Cui, 2018: 775-778). In taking up such determinations, there are quite a number of prescribed mathematical formulae property economists and analysts use. The three (3) common formulae are; Present Net Value (NPV), Payback Period (DPP) and Internal Rate of Return (IRR), respectively.

3.8.1 NPV Calculation

By using the NPV formula, projected cash flows (incomes) of the proposed development are estimated year by year from the market data gathered. The income expected from the development is the sale or the rentals (August and Walks, 2018: 124-129). An appropriate discount rate is adopted to discount all the incomes year by year, and the total figure is obtained (say, T_k) (Sdino, Rosasco and Magoni, 2016: 218). The projected total cost of the proposed development (say, T_v) is now deducted from the total discounted figure to obtain the corresponding NPV of the proposed development project. To put the explanation in mathematical terms;

$$NPV = T_v - T_k$$

Huxham (2010) noted that cash flows in each year might be positive or negative, although one will usually expect projects to generate cash outflows initially and cash

inflows in the later periods. However, many analysts generally accept that if the NPV determined is positive, it signifies that the proposed project is viable. Sdino *et al.* (2016:218) argue that using the NPV calculation tool allows catering for economic variables such as the market value of the buildings, land and cost of production. Similarly, if the NPV produces negative results, the proposed project is not viable and may be rejected or shelved.

The NPV formula is expressed as below:

$$NPV = CF_0 + \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \dots + \frac{CF_N}{(1+r)^N}$$

Variable representations; CF = cash flow in a year by year period, N = number of periods, and r = adopted discount rate.

3.8.2 PP Calculation

The PP determines the amount of time (period) it will take for the proposed project cumulative net cash inflows (incomes) to recoup the initial investment capital. It is the simplest and easiest calculation of all capital budget decision-making instruments, according to Huxham (2010) opinion. Usually, property investors set an allowable time threshold limit for the various projects they intend to invest in (Sdino *et al.*, 2017:39-42; Sdino *et al.*, 2016:218). Hence, the PP determination guides the investor to accept the proposed development based on their set time threshold limits. Huxham (2010) believes that the PP calculation measures the period by which a project takes to generate enough income to offset or recover its original cost. The formula for the PP is stated below:

$$\text{Payback period} = \frac{\text{Investment Cost}}{\text{Cash flow per period}}$$

3.8.3 IRR Calculation

Generally, the IRR is the discount rate that makes the NPV of a project equal to zero, meaning that it is the expected compound annual rate of return earned on a proposed project. El Tahir and El Otaibi (2014:216-221) simplify it by describing IRR as the rate of return that makes future cash inflows equal to the present value of the

initial investment cost and other cash outflows. Barry and Robison (2014: 231-236) assert that the IRR as the return rate will equate the present value of future cash inflows to the present value of the initial investment cost. The interpretation might mean that the NPV of a project might be equal to zero if the IRR was used as the discount rate. If the IRR exceeds the capital cost rate, a positive NPV is achieved for the investor. If the IRR is lower than the capital cost, it indicates that the investor may lose. It is observed that the most popular and intuitive formula to determine

$$NPV = CF_0 + \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \dots + \frac{CF_N}{(1+r)^N} = 0$$

investment projects viability is the IRR method (Tao and Finenko, 2016:749-753). When the IRR is calculated, it should be compared with the present hurdle rate set by the property developer to decide whether the project should take off or be rejected (Huxham, 2010).

3.8.4 Financial Feasibility and Practical Viability Considerations

Costello and Preller (2010:176) bring it to light that the recurring focus by numerous authors is that all feasibility analysis components are an integral part of a continuous investigative process of exploration and research. Financial feasibility analysis needs to be supported with empirical market research even if the financial mathematics calculations conducted on the property development project prove feasible (Mintah, 2018). This means that a practical reporting approach to proving viability in real estate development projects is paramount. The property economics analyst will perform such an exercise by perhaps conducting effective location assessment, demand trends, supply capabilities, and other related factors through sequencing and profiling dimensions.

Quigley and Rosenthal (2005:69-73), in their submission to the property development body of knowledge, claim that developers often have to conduct market studies to establish the best location within a given jurisdiction and test alternative land uses. The front door technique is applicable once the cost estimate is established, the developer, however, calculates the net income which the property can generate to satisfy the equity and debt requirements of the developer (Costello and Preller, 2010:177). In the same way, the back door technique is applicable when

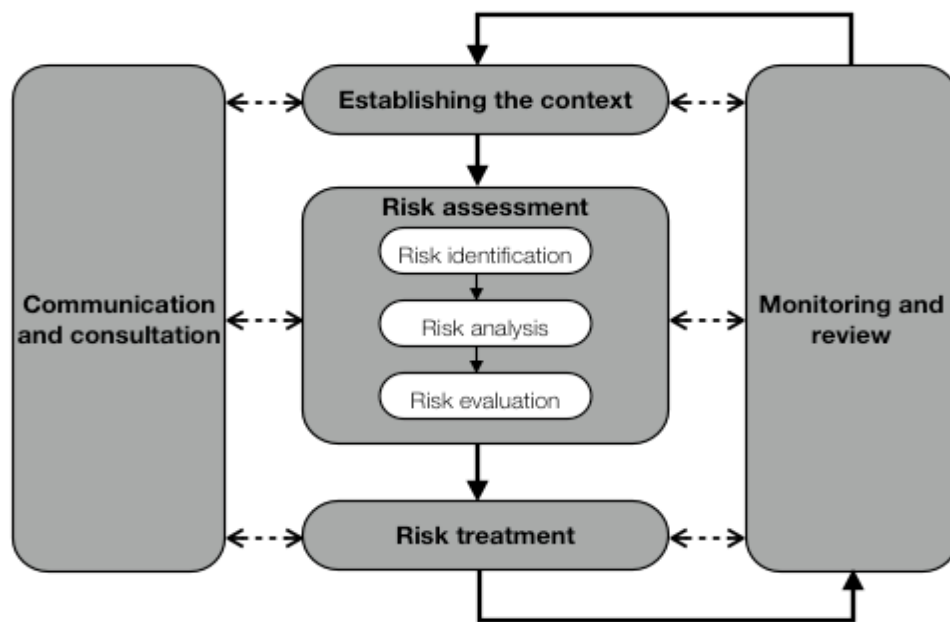
the revenue estimates are established; the developer could calculate the maximum amount of acquisition and construction costs that can be put into the project investment (Costello and Preller, 2010:177). It is important to note that risk identification, examination, and management should be considered in conducting financial feasibility and practical viability consideration reports for a proposed real estate development project. As full topic content, risk identification and risk management are treated comprehensively in chapter three (Ghasemi *et al.*, 2018: 1609).

3.9 THEORETICAL FRAMEWORK OF THE RESEARCH

The theoretical framework is structured to provide definitions for the key concepts of the proposed research, discusses the relationships between the related models and theories of the literature, and establishes the best line of arguments that fit the analogy of a study (Vinz, 2015). It is envisaged that a strong theoretical framework presents a logical and scientific basis for understanding the existing knowledge on the subject matter (Adom, Hussein, and Agyem, 2018: 438-440). It also evaluates the guiding assumptions of the proposed research.

A theoretical research framework can show a clear understanding of a phenomenon and guides the researcher in finding the understanding of the discipline and scope of the research (Okolie, 2011: 75; Afara, 2008: 872). Therefore, this section examines some of the existing risk management frameworks discovered in the literature:

Figure 3-9-1: Risk Management Process Framework



Risk management Process Framework ISO (2009:14)

Figure 3-9-1 above shows the systematic processes an organisation can follow to assess and manage risk according to the International Standards Organisation (ISO). To determine the context, communicating, consulting, monitoring, and reviewing risks become the day-to-day responsibility of the operational heads as deliberate attempts to treat risks (Sitthiyot, 2011: 16). Such an approach may help operational managers to identify and treat risks as early as possible.

Figure 3-9-2: Robson Risk Management Model

Robson Risk Management Model



Robson Presentation (2019: 11)

Professor Robson's risk management model above indicates that personalizing risk management plans helps minimize legal and financial liabilities. This kind of model may be useful to manage risks in both social science and engineering projects.

This study considers the combining effect of the above theoretical frameworks discussed in this section and therefore adopt to develop a framework that can be used to assess and manage risks in the CPDI sector by considering the chosen factors described in chapter two and three.

The section below also highlights real estate risk assessment and risk management theories.

3.9.1 Real Estate Risk assessment and Risk Management Theories

Commercial property developers are in need of alternative methods to assess and analyse risks (Thilini and Wickramaarachchi, 2019: 429; Chen and Khumpaisal, 2009:35). Because developers are usually involved in different kinds of commercial property developments, and these projects' characteristics vary. Valverde (2011:139) believes that diversification in real estate portfolio management supports in reducing unsystematic risk. It has been discovered by Khumpaisal and Chen (2010) that risk occurs at each stage of the property development process.

Nsibande and Boshoff (2017) make valuable contributions to understanding how the change of dynamics in property market performance influences spatial decisions of market players on investment and occupation of commercial properties. Hence, developers have to be aware of risks inherent in land acquisition, construction, leasing, finance markets (Donner, 2010: 20-24), and choice of location. Letting risk is higher in certain locations than in other locations (Donner, 2010: 20-24). The retail mIn addition, the establishes the duration. Again, in an unfavourable economy, letting may considerably take longer, prolonging the period over which the lost rent uncovers interest charges.

Therefore, investors and analysts need a more scientific methodology and approach to assess risk in the real estate market (Reilly and Brown, 2011). Khumpaisal and Chen (2010) proposed that risk assessment techniques are required to evaluate property development projects. The probability Model (PM) is one of the risk

assessment quantification models identified (Huang, Lo, and Lin, 2013). A number of researchers have used Discounted Cash Flow (DCF) to calculate real estate investment returns and have highlighted the benefits of its simulation analysis (Saxena, 2015; Cerreta and De Toro, 2012; Phyr, 1973).

Another risk assessment model is designed to evaluate project risk factors such as project costs, period and work conditions and perhaps interface the evaluation outcomes with the use of a 4D model and visually assess the risk level for each construction category (Thilini and Wickramaarachchi, 2019; Moon *et al.* 2012; Kim *et al.*, 2012: 11-18). There are various models that are being used today in construction and real estate projects and they vary worldwide which include econometrics Keynesian model, multiple regression, time-series analysis, Box–Jenkins analysis, time parameter model, competing-risks hazard model, and time-varying covariate approach (Kaklauskas *et al.*, 2011).

The 4D model assessment model is best used to assess construction site risks, while the above econometric models mentioned in this paragraph assessment tools are skewed towards the determination of risks occurrence duration in project execution. However, the 4D risk model is applicable in construction management but fails to assess all the macro-economic risk factors that influence commercial property development projects.

Fuzzy theory is utilized to analyse risk and schedule optimization and risk (Moon *et al.*, 2012; Kim *et al.*, 2012: 11-18). Fayek and Rodriguez Flores (2010) and Tah & Carr (2000: 491-494) proposed that Fuzzy Logic risk assessment theory should be used to assess project risks. The fuzzy logic determines the variables and defines the risks and consequences (Koul, Rai, and Ahuja, 2018: 1724). However, the relationship between risks and the consequences was viewed as causes and effects (Odimabo and Oduoza, 2013: 143-147), and a framework was developed for construction projects in developing countries. They used the Keynesian network for risk assessment and discovered risk severity by establishing the degree of loss in relation to the probability of occurrence (Koul, Rai, and Ahuja, 2018: 1724). According to Kaklauskas *et al.* (2011), the multi attribute decision-making model can undertake a risk assessment in construction projects.

Reymen *et al.* (2008) believe that uncertainty consequences in investment do correspond to uncontrollability. In practice, other macro-environmental risk factors that affect commercial real estate development and investment cannot be controlled by the developers but can only be managed. To access these factors, the PESTEL framework can be used (Johnson *et al.*, 2011: 50). However, PESTEL may not cover all such external factors; however, the model has proven to have strategic utilisation in examining the external macro-environmental forces in many countries worldwide (Mourfield, 2014). It has been further recognised that factors impacting the industry market such as political, economic, social, legal (PMBOK Guide, 2017: 510; Mourfield, 2014) environmental and technology can be zoomed into by using the PESTEL framework. Kaklauskas *et al.*(2011) emphasize that risk factors can be political, environmental, economic, and logistical. However, a risk, which is logistical in nature, is not covered in this research.

The multi-attribute decision-making model is used to study the risk assessment of construction projects (Koul, Rai, and Ahuja, 2018: 1724). In the study context of this research, there are two variables that stand to be the pillars in the economic risk assessment of commercial real estate development projects. These pillars are feasibility and viability, as mentioned and explained in chapter one of this research work. Feasibility analysis reports on both financial and market, and the two are inseparable (Costello and Preller, 2010: 175).

3.9.2 Real Estate Risk Management Strategies

Botha (2013: 268) pictures risk management in the property development industry as the identification, quantification, treatment of property liability, and pure personal exposures that can impact the economic benefit, effective building operation, and the entire property. However, a deeper understanding of this definition indicates that the effect of almost all the risks yields finally as economic risk. In this light, Botha (2013: 269) comments that appropriate risk management control tools should be employed in the property development process to avoid risk, reduce the chance of occurring, transfer risk to the insurer, or contain and handle the risk internally. Risk strategy, on the other, is viewed as a task to determine upon the appropriate risk-return mechanism profiling by selecting an acceptable level of risk to be taken that could, in consequence, determine the degree of return achievable (Aduda and Gitonga, 2011:69) in the field of practice.

Tserng *et al.* (2009: 994-997) took a study on ontology-based on risk management framework of construction projects through project life cycle variance-covariance. It was realised that employing effective and professional construction and project management techniques in real estate development helps control costs and lower maintenance expenses after completion. Such building project models have been described as the basis for change control mechanisms (Zavadskas, Turskis and Tamošaitiene, 2010: 33; Isaac and Navon, 2009: 656-659). In contrast to the above discussion, risk in construction focuses upon unsystematic and even pure risk (Donner, 2010: 20-24; Mills, 2001). Therefore, managing risk in construction and real estate investment may be speculative aspects of the developer's challenge.

Another significant array of property risk management strategies is diversification opportunities and applying the real estate asset class portfolio (Goddard and Marcum, 2012: 253-256). Thapa and Poshakwale (2010:2627-2631) mention that property investment portfolio diversification is a risk management measure thus, owning and managing in different locations. In addition, capital market theories and philosophies have evolved over the years to guide diversification towards effectiveness and efficiency portfolios (Lee, 2005; Donner, 2010: 19-24) management. Conducting effective spatial and real estate trends analyses before developing may contribute to a risk management strategy.

Koul, Rai, and Ahuja (2018: 1727) classify risk management into three dimensions: identification, analysis, and control. Gunduz and Yahya, (2018: 67-72) further assert that the risk identification dimension alone can be divided into internal and external in nature. The internal risk in the real estate development process can be checked and handled through practical reporting, general and business management skills acquired by the developer, project managers, property managers, and construction supervisors. In business negotiations, a series of communication interactions including non-verbal, dynamic, and personal holistic characteristics (Jiang, 2013: 110) come into inter play in conveying meaning to customers.

The developer and his team may learn to acquire such characteristics through outside advice consultation and mentoring. For example, Fortunato, Hallowell, Behm, and Dewlaney's (2012) objective was to identify risks in leadership, particularly in Energy and Environmental Design (EnED) certification buildings, through their study they conducted. The majority of those buildings were commercial buildings. The distinction between risk and uncertainty is widely accepted, and the two terms are usually used interchangeably in literature (Saunders, Gale and Sherry, 2015: 467-472; Botha, 2013: 264; Adair and Hutchinson, 2005).

Urban governance framework arrangement at the local level has prerogative spatial planning and construction (Theurillat, Rérat, and Crevoisier, 2015: 1414-1417; Rudolf, 2017) of commercial properties. However, the governance framework has its risks. Reymen *et al.* (2008: 580-583) states that risk management strategy is about analysing risk, designing, and putting controls that can mitigate risk continuously, and the controls should be evaluated on a periodic basis. In an attempt to address risk issues in the real estate industry, Koul, Rai, and Ahuja (2018: 1727) took a leading step to develop an integrated approach-based structural model for assessing real estate projects risks in India. However, this research is meant to develop a risk assessment and management model for Ghana's commercial property development projects.

The key elements and teams discussed under 3.9 serve to inform the basis of a model this study is designed to develop.

3.10 SUMMARY OF THE CHAPTER

Commercial property development projects face many risks and they impact on the investors' returns. This chapter has outlined practical practices that may influence property development projects in gearing toward risk management measures and strategies.

The next chapter highlights the operationalisation of the conceptual study variables.

CHAPTER FOUR

OPERATIONALISATION OF CONCEPTUAL VARIABLES INTO THE RESEARCH THEORETICAL FRAMEWORK

4.1 INTRODUCTION

The previous chapter outlined the general risk management strategies in commercial development projects. The main variables discussed were construction project management competencies, the application of PMBOK techniques, project risk management, real estate trends and cycles, business management skills, general management techniques, financial feasibility and viability reporting, and the theoretical research framework.

This chapter operationalises the suggested conceptual variables adopted for this research in creating a successful risk assessment and risk management theoretical model. Muhammad (2015: 4) and Botha (2013: 288) advised that variables operationalisation could be done in the literature survey (conducted in chapters one, two and three), as demonstrated and supported in the conceptual framework. To achieve this, the following logical steps are followed and described below: overview of the operationalisation, conceptual theoretical variables and the operationalisation of each variables.

4.2 OPERATIONALISATION OVERVIEW

Operationalisation is the process of evaluating the research variables in order to pave way for measuring them qualitatively and quantitatively through empirical testing (Abrey, 2015: 118; Botha, 2013: 288; Babbie and Mouton, 2001). Operationalisation in the context of this research work can be defined as the process of identifying the conceptual variables that run through the literature and linking each variable into the proposed theoretical model in reference to the stated hypotheses of the research study. Operationalisation makes a stated hypothesis strong, valid, and standardizes the research variables (Muhammad, 2015: 5); the reverse action is meant to show weak and non-standardized variables. The variables are systematically operationalised by establishing their validity, measurability, and index quantification, including the dependent and independent variables (Muhammad, 2015: 5; Pattanayak and Maddulety, 2013: 159-162). A dependent variable is simply

defined as a variable that usually depends on the independent variable (Muhammad, 2015: 6; Chen *et al.*, 2009). In practical terms, the dependant variable is the expected results, while the independent variables are the set variables to be used in finding the validity and the non-validity of the result of the research.

According to Daniel (2012) and Nahum-Shani (2012: 457), the common variables that are frequently used in experimental research are the dependent and independent variables. However, other variables such as intervening variables could be introduced in research if cross-relation of variables is predicted in the research. The majority of academic research work contains a conceptual framework and is usually expressed in visual representations, notably in economics but also common in property development cycles (Botha, 2013: 288). In parallel terms, researchers and property practitioners have realised that it is useful to sketch diagrams to explain the property development process framework (Fisher and Collins, 1999: 134-137; Gore and Nichol森, 1991).

Many models have been developed from reviews for variable purposes in different research fields with limited terminologies (Botha, 2013: 288; Fisher and Collins, 1999: 134-137; Healey, 1991). All those terminologies or variables were operationalised to formulate theoretical models in the various research categories. For instance, Haynes and Haynes (2012) formulated a theoretical model to measure office productivity by using two data sets related to the office environs. Pattanayak and Maddulety (2013: 159-162) also modelled an e-government system acceptance theoretical framework using variables obtained from literature review.

The significance of the theoretical framework cannot be undermined, and for that matter, research requires a strong theoretical basis (Udo-Akang, 2012: 89). Wacker (1998) said that the three basic reasons why theoretical framework is significant were; providing analytical framework, providing field development efficiency, and giving pragmatic clarity. According to many researchers, what constitutes a theory definition is highly debatable because the use of typologies and system classifications to explain the type of theories are linked to functions, purposes, goals, and boundaries of the research (Adhikary, 2013; Udo-Akang, 2012: 89). Therefore, performing operationalisation to form a research theory is paramount as Sharma (2013: 183) argues that theory does not have a direct pivot and universal definition

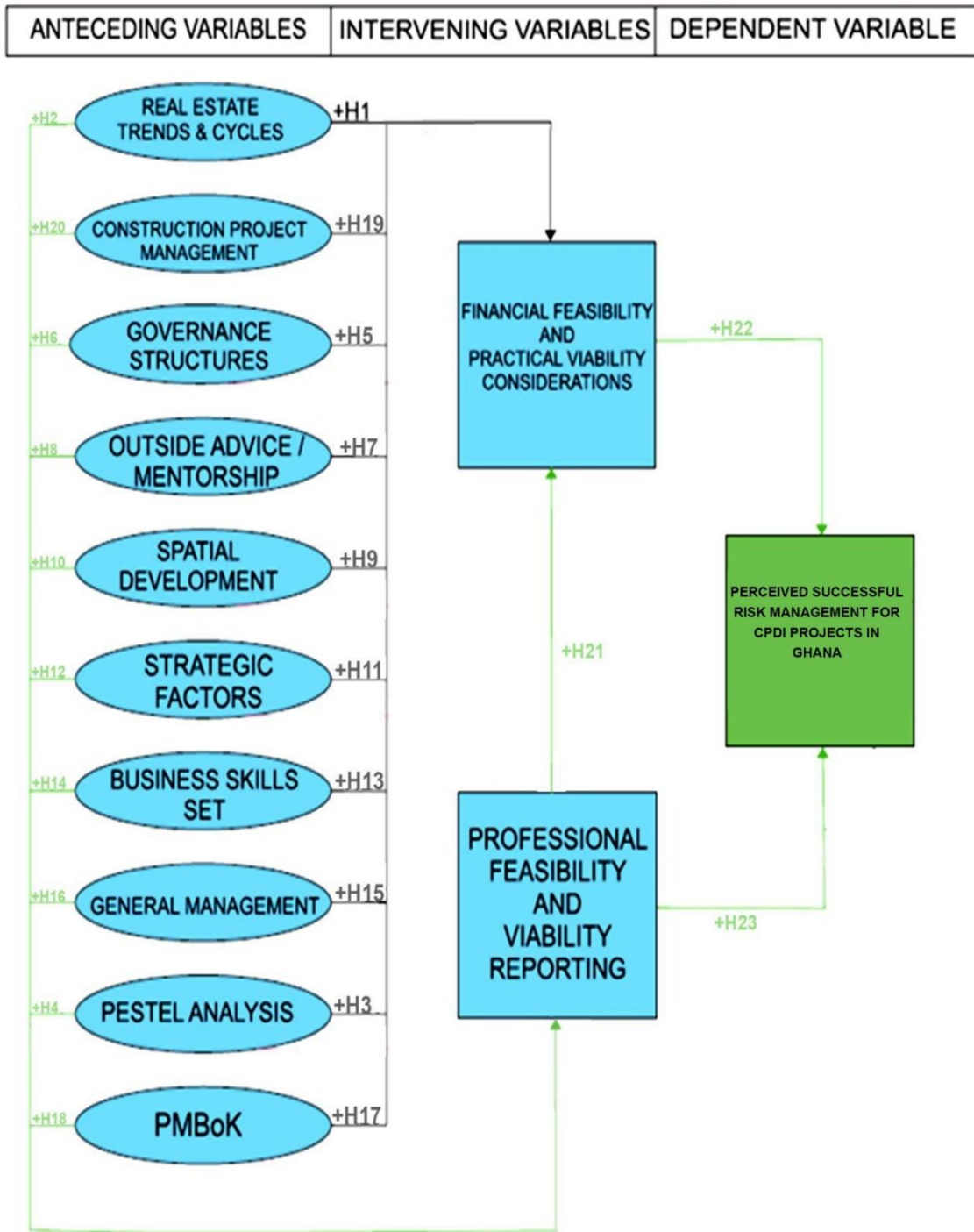
but serves to mount a research paradigm. In other words, it can be suggested that a theory is a system of law, rule, or principle constructed to understand a phenomenon. However, there may be many opinions on how a theory is defined relative to the diversity of fields (Udo-Akang, 2012: 89). Hence Wacker (1998) asserted that operationalisation of theory must directly be correlated with the main variable components of the literature. The next sub section below outlines the various conceptual theoretical variables adopted and used for this research.

4.3 CONCEPTUAL THEORETICAL VARIABLES

The attempt to conduct this research relative to risk assessment and risk management model for perceived successful Commercial Property Development and Investment (CPDI) in Ghana, the researcher primarily took the dependent variable as the risk assessment and risk management, the intervening variables as financial feasibility/practical viability considerations and, professional feasibility/viability reporting while the ten constructs were taken as antecedent variables.

Figure 4-3-1 shown on the next page indicates all the individual variables logically assembled with their associated Hypotheses (Hs) inter-relationships. The related literature review on those variables was comprehensively presented in chapters two and three. The ten antecedent variables below were identified:

- Real estate trends and cycles
- Construction project management
- Governance structures
- Outside advice and mentorship
- Spatial development
- Strategic factors
- Business skills set
- General management
- PESTEL Analysis
- PMBOK



Author's Own Construct, 2020

Figure 4-3-1: Conceptual Framework

4.4 DEPENDENT VARIABLE: RISK ASSESSMENT/RISK MANAGEMENT FOR PERCEIVED SUCCESSFUL CPDI

The high rate of unsuccessful commercial property development and investment projects in Ghana can be reduced to a minimum if the pressing issue associated with the lack of risk assessment and management strategies can be successfully addressed. This research formulates a framework to demonstrate how commercial property development practitioners and investors can conduct risk assessment and risk management. The research also endeavours to contribute to the body of knowledge with regard to the commercial property development industry at large in the built and macro environment internationally.

The dependent variable adopted for this research is categorised into two critical paths that is the perceived successful risk assessment and risk management path. This helps to properly zoom into the model formulation as far as commercial property development and investment projects in Ghana are concerned. Chapter one, two, and three intermittently highlighted the independent variables that could be perceived as lenses in viewing a successful risk assessment and risk management measures implementations. The two dependent variable paths are therefore operationalised below:

4.4.1 Perceived Successful Risk Assessment

Risk assessment occurs at every stage of the real estate development cycle confirmed by Nsibande and Boshoff (2017: 106-109) as well as Khumpaisal and Chen (2010: 16-21). It can be deduced that project risk should be assessed right from the initial to the handing over stage (Khumpaisal and Chen, 2010: 16-21). This can be done effectively with the aid of a relevant tool such as a model or framework that will be able to evaluate and measure almost all the factors that influence the success of the project, although commercial property market performance is exposed to several dynamics (Nsibande and Boshoff, 2017).

Bringing almost all factors that influence commercial property development projects into play in an attempt to develop risk assessment is the sole aim of this research, as stated in chapter one categorically. Having a model for this purpose as a product of the research would help property developers and investors in Ghana to do an effective risk assessment for their commercial projects, which at the end of the day,

influence their capital value ((Donner, 2010: 18-23; Bauer, Eichholtz, Kok and Quigley, 2011: 34-37). This means that the development stakeholders can assess locational and letting risks effectively and efficiently (Donner, 2010: 22-26).

The risk assessment variable in the proposed model would measure and evaluate the risk factors raised by the researcher and researched through literature in chapter one, two, and three of this research. It is for this reason that Reilly and Brown (2011), Huang, Lo, and Lin (2013), and Saxena (2015) together support the notion that property analysts and investors need risk assessment tools to evaluate real estate investments. The real estate investment benefits can be determined effectively (Saxena, 2015; Cerreta and De Toro, 2012; Phyr, 1973) relative to the risk assessment model performance. Risk assessment models are designed to evaluate project outcomes (Thilini and Wickramaarachchi, 2019; Moon *et al.*, 2012; Kim *et al.*, 2012: 11-18).

4.4.2 Perceived Successful Risk Management

The perceived successful risk management is the other critical dependent variable this research is meant to address. Risk management as a research variable has been discussed in detail in chapter three. Botha (2013: 268), together with Aduda and Gitonga (2011), explain that risk management is about the process of identifying risk factors, quantifying, and putting measures in place to mitigate, minimise or avoid such factors in property development projects. Putting measures to manage risks through the formation of a model in the property development industry is paramount for this research. The application of the model could contribute to the success of commercial property development projects in Ghana (Zavadskas, Turskis, and Tamošaitiene, 2010: 33; Isaac and Navon, 2009: 656-659). In practice, the importance of risk management strategies cannot be ignored (Aduda and Gitonga, 2011).

The variables suggested by the researcher to have an influence on the dependent variable called risk management in this research are discussed fully in chapters two and four. Botha (2013: 269) and Isaac and Navon (2009: 656-659) assert that appropriate risk management control tools must be applied in the property development process to reduce risk, avoid risk or transfer risk the insurer. This motivates the researcher to adopt the risk management variables in this research.

Risk management framework for construction projects life cycle variance that would inculcate effective professional techniques in the real estate development can help to control cost (Zavadskas, Turskis, and Tamošaitiene, 2010: 33; Isaac and Navon, 2009: 656-659; Tserng *et al.*, 2009: 994-997).

Risk management is classified into three basic dimensions known as risk identification, risk analysis and risk control (Gunduz and Yahya, 2018: 67-72; Koul *et al.*, 2018: 1727; Botha, 2013: 268). However risk can be managed at both external and internal levels. The internal risk level in the real estate development process can be managed through professionalisation such as effective feasibility, work efficiency, management and reporting. The developer's business and general management skills coupled with outside advice helps to manage risks internally (Fortunate III *et al.*, 2012).

The question is how the two perceived paths discussed above can be measured against the two intervening variables (financial feasibility/practical viability considerations and professional feasibility/viability reporting)? The probable answer to this question is really what the study has been directed to address. Managing risks or uncertainties in property development (Saunders *et al.*, 2015: 467-472; Botha, 2013: 264; Adair and Hutchinson, 2005), a smart model is of critical importance. Hence this research is meant to develop a risk management model for commercial property development projects in Ghana.

4.5 INTERVENING VARIABLES

The two intervening variables (financial feasibility and practical viability considerations; professional feasibility and viability reporting) in this research are operationalised below:

4.5.1 INTERVENING VARIABLE: Financial Feasibility and Practical Viability

Considerations

Financial feasibility analysis is described as a formal process used to determine whether a project is viable based on calculations and projections (Costello and Preller, 2010:176; Cui, 2018: 773-776). Practical viability consideration on the other hand, can be viewed as the systematic approach followed to determine the extent to which profitability of an investment is established and, it is a valuable pre-requisite

assessment (Teja and Rahul, 2017; Zavadskas *et al.*, 2014: 114-117). Experience has proved that these two concepts, financial feasibility and viability, are usually put together or used inter-changeably. It is also important to note that market feasibility plays a primary role (Velmurugan and Vijataraj, 2011) in conducting financial and practical viability considerations.

Chapter one, two, and three of this research mention, enumerate, and discuss financial feasibility and viability factors enlisted in figure 4.1 as intervening variables. These two intervening variables are adopted as lense to view and measure the chosen independent variables against the dependent variable (perceived risk assessment/risk management for CPDI project).

Costello and Preller (2010:175) argue that market research is an integral component fused together with financial feasibility as far as the success of commercial property development projects is concerned. A model containing financial feasibility and practical viability considerations can help the developer to effectively conduct a realistic analysis of the development before a business decision is made (Enz and Thompson, 2013:6; Ghyoot, 2000).

Formulating and evaluating market options segments within a broader market is known as a key component for any business organisation's strategic decision making (Enz and Thompson, 2013:6; Ghyoot, 2000). This could imply that efficient market research produces enough information as evidence-based document that property developers require for marketing decisions (Costello and Preller, 2010:175). To achieve effective financial feasibility analysis, deeper emphasis should be placed on market research. Market analysis takes into consideration the controlling market factors, including property demand trends (Gawron, 2011:7-11).

According to Boamah (2014: 35) and Ahmad *et al.* (2010:146-150), interest rate and foreign exchange rate are the macroeconomic factors that affect the housing market in general. However, developers do not have the power to control such macroeconomic factors, but they can negotiate (Peleckis and Peleckienė, 2016: 88) for an affordable interest rates with their financial institutions and also seek anchor security as development partners in an attempt to reduce debt financing. The developer's negotiation capability will help him communicate effectively in accessing such

opportunities (Peleckis and Peleckienė, 2016: 88; Fang, 2006). In this regard, chapters two and three have comprehensively reviewed extensive literature.

The rapid pace of urbanisation (Rogerson, 2014: 234; Freire, 2013) occurring in Sub-Saharan Africa has alerted emerging developers to be more creative and innovative on how to develop real estate economically to meet accommodation demand trends, according to the PWC Report (2015:14) on Real Estate entitled '*Building the Future of Africa.*' It was also stated in the report that construction techniques like pre-fabricated building designs and 3D printing offer faster, cheaper, and eco-friendly developments. This can cut down the cost of development, making the project financially possible since underwriting cycles play a significant role in asset pricing for the commercial property development sector (Wiley (2017: 77-82). It is important for the researcher to link financial affordability to the proposed research model's financial and viability considerations arm.

Property developers must acquire basic financial management skills either through their education and training or as a key intervention courses (Kirsten, 2013: 826-827; Kirsten and Fourie, 2012: 460-465). Kirsten (2013: 826-827) believes that financial management skills can assist developers to manage and monitor monetary expenses effectively to avoid financial losses in the development process. This practice in the long term can promote cost-effectiveness, thereby influencing project viability positively. Mohd Harif *et al.* (2010: 16-21) stressed emphasis on financial management skills acquisition by property developers. Financial management has both internal and external implications on commercial property development projects (Brijlal, Enow, and Isaacs, 2014: 2; Padachi, 2010).

Other factors such as location cost of property production, governance that bottle into the effect of vacancy rate, and sale prices cannot be overlooked during financial feasibility analysis (Gawron, 2011:7-11; Komisarov, 2016). Botha (2013: 133) elaborated that feasibility is vital in the property development process once it helps determine whether a project conforms to the physical, socio-economic factors, marketing standards, and restrictions vis-à-vis complying with the developer's financial budgets. Botha (2013:133) further provided five practical steps involved in project financial analysis as follows:

- Estimating the total project cost;

- Estimating the total project income;
- Preparing the cash flow projection for the investment period;
- Estimating the profitability of the project and comparing the profitability with the investor's objective, and
- Preparing an estimate of the risks involved in the project.

The explanations are given by Costello and Preller (2010:176) and Miles *et al.*, 2000: 338) in chapter three of this research on financial feasibility and viability reporting is linked to the fact that a developing framework to assess economic risk and risk management needs to cover financial feasibility and viability arm. The arm can serve as a cash flow scoreboard to provide the developers and the investors' financial indications at the initial stage of the development. Cui (2018: 775-778) agrees that effective financial feasibility reporting zeros in property development cash flows establish the possibility of income generation and pay back after considering all the likelihood expenses on the development. Mintah (2018) proclaims that empirical market analysis has to be supported by financial mathematical calculations. It can be deduced that practical feasibility and viability reporting in commercial property development projects is paramount.

Authors such as Ghasemi *et al.* (2018: 1609) and Quigley and Rosenthal (2005:69-73) submissions to the body of knowledge prove clearly that the location of property counts much when conducting market research. Because location influences the rate at which a commercial property can generate positive returns. In addition, if the total cost of the projects can be recouped in a considerable period through the cash inflow, such development is classified as financially feasible and viable (Ghasemi *et al.*, 2018: 1609; Komisarov, 2016; Costello and Preller, 2010:177). The proposed theoretical model component of this research is designed to address financial feasibility and practical viability considerations.

Hence, it is hypothesized in this section that:

H₂₂: *There is a positive relationship between financial feasibility/practical viability considerations and perceived successful risk assessment/risk management for CPDI projects.*

4.5.2 INTERVENING VARIABLE: Professional Feasibility and Viability

Reporting

The property development cycle is quite complex and capitally intensive (Omboi, 2011: 37). Since developers do not have all the expertise required to carry out all the development processes, it is always necessary to consult other built environment expertise for professional feasibility and viability reporting purposes (Khalid *et al.*, 2018: 81). In this context, professional feasibility and viability reporting covers all the services developers seek from other professionals as a legal requirement to fulfil or ensure development efficiency and productivity. These services can be provided on an adhoc basis or in-house (Khalid *et al.*, 2018: 81-84; Georgakellos and Marcis, 2009).

Chapter three of this research mentioned and outlined the usefulness of the various professionals who provide professional feasibility and viability (Onuoha *et al.*, 2018: 814-819; Zavadskas *et al.*, 2014: 114-117) reporting services to the developers and investors (clients). These professionals include architect, property economist, property development project manager, quantity surveyor, electrical engineer, facility manager, estate agent, and property conveyancer, respectively (Mushtaq *et al.*, 2018; Jiao and Xu, 2015: 1969-1973; Nikumbh and Pimplikar, 2014: 15; Von Nordenflycht, 2010: 157-161). Chapters two and three intermittently provide all the activities that these in-house and consulting professionals perform (Ghasemi *et al.*, 2018: 1609-1612; Mills *et al.*, 2018: 30-32) in promoting feasibility and viability reporting of the real estate development projects execution and realisation.

The researcher's theoretical framework through this research has taken cognizance of the professional feasibility and viability (Zavadskas *et al.*, 2014: 114-117) reporting for commercial property development projects as part of the professional practices to manage risk. It can be affirmed that consultants with specialised professional skills are highly needed in the development process (Khalid *et al.*, 2018: 81). The property developer usually hires such professionals to provide adhoc services including the preparation of feasibility studies reports (Georgakellos and Marcis, 2009), designing and drawings, supervision, estimation, sale, and transfer of ownership of properties.

Property economist/valuer, for instance, can be hired as part of the development team to conduct an economic feasibility analysis report for potential commercial

property development and to determine market value for development by using several methodologies (French and Gabrielli, 2018: 391-396; Jiao and Xu, 2015: 1969-1973). Fundamentally, a property economist/valuer usually relies on the time value of money called present and future value to discount, forecast, predict and project and forecast figures gathered from reliable sources in arriving at the property value. The process of valuation can be described as the art and science because all factors influencing the the value of the subject property must be considered relatively (Adegoke, 2016: 276).

The property valuer, in other instances, also conducts a due diligence search on land utilisation in an attempt to establish the highest and best use before a particular development is built in a particular location by considering population trend and national demand (Adetiloye and Eke, 2014: 1881). Tajani and Morano (2017) state that conducting investment evaluation before developing a commercial property is very important so that user's requirements can be met (Karley, 2016: 24-25). When development is completed, a valuer is called upon to conduct a rental and market valuation report on the said property before it is put on the market (French and Gabrielli, 2018: 391-396).

Project management function has a broader variety of roles and responsibilities in the construction process (Nikumbh and Pimplikar, 2014: 15). Some of the responsibilities include the preparation of design brief, work-breakdown structure, project scheduling, supervision, and project close-out report preparation. According to Rogerson (2014: 234-236), commercial property development needs to meet investment objectives. The project manager drives the project towards such a purpose. In this view, Alexandrova *et al.* (2015: 19) admit that project managers tackle project challenges and increase organisational effectiveness.

Professional reporting or consultancy as a whole plays a multifaceted role in construction project management and, it is relevant right from the initial stage to the completion stage (Nikumbh and Pimplikar, 2014: 16). Increase in project management (Bakar *et al.*, 2011: 164) significantly contributes to cost-effectiveness in property development. Development consortium can assist the developer to effectively run the construction process (Khalid *et al.*, 2018: 81). Appointing qualified and experienced development and project management professionals affectss the

entire project's performance (Mushtaq *et al.*, 2018; Khalid *et al.*, 2018: 81-83). Therefore consortium augments professional viability reporting.

An architect is the professional person in the built environment who receives clients' objectives of the proposed development and designs the building to suit the clients' specifications. Professional architects have to design, applying his drawing knowledge and skills to solve unique problems (Von Nordenflycht, 2010: 157-161) to achieve professional and commercial goals (Ribes, 2020: 882-887). In a coherent order, an architect has to be part of the initiation process. This can help the developer to minimise waste in the development process.

Quantity surveying professionals can be described as building accountants and cost managers (Reddy, 2015: 85). Their functions include preliminary estimates preparation, feasibility studies, bill of quantity preparation, schedules, and cost plans (Olatunji, Sher and Gu, 2010: 67-70). In simple terms, QSs gauge and screen the cost of construction from practicality perspective through to the development completion period (Reddy, 2015: 5). Submissions made by Nagalingam *et al.* (2013: 84) indicate that QS ensures financial control and manages cost from inception to completion.

Karley (2016: 24) reports that some commercial properties are unable to meet users' demand and fall short of the users' requirements. At the moment, most of the commercial properties in Ghana are experiencing same conditions. Therefore, the proposed theoretical model component of this research is designed to address financial feasibility and practical viability considerations.

Hence, it is hypothesised in this section that:

H₂₃: There is a positive relationship between professional feasibility/viability reporting and perceived successful risk assessment/risk management for CPDI projects.

The two intervening variables hypothesised above are measured against the ten variables selected for this study.

4.6 ANTECEDING VARIABLES

The ten (10) antecedent variables in this research are operationalised separately as follows:

4.6.1 ANTECEDING VARIABLE: Real Estate Trends and Cycles

A section of chapter three of the research elaborated on real estate trends and cycles as an antecedent variable. The introduction of this variable is meant to highlight the current trends and cycles real estate evolve vis-à-vis their benefits of meeting market demand to maximise developers' internal rate of returns. Hence the research finds it appropriate to put this variable to the test. Furthermore, it has been suggested by the Pwc Report (2015:14) that property developers ought to be creative and innovative when designing and constructing commercial real estate in terms of space utilisation. This reason has been driven by the rapid demand for economic space at the urban centers in Sub-Saharan Africa due to urbanisation (Pwc Real Estate Report, 2015:14; Rogerson, 2014: 234; Freire, 2013).

Commonly, real estate trends and cycles are increasingly taking unique and different dimensions mainly because of economic, human endeavours, and technological factors (Rogerson, 2014: 234; Freire, 2013). Developers employ techniques of using pre-fabricated building designs and 3D printing, which offer faster, cheaper, and eco-friendly development benefits and, Wiley (2017: 77-82) noted that underwriting cycles play a significant role in property pricing for commercial property development projects. Not only that, real estate development needs to attract buyers and user attention based on the contemporary arena and realm of romantic ((Drane, 2013: 2). Such an objective can be achieved if the property is built in a strategic location with pleasant finishes.

The Multiple Criteria Decision Making (MCDM) methods have been used to establish real estate value through utility level of construction and priority order of implementation (Kaplinski and Tupenaite, 2011: 171-174). In other words, new construction techniques are constantly emerging in the real estate industry. In addition, MCDM allows several evaluation criteria to be chosen in construction projects (Chatterjee *et al.*, 2018:46; Kaplinski and Tupenaite, 2011: 170). The fact is that the MCDM method can also be used as a tool for effective construction decision making in a construction firm (Puška, Beganović, and Šadić, 2018: 7-12).

Kaplinski and Tupenaite (2011: 167) agree that new methods of building projects should be well evaluated to attain a high percentage of efficiency and, the efficiency obtained should be directly proportional to the relative effect of the project value. Most time, programme software is used to establish the project value that can be competitive in the market (Chatterjee *et al.*, 2018). It is interesting to note that some development projects are designed with integrated designs balanced array of systems to achieve bottom-line energy performance interconnections (Mills *et al.*, 2018: 24). This could create opportunities for the users to have access to their energy generation. An example is the solar panel applications on the roof of a commercial building.

Major financial investors such as pension fund trusts are usually involved in large real estate development infrastructure development (Theurillat, Corpataux, and Crevoisier, 2010: 189-193) as a source of investment. Investment growth and model of Real Estate and Investment Trusts (REITs) development in the United States, for example, encouraged many of the European countries and Australia to follow suit (Theurillat and Crevoisier, 2014: 504; Aveline-Dubach, 2016) through restructuring adjustment, modernisation, and fund creation (Herbert and Murray, 2015: 473-478). REIT appears to be a wide coverage of real estate investment and many studies go a long way to examine the mergers with regard to competition and sale (Mulherin and Womack, 2015: 151). In addition, there are other organisations such as SSNIT and GNATs in Ghana that also invest in commercial property projects as development partners (Karley, 2016: 24). These organisations involvement in property development and investment to generate revenue over the years has brought a new real estate trend in Ghana.

A range of studies across Europe, North America, and Australia indicate a growing trend in greening commercial property development projects (Rogerson, 2014: 235). The most common greening commercial development could include office, hotel, and industrial buildings. For example, green buildings found in London have proved to be economically significant in the real estate industry (Rogerson, 2014: 235; Chegut *et al.*, 2014: 23-25). It is then accepted that green building designs, construction, and operations conserve many resources such as land, building materials, and energy (Geng, Ji, Wang, Lin and Zhu, 2019: 500) and further tends to minimise the economic risk associated with the investment.

The above presentations support the notion that developers are to study and follow real estate trends and cycles.

Hence, it is hypothesised in this section that:

H₁: There is a positive relationship between real estate trends/cycles and financial feasibility/practical viability considerations.

H₂: There is a positive relationship between real estate trends/cycles and professional feasibility/viability reporting.

4.6.2 ANTECEDING VARIABLE: Construction Project Management

An effective construction project management technique influences the project's success. Liljedahl and Moller (2014: 2) believe strongly that the link between project management and profitability is based on the cost overrun and duration the project can last. The construction sector usually suffers from delays, low productivity, budget overruns, and quality challenges (Ribeiro, Paiva, Varajão, and Dominguez, 2013: 603). Jha and Iyer (2006) suggest that project managers and team members' attitudes contribute to project failure or success. It is for this reason that many construction management scholars have decided to pay attention to the effective management of construction projects over the past decade (Abatecola et al., 2013: 89-94; Caputo, 2013). This has created the opportunity to zoom into effective ways of managing construction projects more cost-effectively (Liljedahl and Moller, 2014: 2; Caputo, 2013: 65-67).

Chapter three gave an in-depth discussion on construction project management. It began from the initiation to the construction close-out stage (Pelken, 2013: 235-238; Colker, 2012: 35-37; Kostalova and Tetreva, 2018: 3-7). Ensuring effective and efficient construction project management in commercial property development must be a priority of every developer. Hence the researcher deems it necessary to identify construction project management as one of the research variables. This variable provides details on how real estate development projects can be managed effectively to minimise risk and protect investors and the main stakeholders' interest (Caputo, 2013: 66; Azadi et al., 2011: 785-788).

Construction is an important activity that needs effective and efficient management techniques to accomplish. Khan et al. (2014: 2) assert that countries across the

globe have realised the significance of construction relative to socio-economic development. In addition, it has been described as the backbone of every modern and competitive economy (Panayiotou and Medda, 2014: 425- 427). Ng *et al.* (2012) further support the notion that construction projects enhance quality of life and promote people's well-being in our modern societies. Construction activities, in general, provide shelter and employment for people.

Construction is considered one of the most vibrant and complex industries where factors such as time, cost, and quality are critical in measuring success (Mavi and Standing, 2018: 751-754; Chan, Scott, and Chan, 2004: 153-155). Therefore, almost all the construction projects are site-oriented and are executed with the involvement of stakeholders as compared with other industries (Ribeiro, Paiva, Varajão, and Dominguez, 2013: 603). The industry is less predictable, complex in nature, and requires effective planning and communication (Mavi and Standing, 2018: 753-755; Ribeiro *et al.*, 2013: 603) to succeed.

This means that effective construction and project managers are needed to realise project success. Most times, well-planned and monitored projects become successful (Chan *et al.*, 2004: 153-155). In reverse, delays, budget overrun, low productivity, and lack of monitoring systems lead to project failure (Ribeiro *et al.*, 2013: 603). However, modern construction projects face significant challenges in terms of project delivery due to increasing complexity in designs and the involvement of different stakeholders (Doloi, 2009: 1245-1249). The findings of the global survey conducted internationally show that the weak vein of construction projects is due to economic constraints, lack of new technology transfer, and unskilled stakeholders (Armstrong, 2013).

Commercial real estate development projects should be well constructed in such a way that the building can withstand weather conditions and other disasters. This can be achieved by promoting quality in the construction process. Although the property development process begins with the acquisition and gathering of significant factors, including capital, land, labor (Costello and Preller, 2010: 171) and materials, putting all these resources to produce the unit cannot be over-emphasized. Therefore construction manager is expected to build a very strong foundation for the

development right from the initial stage of the construction; this is critical to the project's success (Pelken, 2013: 235-238; Colker, 2012: 35-37).

Yang (2011) stated that it is cumbersome to measure the success of a construction project due to its complexity. However, Chavada *et al.* (2012: 213-216) and Chau *et al.* (2003) reported that standards and stringent construction planning and communication measures are required. To achieve such requirements, competent professionals, including construction managers, should be employed (González *et al.*, 2015: 681-684). A competent construction manager will ensure effective planning, proper control systems, and monitoring techniques to minimise probable risks throughout the project (Atout, 2014: 515-518).

Hence, it is hypothesised in this section that:

H₁₉: There is a positive relationship between effective construction project management delivery and financial feasibility/practical viability considerations.

H₂₀: There is a positive relationship between effective construction project management delivery and professional feasibility/viability reporting.

4.6.3 ANTECEDING VARIABLE: Governance Structures

Governance Structures are referred to as the legal policies and requirements put in place by the various governmental bodies to ensure effective physical development (Bennett and Dearden, 2014:96-99). These legal policies include the constitutional requirements on property development and ownership, National Building Regulations, Local Governance Acts, Municipal by-laws, systems governing the land acquisition, land registration, and building permit acquisition. The governance structures variable was the sort to examine and review the economic risk gap created if the legal policies fail to function relative to the development processes (Galati and Moessner, 2013:846-850).

Many researchers claim that a restricted supply of land inflates land prices and that more flexible land policies should be promulgated to substantially reduce the costs of new property development projects (Darabi and Jalali, 2019:100-104; Botha, 2013). In Ghana, land development policies are faced with implementation challenges, especially in the cities, and these have generated land ownership litigations. Zhang

(2015:1-5) mentioned that the role of government intervention is important in addressing real estate development issues. Hence, chapter two of this research critically examined land acquisition, land registration, and building permit acquisition issues in Ghana to suggest realistic recommendations to address the issues that hamper commercial real estate development projects. In addressing land issues, Mokoena and Musakwa (2016) suggested that familiar planning tools, including effective zoning, community participation, Geographic Information System, and education programmes, are to be employed to streamline economic risk reduction associated with land-use and developmental processes.

Guzmán *et al.* (2014: 47-53) declare that land plays a critical role when it comes to development in cities. Therefore the demand for land is derived from the rate at which population increases within an area. In this view, Kuusaana and Eledi (2015) argue that population increase in the various cities in Ghana has a direct link to the demand for land for housing, manufacturing, and other economic activities. Owoo and Lambon-Quayefio (2018) point out that some of the expenses such as 'land guard' fees payment swell the developer's budget. Good governance systems are to address these inefficiencies in the property development processes.

Usually, field experience indicates that commercial property developments are able to generate good returns in the cities and towns. Therefore institutional real estate development policy implementers found in the cities such as Municipalities, Land Commission, and stool Lands are to work hand in hand with the developers to ensure good governance in implementing the existing development policies. Currently, the record in Ghana proves that approximately 80% of land ownership is in the hands of the chiefs, stools, and families (Bitir and Nara, 2016:528-530; USAID Report, 2016), most of the lands lack proper legal documentation. Appropriate governance structures and implementation can help to resolve the poor land documentation challenges the country is experiencing. In response to addressing land issues, the government of Ghana mobilised the Municipals District Authorities and regional land bank registry to collaborate with landowners in all regional and District capitals to undertake efficient land documentation exercises to minimise land acquisition risk. This action brings many benefits. For instance, proper land documentation is often a major requirement for credit facilities from the financial institutions in Ghana (Owoo and Lambon-Quayefio, 2018).

Comparatively, the urban governance in Australia has experienced a growing trend in the reliance of government in the private sector to encourage economic growth and promote development opportunities (Acs *et al.*, 2008:219-224; Williams *et al.*, 2013:399). This can also happen in Ghana if good urban governance in the property development industry is ensured. Leadership on the side of the government remains as important and critical to urban governance (Huitema *et al.*, 2016; Acs *et al.*, 2008:219-224). Urban governance vis-à-vis commercial property development should be promoted. Against this backdrop, the concept of governance is analytically valuable in providing the scope of structures to investigate the important relational concerns between actors in emergent and complex development policies (Huitema *et al.*, 2016; Williams *et al.*, 2013:399; Acs *et al.*, 2008:219-224).

The promise of a review of governance structures together with the supporting institutions to ensure policy acceptability, resource provision, creation of innovation, and promotion of social and economic change is essential (Chu *et al.*, 2016:372-376; Álvarez *et al.*, 2015: 983-986). Again, the developer's legal risk that emerges from the perceived actual loss of property rights (Yampolskiy *et al.*, 2014: 1-5) should be resolved.

Hence, it is hypothesised in this section that:

H₅: *There is a positive relationship between good governance structural factors and financial feasibility/practical viability considerations.*

H₆: *There is a positive relationship between good governance structural factors and professional feasibility/viability reporting.*

4.6.4 ANTECEDING VARIABLE: Outside Advice and Mentorship

Outside advice in this research can be simply explained as the professional guidance and service the developer receives from other professionals in the course of the property development process. At the same time, mentorship is viewed as the closed professional guidance and training young professionals to acquire from their seniors. Therefore, property developers require professional consultants to provide outside advice and mentorship (Abrey, 2015: 30). Consultants' advice and professional mentoring helps to decrease structural defects (Khalid *et al.*, 2018;

Alaloul *et al.*, 2016), maintain cost efficiency, and increase quality performance in the development process.

Ilieva-Koleva (2015: 448) confirms that mentoring is a developmental process where knowledge and skills can be transferred from the experienced professional to the young professional in the same industry. Business mentoring, for example, identifies people who are well-grounded in the fundamental technical skills but require further support in other relevant knowledge areas, skills, and expertise (Ilieva-Koleva, 2015: 446; UK Business Mentoring Guide, 2011). Mentorship techniques can also be applicable in the real estate industry to develop less experienced professionals to improve their abilities and capabilities.

Practically, commercial property developers usually seek outside advice in consulting to achieve quality development results. This outside professional advice could range from the financial feasibility and viability reporting (French and Gabrielli, 2018: 391-396; Jiao and Xu, 2015: 1969-1973), architecture, quantity surveying, project management, engineering, facility management, marketing, and conveyancing (Ribes, 2020: 882-887; French and Gabrielli, 2018: 391-396; Li *et al.*, 2018: 1-2; Rogerson, 2014: 234-236). Chapter three of this research has reviewed the extensive literature on the various consultancy advice available for property developers.

The property developer can consult a property economist/valuer to conduct feasibility studies reports on an identified potential property development (Jiao and Xu, 2015: 1969-1973). The report would inform the property developer to establish an appropriate development suitable to the area. The valuer examines all the multiple interrelated factors such as the real estate global trends, national demands, provincial demands, and the local demands in accordance with the income level of the population, interest, and the lifestyle of the population found in a neighbourhood (Adetiloye and Eke, 2014: 1881).

The developer could seek outside project management service from a consulting firm to run the development project if the developer lacks in-house project managers (Nikumbh and Pimplikar, 2014: 15). The project manager prepares the project scope chart, work breakdown, baseline project schedule to monitor the construction activities. The project manager does such activities to ensure that the ongoing

development can be effectively constructed and completed on time. This could help the new development to meet the investor's objectives (Rogerson, 2014: 234-236).

The global financial crisis which occurred in 2008 and other financial mismanagement in many developing countries have wreaked the real estate markets over the years, and these have called for the new approach of valuation exercise and its regulation (Żróbek, Adamiczka, and Grover, 2013: 38-42) in determining property market value. Accordingly, market value has been defined as the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arms-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion (International Valuation Standards Council (RICS), 2016).

Acquisition of land in Ghana is gradually becoming a fleet of war between many self-acclaimed owners and, this has presented land acquisition risk (PWC Report, 2015:10; Ghosh, 2014: 130-134) in the property development industry. Hence the importance of consortium of attorney to perform property ownership checks before a land acquisition is paramount. This could mean that due diligence exercise is necessary during the conveyancing process. Conveyancing, in other words, is the legal process of transferring property from one owner to another owner (Amadi-Echendu, 2013:4). Therefore, much literature elaboration was done in chapters two and three, respectively.

The development has to consult a professional architect to prepare sketch designs, building working drawings, interior decorations, and landscaping designs to enhance users' comfortability and value creation. This helps meet business satisfaction coupled with duality of practice (Bos-de Vos, Volker, and Wamelink, 2016: 5-7). Furthermore, architects in recent times are increasingly taking new roles in responding to ongoing societal and industry-level changes (Duffy and Rabeneck, 2013: 115-119) to match building units with the demand trends.

Quantity surveyors are consulted to cost the construction of the development (Reddy, 2015: 85; Nagalingam *et al.*, 2013: 84; Olatunji *et al.*, 2010: 67-70). They also help in study reporting (Olatunji *et al.*, 2010: 67-70), offering advice in contractor's selection, and providing financial management advice in large development projects. The developer depends on the quantity surveyor advice to

minimise cost overrun (Reddy, 2015: 5) throughout the project execution. More importantly, the quantity surveyor can effectively manage life cycle costing and planning (Nagalingam *et al.*, 2013: 84; Abdul Rahman *et al.*, 2012). This could reduce the economic risk associated with commercial property development in general.

Nikumbh and Pimplikar (2014: 16) argue that consultancy as a whole plays a multifaceted role in real estate development right from the initial to the completion stage.

Hence, it is hypothesised in this section that:

H₇: *There is a positive relationship between outside advice/mentorship and financial feasibility/practical viability considerations.*

H₈: *There is a positive relationship between outside advice/mentorship and professional feasibility/viability reporting.*

4.6.5 ANTECEDING VARIABLE: Spatial development

In most countries across the globe, spatial planning and land use constitute one of the established governance systems through which policies are implemented to ensure economic development, particularly in urban areas (Korah *et al.*, 2017: 361-365; Owens and Cowell, 2011). Spatial development can be viewed from many perspectives, which include population dynamics, neighbourhood trends of development, and location assessment. Chapter two of this research threw more light on the spatial development variable relative to the effect on commercial property development. It has been asserted by Van Niekerkl *et al.* (2015: 135) that economic, environmental and social integration for sustainable settlement planning is one of the important factors that contribute to the country's development. Usually, spatial planning has a close relation to property development, and urban regeneration is (Kauko, 2012: 2053-2055).

The study of spatial planning offers many opportunities to reflect on the importance of urban functionality and liveability and the chances of considering and implementing measures that gives a new direction in urban development (Tasantab, 2019; Cobbinah *et al.*, 2015; Andreasen *et al.*, 2012: 201). Some African countries

face obstacles in the spatial planning process such as land ownership (Yeboah and Shaw, 2013: 21-25), but a system of increasing duality, polarizing between formal plans and self-organisation at the neighbourhood city areas can help to provide an efficient system (Korah *et al.*, 2016).

The numerous legislations established for the purpose of supporting effective spatial planning in the African continent need to be reviewed and enforced in an attempt to promote effective and sustainable property development. Tasantab (2019) further discusses the widespread availability of spatial planning and management legislation and several urban planning institutions. In Ghana, for instance, **Section 97 of the Land Use and Spatial Planning Act, 2016**, states that the Local Authority shall prescribe the form of a land-use certificate to a client. The legal proposition raised in the Act has the cause to question the Town and Country Planning Authorities to come under intense public criticism for failure to effectively control development in major cities in Ghana (Cobbinah and Darkwah, 2017: 1240-1244).

Commercial property development zoning and reservation in the spatial land planning in Ghana must be encouraged to boost the property business industry. This can streamline and facilitate urban development (Acheampong, 2018; Korah *et al.*, 2017) due to rapid population increase. Ali *et al.* (2016) suggest that zoning plans at various settlements should be made based on population criteria trends. Therefore, Ghana's spatial planning requires full recognition of the need to support the integration of formal planning and self-organization in urban development (Acheampong, 2018; Korah *et al.*, 2017). This could help planners to achieve effective and efficient results in land planning. Fuseini and Kemp (2015) reported that spatial planning engineering in Ghana is done mainly by the national planners from the national, regional, and district assembly levels. Therefore, these professionals should be strategic and innovative when demarcating commercial property development to bring economic certainty in spatial development. In the context of this research, the spatial development variable is used to test and measure sub- variables known as location/neighbourhood and population trends.

According to Costello and Preller (2010: 174), the popular phrase known as 'location, location, location' is a key factor in commercial real estate development. In practical terms, location selection is a determinant factor as far as commercial property

development is concerned. Lerner *et al.* (2014: 156) support the notion that establishing a good location itself is a process of minimising the economic risk associated with development. Therefore, location selection is very important in the determination of viability. That is why practical feasibility steps are necessary to follow in establishing a location for commercial development projects in the urban areas (Lerner *et al.*, 2014: 172; Costello and Preller, 2010: 174-176).

Neighbourhood is the geographic section where certain economic and social relations exist and how the intensity of these relations can positively impact the lives of occupants and residents (Aluko, 2011: 70). Hence neighbourhood is a cluster found in the community setting. Social amenities such as hospitals, schools, shopping centres, recreational centres, and worship facilities, and road networks influence property value. Consequently, location choices vary from urban to suburban and rural (Aluko, 2011:70). Dubé *et al.* (2016: 143-147) believe that location influences business decisions, and the distribution of economic activities has been the core concern in economic geography. This implies that location assessment is vital in constructing commercial property (Samburu *et al.*, 2019: 26-31) in an area. This could link to the reason why authors such as Botha (2013), Costello and Preller (2010: 175-179), and Huxham (2010) emphasise that location has a major influence on the success of retail property development.

Population is briefly defined as a group of individuals of the same characteristics living in the same given area (Tarsi and Tuff, 2012: 3), and it changes due to migration and social mobility (Hauser *et al.*, 1975). Therefore, population trends, according to this research, can be viewed that as the population growth pathways more people are shifting to settle or do business in a given area. For instance, population growth in Ghana is currently centred in the major cities such as Accra, Kumasi, Tema, Secondi-Takoradi, Cape Coast and Tamale amounting to 50% of the entire country's total population (Ghana Statistical Service Report, 2012). The swelling of the urban population has presented a huge real estate opportunity in Africa (Pwc Real Estate Report, 2020:12).

Hence, it is hypothesised in this section that:

H₉: There is a positive relationship between spatial development analysis and financial feasibility/practical viability considerations.

H₁₀: There is a positive relationship between spatial development analysis and professional feasibility & viability reporting.

4.6.6 ANTECEDING VARIABLE: Strategic factors

Strategic factors in the arena of business environment are simply explained as the set of factors organisations put in place to achieve their targets, goals, and become sustainable (Pournasir, 2013: 67-72; Daft, 2011: 350). This concept is also important in the commercial real estate development industry since commercial development projects are built to generate rental revenues for occupiers' goals and targets. To achieve this purpose, strategic leadership, strategic thinking, and effective marketing by the property managing team are crucial (Setiawan and Yuniarsih, 2018: 63- 66; Lear, 2012; Daft, 2011: 350). Chapter three of this research elaborated much literature on these strategic factors.

Strategic leadership is viewed as the ability of an organisation to put key measures in place to lead other organisations in terms of competition and sustainability in the same industry (Daft, 2011: 351-352). However, it is important for commercial property developers to apply such factors in their business operations to ensure posterity and sustainability. Sanders and Davey (2011: 41) proclaims that strategic leadership has a close link with organisational effectiveness. Hence, real estate development and management companies need strategic and leadership succession plans to align their vision and values in order to achieve their set goals (Jabbar and Hussein, 2017: 100; Lear, 2012).

The key team leaders in the property development and management industry such as property developers, project managers, construction managers, facility managers, estate agents administering operational activities endeavour to exhibit strategic leadership and management skills (Jabbar and Hussein, 2017: 100-102; De La Harpe, Mason, and Peterson, 2011: 5-9). In addition, leaders in commercial real estate business organisations have to boost the morale and spirit of their subordinates by using appropriate leadership strategies. More importantly, they should serve as motivators and teachers to the workers (Jabbar and Hussein, 2017: 100).

Strategic business leaders in all fields help with the new policy implementation due to their efficient and effective strategies in creating a culture that integrates policy into operational activities (Jabbar and Hussein, 2017: 100). In such instances, they demonstrate effective communication skills and behavioural factors such as motivation, power to influence, trust, create collaboration, and discover different leadership styles to cause the expected change (Conrad and Newberry, 2012: 114). Leadership requires special attention in order to promote long-term involvement and value for all stakeholders (Lloret, 2016: 418-422; Popescu *et al.*, 2020: 6).

Marketing, on the other hand, is featured as the process of planning and implementing the concept of selling, pricing, promotion, and distribution of information, goods, and services to satisfy individual and organisational goals (American Marketing Association, 2015). In other words, marketing comprises the management of activities and decisions directed to meet opportunities and threats in a dynamic environmental setting with the purpose of satisfying market offerings for identified consumers (Baumann and Hamin, 2011: 181-183). Marketing is very important in the commercial real estate business industry (Florentino *et al.*, 2014: 2). For example, advertising for rental vacancies and property sale by the estate agent can help increase the occupancy rate in retail properties.

Potential property buyers and tenants trends have evolved, and that marketing mix, including multiple listing, database, and the network has to take different forms to be congruent with the changing demand. This trend has changed the dimension at which property brokers communicate with their clients (Florentino *et al.*, 2014: 2; Goodwin and Stetelman, 2013: 92-96). The off-line approach, the use of telephone and internet are the strategies marketers employ to increase sales (Frost and Strauss, 2016). Goodwin and Stetelman (2013: 93-96) acknowledge that the use of new technologies and applications such as Global Positioning System (GPS) technology, social networking, tablet computers, and smartphones have come to change strategies real estate businesses are conducted in this twenty-first century.

Empirical evidence in the market orientation industry shows that stakeholder orientation construct may pose different relationships with sales results relative to general profit performance (Cadogan, 2012: 338-341; Kumar, Jones, Venkatesan

and Leone, 2011: 23-26). In the same way, performance measurement in marketing depends on the output of the marketers.

Hence, it is hypothesised in this section that:

H₁₁: There is a positive relationship between strategic factors and financial feasibility/practical viability considerations.

H₁₂: There is a positive relationship between strategic factors and professional feasibility/viability reporting.

4.6.7 ANTECEDING VARIABLE: Business Skills Set

Business management skills are a set of skills business operators need to manage business activities successfully. These skills vary from one business to another, and property development business is no exception. It is in this light that Zahra *et al.* (2014: 43) and Drucker (1985) submitted that marketing, financial management, and entrepreneurial skills were considered to be relevant in business management. It is realised that key business skills such as interpersonal, leadership, technical skills, and financial management skills acquired by business operator tend to increase his or her business success (Kirsten, 2018: 3-8; Mamabolo *et al.*, 2017:3-9; Motimele, 2010). Business negotiation skills to create a strategic partnerships (Peleckis and Peleckienė, 2016: 88; Guironnet and Halbert, 2014) by the property developer can be viewed as a move to share and distribute risk in the property development projects.

Chapter three of this research has given out sound literature on the relevant business skills property developers require to acquire as the source of managing property development business to minimise business and management risks. Kirsten (2013: 826-827) suggests that business operators need basic record-keeping skills to monitor their business performance and acquire basic financial management skills through education and training (Kirsten and Fourie, 2012: 460-465; Mohd Harif, Osman and Hoe, 2010: 16-21) are critical. This will help the developer to understand, apply and monitor financial activities (Brijlal *et al.*, 2014: 2-4) in the operational process.

According to Gong, He *et al.* (2013), the essence of business negotiation is a presentation of human relationships. Habits, the art of language, and the demand for psychology has to be linked with the specific culture of the people. In the same length, cultural resources of business negotiation can be seen as strategies for variable thinking methodologies (Jiang, 2013: 109; Shore *et al.*, 2009: 289-294). Hence negotiation could be viewed as one's capability to communicate effectively and it is termed as one of the pillars in business exchange process (Peleckis and Peleckienė, 2016: 88; Fang, 2006). A developer's ability to negotiate on good terms with business partners and other property stakeholders puts the developer on a competitive and advantageous edge. In practice, parties try to influence each other during negotiation in order to win.

Negotiation on the developer's side can also help obtain anchor security, especially when venturing into complex and highly capital intensive commercial development projects (Theurillat and Crevoisier, 2014: 507). The developer, with his or her negotiation power, can collaborate with the identified potential tenants to raise funds for the development by agreeing to spread the funds as rents to cover a long-term lease. This is why strategic creation of partnerships to carry out construction activities is argued to be capable of promoting investment growth (Halbert *et al.*, 2014: 421-424; Guironnet and Halbert, 2014) in commercial property development. This approach can be used to finance many commercial real estate projects in the urban areas in Africa where the demand for such developments is high (Theurillat *et al.*, 2016: 1510-1515; Halbert *et al.*, 2014: 421-424).

Based on the interpretations made above, this research will test the business skills set clustered with anchor security and negotiation.

Hence, it is hypothesised in this section that:

H₁₃: *There is a positive relationship between business skill set acquisition and financial feasibility/practical viability considerations.*

H₁₄: *There is a positive relationship between business skills set acquisition and professional feasibility/viability reporting.*

4.6.8 ANTECEDING VARIABLE: General Management

Generally, management can be simply defined as the act of planning, leading, organising the available resources to achieve organisational goals (Tortorella and Fogliatto, 2014: 4625-4629). It has been repeatedly argued that lack of management skills on the side of managers at all levels in organisations leads to poor decision making (Kirsten, 2013: 826; Ihua, 2010: 3-7) and inefficiencies in production. These reasons motivate the researcher to adopt general management as one of the variables to address in this research relative to the development of economic assessment and risk management model for commercial property projects in Ghana. Chapter three of this research has given extensive literature on general management.

Shamim *et al.* (2016: 5310-5313) support the notion that managers are agents in a setup organisation and they are required to have the necessary skill set to plan activities, organise resources, control resources, and lead people in the organisation to achieve goals. Therefore, applying management skills (Austin and Pinkleton, 2015: 22-24) will improve the real estate development process to attain efficiency and thereby reduce the economic risk associated with the project. In the same breath, it has been observed that managers' ability to explore management skills such as interpersonal and motivational skills usually leads to better performance and success (Popescu *et al.*, 2020: 1-2; Omotayo, 2015: 5-12).

Other authors, including Bharwani and Talib (2017: 394-395), Asah (2015: 309), and Agbim, (2013: 8), believe that managerial skills help to shape professional capabilities at all levels of functions in every firm or company. That could be the reason why Dzansi and Dzansi (2011: 2109-2114) affirm a significant relationship between managers' management skills and company performance. It is upon this background that the following hypothesis below has been set in this research to be tested:

H₁₅: There is a positive relationship between the acquisition of general management skills and financial feasibility/practical viability considerations.

H₁₆: There is a positive relationship between the acquisition of general management skills and professional feasibility/viability reporting.

4.6.9 ANTECEDING VARIABLE: PESTEL Analysis

This operational variable consists of political, economic, social, technological, environmental, and legal relative to the influence of commercial property development projects. Johnson *et al.* (2011: 50) report that the PESTEL framework provides a comprehensive list of variables that influence the possibility of success or failure of business industry. Similarly, Zafar *et al.* (2014:42-46) also supported that the PESTEL analysis is known to be a simple and effective tool used to carry out situation analysis by identifying the key external forces that may influence an organisation's success and failure. The bottom line is that strategic utilisation of the PESTEL framework model covers not only the external macro-environmental forces in the country related risks but also the internal risks such as stakeholder issues and other influencing factors within the market (Mourfield, 2014).

Chapter two of this research has immensely discussed extensive literature on both external and internal aspects of PESTEL sub-variables. Hence, this section attempts to operationalise PESTEL analysis variable influence against the economic implications on CPDI projects.

Political risk is attributed to the changes in government legislation systems, regulations, policies, and improper administration (Zavadskas *et al.*, 2010:34; Li and Liao 2007: 2043-2047) within the governance system. The political instability that leads to violence and conflict in some sub-Saharan African countries (Bello-Schünemann and Moyer, 2018:1-7) is a thing of the past when it comes to Ghana (Center for Strategic and International Studies Report, 2011:1-2). This features Ghana to become a fertile ground for investment such as commercial property development over the years. The current ruling party, called the New Patriotic Party partnership policy in infrastructural development, can promote property development in resolving the 1.6 million housing units deficit the country is facing (Adu *et al.*, 2019:269).

Cruzand and Sabillon (2018: 469) suggest that economic growth shows increase in the number of goods and services produced in the country. There are a number of economic factors that influence economic growth, and some of these factors are inflation, interest rate, and foreign exchange (Kabir *et al.*, 2015:1-18; Hassler and Meller, 2014:653-657; Lakhan, Zafar, and Noman, 2013:91-99; Leung, 2010; Ahmad

et al., 2010:146-149). Empirical evidence illustrated by Tweneboah *et al.* (2019) indicates that inflation, interest rate, exchange rate, real output, and financial development have a relationship with the macroeconomic performance, while their aggregate effect affects property supply and demand.

Housing affordability is a socio-economic requirement to improve the quality of life in every society (Mulliner *et al.*, 2016: 146-149). Property has become a great concern for individuals, families, and governments due to the dawning of urban civilization. (Danso and Manu, 2013:19). This means that real estate development projects positively influence our societies because they relatively attract economic activities and provide housing for people and goods. In addition, rural-urban migration as a social factor contributes to the high demand for housing in the urban areas in Ghana (Afrane *et al.*, 2016:140).

The rapid creation of automation technologies and the use of information in the built environment (Kaplinski and Tupenaite, 2011: 170-172) cannot be left out in the commercial property development processes. It has been realised that the application of information and technology helps cut down costs, improve quality, and add value in the built environment project life cycle (Kaplinski and Tupenaite, 2011:172). Information Communication Technology has contributed to the advancement and improvement of designs in the built environment industry (Paul and Achoba, 2018:79).

Environmental challenges occurring in many African countries may not be a product of affluence but of poverty due to people's socio-economic needs (Zhao *et al.*, 2019). However, the SDG 13 of 2030 urges the world to take urgent actions to address climate change and its effects. In the same direction, property developers are to find ways to fulfill SDG 13 in property development activities. For this reason, Zhao *et al.* (2019) assert that environmental quality measures are a matter of social choice depending on how a country views what constitutes environmental quality.

The term real estate can be derived from a legal Latin expression known as **quid plantatur solo credit, and it refers to the acquisition of interest in land and everything fixed on it** (Chynoweth, Oladapo and Olotuah, 2007: 331). **Article 14 of the African Charter on Human and Peoples' Rights (AfCHPR) 1981** guarantees property rights and indicates society's public need and general interest as legitimate

grounds for limiting or restricting property rights. In Ghana, the government has an eminent domain power inferred from **Article 20 of the 1992 Constitution** to make a compulsory land acquisition. All these legal property principles and leasehold terms should be known to the commercial property developer so that he or she can do collaborations, negotiations, and partnerships if the need arises.

The above arguments could point to the fact that PESTEL analysis is critical when it comes to the general economic risk assessment and risk management for commercial property development projects. It can be characterised in terms of its external feasibility analysis.

Hence, it is hypothesised in this section that:

H₁₃: There is a positive relationship between PESTEL analysis and financial feasibility/practical viability considerations.

H₁₄: There is a positive relationship between PESTEL analysis and professional feasibility/viability reporting.

4.6.10 ANTECEDING VARIABLE: Project Management Body of Knowledge

Project Management Body of Knowledge (PMBOK) application can be considered one of the best practices for construction project management. PMBOK is the set of key knowledge areas used by the project management professionals as techniques in managing projects effectively (PMBOK Guide, 2017; Liljedahl and Moller, 2014). In this research, the PMBOK areas dealt with including but were not limited to project integration management, project scope management, project schedule management, project cost management, project quality management, project communication management, project procurement management, project stakeholders management, and project risk management.

Chapter three of this research has discussed in detail the above PMBOK areas mentioned. Authors such as Kerzner (2018) and Meredith *et al.* (2017) suggest that good project management processes optimise resources and, effective project management plays a key role in industry-oriented projects such as property development and construction (Enshassi *et al.*, 2010: 540-544). The effective application of project management knowledge, skills, and techniques is said to

contribute to the project success and outcomes (Project Management Institute, 2013: 2) and hence serves as a tool to maximise the utilisation of resources.

According to the PMBOK Guide (2017: 69), project integration management comprises the identification of project activities, project definition, project unification, and the readiness to coordinate the processes within the project management groups. This improves the project outcomes (Project Management Institute, 2013: 2; Enshassi *et al.*, 2010: 540-544). Effective project scope management also enables the project manager to allocate and distribute resources, including the labor and finances, to ensure the effective completion of the project (Nicholas and Steyn, 2017; Sanchez and Terlizzi, 2017: 1610-1615).

The extensive application of practical risk management strategies in project execution decreases failure and expenditure (Bowers and Khorakian, 2014: 25-26; Mu *et al.*, 2009: 179-182). Such an approach is also essential in real estate development projects. Therefore, it can be proposed in this research that the use of the project management body of knowledge principles in commercial property development and investment projects may positively influence its viability.

Hence, it is hypothesised in this section that:

H₁₇: There is a positive relationship between the application of PMBOK and financial feasibility/practical viability considerations.

H₁₈: There is a positive relationship between the application of PMBOK and professional feasibility/viability reporting.

4.7 SUMMARY OF THE CHAPTER

This chapter has systematically highlighted how all the variables indicated in the theoretical study framework were analysed, evaluated and hypothesised. Ten antecedent variables were identified, linking two intervening variables in influencing the dependent variable – the perceived success of risk assessment and management in CPDI projects. This is done based on the literature, and led to the hypothesised statements to be tested in order to formulate a credible risk management model for CPDI from the study.

The next chapter outlines the methodology used to conduct this research

CHAPTER FIVE

RESEARCH METHODOLOGY

5.1 INTRODUCTION

The previous chapter outlined the concept of operationalisation in research writing and presentation of research variables relative to the proposed theoretical framework. It identified all the variables in the conceptual framework formulated in chapter one, and their associated hypothetical statements were operationalised based on the literature review.

Research methodology is how a research study is designed to outline how data can be collected and analysed to acquire new knowledge and understanding of a phenomenon (Rahi, 2017: 1-3). According to Leedy and Ormrod (2015: 2), research is a systematic process of collecting, analysing and interpreting data to increase our understanding of a phenomenon we are interested in or concerned about. Neuman (2014: 13) stated that the process should be scientific if one is to acquire scientific knowledge. Usually, proper research produces reliable data that can provide credible and valid information through scientific methodologies (Bloomberg, 2008; Cooper and Schindler, 2007). To achieve this, the data sourcing and collection must be well defined and outlined (Botha, 2013: 332).

While there have been several studies on various risk management areas (Irizar and Borao, 2019: 25; Mullaly, 2014: 170-172; Kaur, Kaur and Kaur, 2014: 27-28), no risk management model has been developed for commercial property development and investment projects in Ghana. Thus, as indicated in chapter one, the researcher's main aim was to develop a risk management model for commercial property development and investment projects in Ghana. This motivated the researcher to conceptualise a research framework based on his knowledge and experience as a property consultant. The conceptual framework was then discussed with a team of property consultants, developers and investors in the form of a pilot study purposely to solicit their professional opinions about the topic. After these discussions, some amendments were made to the framework.

This chapter extensively elaborates the main research methodology (quantitative) section, which was briefly outlined in chapter one. It presents in detail the step-wise

quantitative methodological approach followed in collecting the primary data for this study. The chapter further describes how SEM was used to analyse the primary quantitative data. This demonstrates a clear blueprint that ensures that the identified research problem statement is duly and logically addressed.

This chapter is structured into sub-headings, such as research methodology and philosophy, research population and sampling, ethical considerations, instrument development, pilot study, administration of instrument and data collection, response rate analysis, quantitative data analysis, and a summary of the chapter.

5.2 RESEARCH METHODOLOGY AND PHILOSOPHY

Research is a combination of techniques and approaches used to investigate a specific phenomenon (Yin, 2013: 129-133). This section outlines the methodology and philosophy for the research.

5.2.1 Research Methodology and Approach

According to Leedy and Ormrod (2010: 18-24), research methodology can be categorised into three stages, namely, a collection of data, data analysis, and data interpretation to establish a clear understanding of an identified phenomenon. There are quite a number of research methodologies, and they include qualitative, quantitative, and mixed-methods. Qualitative research methodology is usually adopted in studying complex phenomenon that involve human experiences, opinions, and perceptions, according to Sutrisna (2009: 57). The implication is that it brings the qualities of a phenomenon under study rather than showing the numeric measurement of the study. Generally, observations and interviews are used as tools for qualitative researchers.

Quantitative methodology employs quantitative methods for data collection and to conduct systematic analysis (Okolie, 2011: 138). This type of research method accentuates the significance of systematic techniques and procedures employed in the social sciences that involve collecting and analyzing data in numerical forms (Leedy and Ormrod, 2010: 121; and Donmoyer, 2008: 718). Again, it focuses on the process of testing hypotheses in research (Okolie, 2011: 138). Leedy and Ormrod (2015:95) described quantitative methodology as the traditional research approach.

The quantitative research methodology allows for systematic techniques and procedures in collecting and analysing data in numerical representations, as stated by Leedy and Ormrod (2010: 121) and Donmoyer (2008: 718). This might imply that the quantitative data analysis was based on the scientific and systematic approach to produce quantitative results. In this light, Sutrisna (2009:54) encourages researchers to adopt a quantitative approach to maintain impartiality and unbiased research.

On the other hand, many researchers may view the mixed-methods as the research approach whereby qualitative and quantitative methods are used to undertake a study. It has been stated earlier in the chapter of this study that mixed methodology allows for the development of constructs and provides the opportunity to ascertain traditional data sourcing (Williams and Shepherd, 2017:269-271). Also, this approach helps to establish empirical data that can use to juxtapose theoretical scope for research problems (Brewer and Hunter, 2006:15).

5.2.2 Research Methodology for this Study

A researcher's choice of research methodology is motivated by the nature and kind of knowledge expected from the research (Cresswell and Clark, 2017: 19-23). The aim of the research may indicate the type of methodology to adopt. In looking at this study's nature, scope, and aim, quantitative methodology was employed while qualitative/focus group was used to gather data at the pilot study stage. Quantitative approach used was endeavoured to gather factual field data in order to provide the relationship among the facts gathered in the study. This was done by testing the set hypotheses (Okolie, 2011: 138; Pathirage, Amaratunga and Haigh, 2008:3-5).

5.2.3 Research Philosophy and Paradigm

The term research philosophy may be referred to a system of beliefs and assumptions on knowledge development. Okolie (2011:123), together with Jackson (2013: 50), agree that the assumptions and undertakings set to guide an inquiry of study can be called a research philosophy. Assumptions are perceived as the preliminary statements of reasoning, and they are based on the researcher's knowledge and insights that are born as a product of his/her intellectual activity (Žukauskas, Vveinhardt, and Andriukaitienė, 2018: 122). In this research, the

assumptions set to guide the study were stated in chapter one. This assisted the researcher in framing his reasoning towards a clear direction in achieving the study's objectives.

Similarly, the research paradigm simply describes the reasoning framework and the classification research belongs according to Babbie (2008:30-32). Donmoyer (2008:591) also states that it can be assumptions and orientations that researchers conceive for a particular research study.

The above definitions given to both research philosophy and paradigm may imply that their meanings can be relatively employed interchangeably depending on the researcher's perspective. However, information below briefly explains some of the philosophies and paradigms used in social sciences and further establishes the position of this research.

5.2.3.1 Pragmatism

This philosophical belief is chosen between epistemology and ontology or axiology and, its primary determinant is the adoption of research questions (Cresswell and Clark, 2011:388-389; Saunders, Lewis and Thornhill, 2008:128). Pragmatists are of the view that there is no absolute unity in the world and that there are free options to choose methods, techniques, and procedures that best suit the needs and aims of scientific research (Žukauskas *et al.*, 2018: 122). But in order to arrive at reliable results in scientific research, one ought to follow the necessary and required procedures.

The procedure and mandate of a research study, according to a pragmatist, are to find out truth or reality through the human problem-solving methodology (Johnson, Onwuegbuzie and Turner, 2007:112-133). In other words, reality may be of the utmost importance in pragmatism. Although, this research philosophy may be applicable in the area of human sciences but the reasearcher did not used. In this, values in research are considered essential when it comes to the interpretation and acknowledgement of the result as well as its correct presentations (Tashakkori and Teddlie, 2010:271-276).

5.2.3.2 Interpretivism

Interpretivism is based on the principle that a researcher has a specific role to play when observing the social world (Žukauskas *et al.*, 2018: 123). The social world consists of entities that are external to the subjective experience of its associates. Hammersly (2012: 22) attributes the importance of the interpretive paradigm to its beliefs which recognises that human beings are better shaped through values, norms, cultures, and principles within the environment they live. This could inform researchers to consider people's backgrounds when conducting research, especially during field data collection.

A research phenomenon can be an observable experience, occurrence, and facts finding to address problems (According to Okolie, 2011: 128). However, interpretivism research philosophy explores how to deal with people and their background behaviour based on the researcher's interest (Žukauskas *et al.*, 2018: 123). Saunder *et al.* (2009:130) assert that interpretivism is an epistemology. It advocates for a researcher to understand a research phenomenon that underpins the difference between human beings' views of reality and their critical role as social players.

In this research, the principle of interpretivism was used due to the nature of the study.

5.2.3.3 Positivism

Positivism is a philosophical position of natural scientists which explores empirical research approaches, embraces extensive quantitative analysis in developing formal explanatory theories for advanced studies (Wahyuni, 2012: 69). Perhaps, the advantage of the positivist research paradigm is that the researcher has a clear theoretical focus of the study at the beginning of the research process. Other authors,, including Mack (2010: 7), call it scientific paradigm because this philosophical belief, in general, symbolises objectivity and reality that results in the study of natural sciences (Babbie, 2008:33-35). In addition, the positivist believes that a researcher's methodology to establish findings should be devoid of unbiased and that the generation of data should be based on a scientific approach (Okolie, 2011:127). Ensuring such steps in the research process may help to minimise

subjectivity. The inference may be drawn that the real world can be researched using appropriate methods that suppress human influence (Nongiba 2008:87).

The above explanations give way to establish the philosophical position for this research and hence employed.

5.2.3.4 The Philosophy and the Paradigm of this Study

Property development is one of the growing industries coupled with many problems such as design, construction and management problems. In order to address these problems, researchers should be encouraged to employ research philosophies and paradigms that can yield accurate results. Cresswell and Clark (2011:388) identified ontological, epistemological, axiological, and pragmatic philosophies as the four research philosophies. The philosophical position in a particular study demonstrates the important assumptions with which the researcher views the world (Saunders *et al.*, 2009: 108). Looking at the assumptions set in this study (refer to 1.11 in chapter one), this philosophical research position commensurates to positivism.

Therefore, the position of this research takes its foundation on the positivist view. This view signifies objectivity (Babbie, 2008a:34) and that objectivity is a critical attribute a researcher has to fulfill in conducting a research study. Based on this philosophy, the researcher received quantifiable scientific results that were free from subjectivity, as previously stated above by Okolie (2011:127). In addition, the aim and characteristics of this research study are in line with the principles of the positivists' view. For instance, the philosophy focuses on the quantification of relationships between the identified antecedent and intervening variables known to be the outcome variables identified (Apuke, 2017: 41-46). The expression of this view also sides with the aim of this study since the researcher preliminarily formulated a conceptual framework that contained antecedent and intervening variables.

Therefore, the researcher's choice for positivism philosophy is based on the adoption of the research methodology and the expected outcomes of this research study. Over the years, it has been noted that a researcher's choice of research strategy and method might influence the research philosophy to be employed (Saunders *et al.*, 2008:108). Hence a crucial aspect of choosing a methodology is the '*researcher's positionality*' and its philosophical assumptions concerning his/her beliefs and values'

(Jackson, 2013: 50). For this reason, a quantitative methodological approach was adopted for this research.

5.3 RESEARCH POPULATION AND SAMPLING

A research population is a group of people the researcher has identified to source primary data from. The group possesses some common and distinct characteristics to support the research (Onwuegbuzie and Collins, 2007: 283-287). On the other hand, the sample size represents the selected respondents chosen from the identified population. Rahi, Alnaser, and Abd Ghani (2019: 1163) define sample size as a subset of the population. A research population is also a collection of constituents under which sample size is chosen as an element to be considered for a study (Babbie, 2008: 196). The purpose and nature of research may determine the kind of population and sample to be chosen.

The description below explains in detail the chosen population and sample size for this research.

5.3.1 Population Size Determination

As stated in chapter one, the target population for this research comprises the commercial property development organisations directors and operations managers in Ghana. The operations managers in this context include construction managers, project managers, facility/property managers, project coordinators, and project supervisors. These professionals were chosen as the target population for this research project due to the enormous knowledge and experience they have acquired in the commercial property development and investment industry. In addition, the property development organisations where the population is found had registered affiliation with the Ghana Real Estate Developers Association (GREDA).

A registered list containing 250 property development organisations was obtained from the GREDA head office, Accra-Ghana, to estimate the population size. This population group was estimated as 500 in total based on the assumption that every organisation registered might have at least 2 directors/ operations managers.

5.3.2 Sample Size Determination

Sample size determination in research is critical since it influences the results of research. In determining sample size, a number of factors are taken into considerations. For example, Botha (2013: 334), together with Khalid, Abdullah, and Kumar (2012: 15-19), argue that the researcher has to; define the target population size, obtain a sampling frame, establish how to recruit sample members, and strategise on how to convert sample estimate into population estimate respectively. Apart from such considerations, Antonellis and Berry (2017:46) proclaim that a sample size between 30-500 at a 5% confidence level may be appropriate for research studies, whereas Krejcie and Morgan's sampling table shows that a population of 500 should have 217 sample size. But Neuman (2014: 15) and Choy (2014: 99-104) also believe that a population of 550 should be concise with a 226 sample size in order to achieve a true reflection of the data.

Determining a sample size that might fit the SEM application is not straightforward, and it is a challenge researchers face. Most researchers rely on the 'rules of thumb' to determine the sample size since there is no single correct way to do so. But the most memorable condition many researchers try to ensure is that SEM application requires a large sample size (Siddiqui, 2013: 285-286). To achieve this, some statistical scholars recommend that the ratio of the observation be used to estimate parameters (N:g). Where N = Number of observations/respondents and g = Parameter in the model. Hence Goodboy and Kline (2017: 69-75) propose that the N:g ratio should be 20 to 1, while Schreiber *et al.* (2006:324-330) also propose that the N:g ratio can be 10 to 1. Another factor to consider in the determination of sample size is the correlation factor. The correlation factor in this context refers to the measure of association between variables, and it shows the value of one variable in changing its reliability response to the change in another variable.

Emphatically, SEM relies on tests that are delicate to the sample size and the degree of parities in covariance matrices. This may imply that the process to follow in structural equation analysis needs a considerable sample size. In their discovery, Hair *et al.* (2012: 415-419) identify the following factors to consider when choosing a sample size for SEM application. These factors were the complexity of the model, multivariate data distribution, and the average error variance.

Therefore, in considering the Krejcie and Morgan sampling table analysis and the general 'rules of thumb' concept of sample size determination for SEM application as well as other claims made by the authors mentioned above, an estimated population of 500 for this study requires approximately 201 sample size determination. Hence this sample size determination stands to correlate with the Krejcie and Morgan sampling theory. The 201 sample size represents 40.2% of the population size. This simply means that 201 respondents were recruited in answering and filling the research survey of questionnaires for this study.

5.3.3 Sample Accuracy

Sample accuracy describes how well the sample size portrays the characteristics of the population size it represents (Griffith, 2013: 1107-1111). This shows how sample errors may set in. Griffith (2013: 1107-1111) further reckon that sampling representation depends on two factors called accuracy and precision. Accuracy refers to the level or degree to which bias can be eliminated from the sample. Precision defines the criteria employed to do sample size estimation. It relates to the sample size confidence level determination (Leedy and Ormrod, 2015:75-77). These two concepts play a critical role in determining a better sampling frame for a research study. Usually, the study sample size estimation provides the basis for sample error and it has an impact on the development of the study model (Hair *et al.*, 2006). Leedy and Ormrod (2010) agree that the level of sampling error influences sampling size.

Experience has shown that a small sample size may prevent the study outcomes from generalizing, whereas a large sample size may increase the detection of differences among the measured variables. Therefore, the researcher took a careful step to determine an appropriate sample size devoid of errors by considering all the factors necessary to determine the sample size described under 5.3.2 (Sample Size Determination) above. Such considerations were meant to achieve sample accuracy in this research.

5.3.4 Sampling Techniques

As defined in 5.3, Sampling is the procedure researchers employ to draw a subset from the chosen population as respondents for the research. The approach that

researchers use to select respondents is known as the sampling technique. An appropriate sampling technique is important because it helps to find a balance between the set research objectives and the relevant data needed for the research.

Ideally, there are many types of sampling techniques, and they include probability and non-probability sampling. Non-probability sampling is also known as convenience sampling, and it occurs when the chance of selecting every unit or every member in the population cannot be guaranteed to be selected for participation in the survey (Leedy and Ormrod, 2015: 77). The application of this technique is convenient; however, it may be prone to subjectivity and bias since members of the population are equally not guaranteed to be selected. Taherdoost (2016: 23) describes it as judgemental.

With the probability sampling technique, the researcher selects samples from the population using the theory of probability. In other words, each member of the population has an equal chance of being selected (Showkat and Parveen, 2017: 55-59). This means that every member of the population group has known in advance that he or she can be selected and that there is an equal opportunity for all members within the sampling frame. The various types of probability sampling techniques include but are not limited to simple random, stratified, random cluster, and systematic sampling. Systematic sampling is a probability sampling approach where the researcher selects respondents from the population at a regular interval. For example, researcher can select every 10th member on a listed sheet called the sampling frame containing the names of the population members.

After the researcher considered this study's nature, objectives, and research questions, the systematic sampling technique was employed to select and recruit respondents (directors and operations managers working in Ghana's commercial property development organisations) to distribute and collect data. This technique was chosen due to its simplicity and fair application.

5.4 ETHICAL CONSIDERATIONS

As stated in chapter one, this research study is conducted in conformity with the NMU research ethical policy. Therefore, the researcher went through the laid down steps set by the NMU to secure an ethical clearance approval letter (Please refer to

the appendix for further details). The purpose was to ensure that the researcher had considered the necessary human and ethical precautions in conducting this research.

Leedy and Ormrod (2014: 153) declare that the data collection processes of research should conform to ethical principles. This helps to maintain ethical standards in research so that liabilities may be avoided. Based on this, confidentiality and anonymity of the respondents for this research were ensured and protected by seeking their consent for participation, respondents were not allowed to indicate their names on the data collection instrument, and during the mini-focus group discussion, the panel members were named with letters (say, Mr. A, Mrs. B, etc.).

Formal letters prepared by the researcher to the respondents in fulfilling the ethical consideration requirements, such as the informed consent and invitation letter, have been attached to the appendix of this research report as proved evidence documents.

Sutrisna (2009:55-56) states that validity can be extended to whether the recognised responses received from the respondents have been able to produce the expected outcomes. Sutrisna further agrees that the level to which the findings can be interpreted beyond the research environment also determines research validity. In other words, validity covers the extent to which the researcher's research methodologies and sampling techniques are truthfully reflected in the measurement of the research questions rose from the problem statement. In this view, David and Sutton (2004:173) assert that validity is determined by how the sample representation signifies the findings of the research.

Kiragu and Warrington (2013: 175-177) opines that reliability usually guarantees the same results and conclusions for research work even if an independent researcher performs the same research by using the same equipment and procedures. Hence the researcher took practical steps to follow the standard research principles in order to minimise or eliminate errors in this study.

Many authors, including Bloomberg, Cooper, and Schindler (2011:113–115), Fox and Bayat (2011:148), Morton and Wilkinson (2008:43), pronounce that researchers should seek to ensure and protect respondents consent, privacy, confidentiality and

avoid deceit. Having such ethical cautions in mind made the researcher take the precautions below:

- Plagiarism: The researcher took the necessary steps to acknowledge the work of other authors in this research study. Sources of information were dully identified and correctly referenced.
- Honesty and trust: This research reports and discusses data as received without any fabrication or misrepresentation.
- Integrity: This research is conducted with ingenuity and sincerity.
- Law compliance and standards: This research is conducted based on the ethical rules, principles, and standards set by Nelson Mandela University.

In summary, this research is structured to conform to the ethical, validity, and reliability standards outlined above as Sutrisna, Cooper-Cooke, Goulding, and Ezcan (2019: 10-12) together with Maxwell (2017: 116-121) agree that validity and reliability is a key factor that determines research quality.

5.5 INSTRUMENT DEVELOPMENT

A research data collection instrument is purposely developed to source primary data in order to test the hypothetical relationships found in the conceptual framework. In doing this, the researcher should bear in mind the validity and reliability of the instrument. Meerah *et al.* (2012: 631) assert that the following processes are to be followed when developing a credible research instrument. They include reviewing the literature on the research constructs, defining constructs, conducting field testing and content validation by expert judgment and reliable testing, analysing and preparing the final draft, and conducting a pilot study to calculate reliability.

Fook and Dastane (2021: 5-7) explain that a questionnaire is a list of well-structured questions designed to be tested to receive reliable responses from the selected respondents. An initial questionnaire survey was prepared in this research, and a pilot study was conducted against the 10 selected commercial property developers. A focus group discussion was also conducted with other property professionals based on the study's conceptual framework and the research objectives. The

questionnaire questions were later modified to suit the respondents' understanding based on the outcomes of the pilot study and focus group discussion conducted.

The questionnaire survey for this research study was developed based on the information gathered in the literature review and the primary source. Questions were carefully structured purposely to address every factor identified to have an influence on the risk management of commercial property development and investment projects in Ghana. The set questions are also meant to measure and test the hypotheses formulated in this research. In addition, the questions were carefully structured to ensure that the research questions and objectives might be achieved.

A survey questionnaire designed for this research study comprises close and open-ended questions. It contains four sections (A, B, C, and D). Section A solicits the demographic data, section B measures factors that influence commercial property development and investment projects, section C measures the risk management factors in commercial property development and investment projects, whereas section D provides the opportunity to the respondents to express their professional opinion on the subject matter. Section A contains 7 close-ended questions, section B constitutes 39 seven-point Likert-scale statements/questions (1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neutral, 5 = Slightly agree, 6 = Agree and 7 = Strongly agree. Section C, in the same view, provides 45 seven-point Likert-scale questions. In using a 7- point Likert-scale, respondents were requested to indicate their extent of agreement with regard to each statement/question. This scale was adopted because it produces a highly reliable rating scale (Khalid, Abdullah, and Kumar, 2012: 15-19). Adopting the scale for measuring variables could enable the required inferential statistical data analysis to be performed (Chigamba and Fatoki, 2011: 66).

In order to ensure consistency, simplicity, and efficiency in the data analysis process, the Likert scale statements/questions were coded as follows:

FF = Financial feasibility and practical viability consideration factor.

GS = Governance structure factor

SP = Spatial development factor

CP = Construction project management factor

RC = Real estate trends and cycles factor

SF = Strategic factor

BM = Business skills set factor

GM = General management skills set factor

PF = Professional feasibility and viability reporting factor

PM = Project Management Body of Knowledge factor

OT = Outside advice/mentorship factor

PS = PESTEL factor

EE= Perceived risk management factor

Lastly, section D depicts 5 open-ended questions for the respondents to fill in accordingly (Please refer to appendix I for further details).

The researcher took a keen cognisance of the ethical principle in wording the questions due to the fact that Kiragu and Warrington (2013: 173-177) stressed that concise and polite language should be used in formulating research questions. It is also important to avoid ambiguities by using simple words. The researcher considered the above precautions and made sure to prepare the questionnaire, which was devoid of strong words and ambiguities.

Besides, a covering letter was prepared to cater to the research study's intent and purpose and the kind of information to be ascertained. Respondents' assurance for confidentiality, together with instructions to the questions therein, was clearly stated. Statements/questions were coded according to the variables identified in the conceptual framework of this study. This might pave the way for simplicity in data analysis and data management.

5.6 PILOT STUDY

The term pilot study in research may be referred to as the process of conducting a pre-test in preparation for the main research study (Blažev, Babarović, and Serracant, 2020: 18-22). The purpose is to test the accuracy, appropriateness, and reliability of the research instrument. It also helps the researcher to test the research grounds to know how the main data collection process would be. Botha (2013: 343) demonstrates that a pilot study is a trial run tested against the targeted respondents who are qualified to answer the questionnaire. Other authors, including Gibbs (2012:98) and Panarotto (2015:87), believe that giving the instrument (questionnaire) to other researchers and experts to screen and later providing feedback to perfect

the instrument forms part of the pilot study process. This helps the researcher to check and correct the content validity of the study instrument.

In this research, an initial questionnaire was developed and distributed to the 10 selected commercial property developers in Ghana to receive the respondents' views. In addition, a focus group discussion was also held with the team of property professionals, including property advisors, property managers, construction project managers, and property developers, purposely to inquire their professional opinion about the risk management strategies available for commercial property developers and investors. After conducting these two exercises (pilot study and focus group discussion), it assisted the researcher to amend and adding some of the questions in the questionnaire survey for this study.

Below were the changes and additions made in the survey of the questionnaire after conducting the pilot study:

- Question 5 in section A was redefined to cater to all year(s) of experience developers have acquired in their professional pursuits.
- Statement/Question 7 in section B was re-structured in order to measure the extent to which property developers conduct financial feasibility studies during their development operations.
- Statement/Questions 31 to 33 in section B were added to test and measure the strategic factor construct in the conceptual framework.
- The constructs in the conceptual framework were coded against the statements/questions. This made the data capturing, processing, and management effective and efficient.

5.7 ADMINISTRATION OF INSTRUMENT AND DATA COLLECTION

The administration of instrument and data collection stage of research expresses the step-by-step way the researcher follows to distribute the questionnaire to the respondents for the purpose of collecting primary data. In this research, the list containing the details of the registered property development organisations in the GREDA was obtained and used as a sampling frame. Then, the systematic sampling technique was used to select the respondents.

The list received from the GREDA indicated that there were 250 registered organisations, and 120 of them were selected as the sample size. Hence, two questionnaires were sent to the directors and operation managers in each organisation with the assumption of receiving 240 feedback questionnaires from the respondents. The initial plan for the administration of the questionnaires was mainly to employ a one-on-one personal contact approach. However, the researcher later included a telephone approach in order to increase recruitment and patronisation rate due to the covid-19 pandemic infection and movement restrictions. The table below shows how questionnaires were administered to the respondents according to the two distribution channels mentioned.

Table 5-7-1: Questionnaire Distribution Channel

No. of Questionnaires	Distribution Channel
190	One-on-one contact
85	Telephone

Author's Construct, 2021.

The researcher chose the above distribution channel arrangements because the respondents of this study input can be received easily by contacting them at their work stations because of the nature of their operations. They usually spend most of their time at the development sites than spending time at their formal offices, and that electronic-link channel for the questionnaire was excluded. Hence the researcher designed the distribution channel of the questionnaires to suit the respondents so that data collection could be convenient and effective for both the researcher and respondents.

5.7.1 One-on-one Approach

The one-on-one personal contact approach of administering questionnaires was done by traveling to the various property development organisations' head offices and development sites, mostly in Ghana's Greater Accra, Central, Eastern, and Western Region. This is because the majority of the property development organisations are centred in these areas.

All the ethical procedures and covid-19 safety protocols were followed in distributing questionnaires to the respondents at their workstations. Some of the respondents

gave immediate responses by answering the questionnaires and returning them to the researcher, and others completed filling in two to ten days after receiving them. The extra arrangement was made to retrieve the filled questionnaires from the respondents with the help of the field data collectors hired.

This approach of administering questionnaires and collecting data exposed the research team to direct contact with the respondents, explaining portions of the questionnaire instrument they were not familiar with. This made the respondents respond faster by filling in the questionnaires. However, the approach was time-consuming and with huge transportation costs involved.

5.7.2 Telephone Approach

The telephone approach of administering questionnaires was also used to reach the respondents who were located in the Northern and Middle parts of Ghana. This group of respondents was few compared to the respondents found in Ghana's Greater Accra, Central, Eastern, and Western Region. Contacting such respondents face-to-face was quite expensive and cumbersome due to many challenges, including the high transportation cost and the bureaucratic procedures, and that telephonic medium was adopted.

Every respondent in this category was first phoned to seek his/her permission and consent for the study. If the respondent agrees, an appointment is made, and a questionnaire is sent to the respondent through WhatsApp or email for a prior study. The researcher records the appointment date and time and then calls the respondent as scheduled to allow the respondents to answer the questions in the questionnaire orally while the researcher notes the answers given out by the respondent.

Most of the respondents in this category found this approach convenient as they felt that the researcher was acting as a facilitator in answering the questions before them.

The information below provided the response rate received from the respondents.

5.8 RESPONSE RATE ANALYSIS

This section provides how the collected field data was presented based on the number of questionnaires distributed, retrieved, rejected and accepted. The table below illustrates the response rate received.

Table 5-8-1: Response Rate Analysis

Distribution Channel	Questionnaires Retrieved	Questionnaires Rejected	Questionnaires Accepted
One-on-one	115	05	110
Telephonic	85	00	85
Total	200	05	195

Author's Own Construct, 2021

Table 5-8-1 depicts that 200 questionnaires were received from the respondents and 110 were deemed correct to be captured and analysed, in addition to the 85 respondents contacted through telephone calls. In all, 195 respondents' views were analysed and used for this study.

5.8.1 Response to the Open-ended Questions

There were 195 questionnaires accepted to be correct for analysis consideration. However, the following observations were made in terms of the answers provided for the section D part of the questionnaire; all the 195 respondents answered question 1, Twenty-Eight (28) answered question 2, One Hundred and Ninety-Five (195) answered question 3, Fifty (50) answered question 4, and none of the respondents answered question 5.

The subsequent chapter (chapter 6) provides a thorough analysis of the responses received from the respondents of this research study.

5.9 QUANTITATIVE DATA ANALYSIS

Data Analysis, in general, can be defined as applying a statistical or logical approach to illustrate, consolidate, recap, and evaluate data collected from the field to make inferences about a phenomenon. According to Aghasafari, George, and Pidaparti (2019: 59-63), data analysis comprises examination, classification, organisation of

data with the aim of addressing a research problem. The data analysis stage also makes room for data screening (Al-Emran, Mezhuyev, and Kamaludin, 2018: 698).

In this research study, the demographic data (section A) in the questionnaire were analysed with the aid of the SPSS software so that the mean and standard deviations of the variables could be determined. Section B and C in the questionnaire were also analysed using Structural Equation Modeling (SEM) with the aid of Amos 28. This statistical tool (SEM) was adopted due to the research design adopted for this study. Besides, the SEM is known to be effective statistical tool to use when analysing quantitative data, and its application allows researchers to develop a model in taking into consideration the causal relationships between variables. The relationships are shown in SEM usually represent the hypotheses that the researcher stated.

5.9.1 Justification for the Use of SEM

Structural Equation Modeling (SEM) is a modern statistical software commonly used to analyse primary quantitative data in research. It is a device used to perform statistical analyses by social science researchers (Hair, Hult, Ringle and Sarstedt, 2017:2). The application of SEM has become quite relevant to a large number of research studies due to its capability to take into account the different types of measurement errors, test theories, and latent model variables (Al-Emran *et al.*, 2018: 694). In addition, it is a multivariate analytical technique used for testing and evaluating a set of hypotheses in establishing relationships between the various dependent and independent variables (Gefen, Straub, and Boudreau, 2000: 7). This means that, SEM handles multiple exogenous and endogenous constructs at the same time. It performs combined analysis for measurement and structural models. More specifically, CB-SEM is considered a covariance-based approach when the research objective is for model testing and model fit assessment (Hair Jr, Sarstedt, Hopkins, and Kuppelwieser, 2014: 111-113).

For the purpose of this current study, SEM was employed to determine the relationships that existed between independent and the dependent variables identified in the study. Mali-Swelindawo (2016:79), expressed that SEM can be viewed as a composite of regression, factor analysis and path analysis with the focus to represent theoretical structures by latent factors.

Based on the research aim set in chapter one and the research methodology applied in this study, the researcher deems it appropriate and necessary to employ CB-SEM in analysing this study data.

5.9.2 Assessment of Measurement Model

With the CB-SEM model, two (2) main parts are called the measurement and structural models (Hamid *et al.*, 2017: 2). The former refers to the outer model, which seeks to measure the model fitness using multiple fitness indices, and the latter refers to the inner model where the relationships between the constructs themselves are measured (Hair Jr *et al.*, 2014: 111-113). In exploratory research, researchers usually assess the validity and reliability of the measuring instrument before proceeding to assess the strength of relationships among indicators and constructs in an empirical model (Chan and Idris, 2017: 400). Chen *et al.* (2014:253), is of the view that exploratory factor analysis is simply a statistical approach used to explain variability in terms of a potentially smaller number of unnoticed constructs in determining their correlations. In other words, factor analysis for complex concepts is a powerful tool for examination and evaluation of variable relationships. Usually, exploratory factor analysis is performed when a researcher tends to establish patterns in the data where there is less or no knowledge on how the identified variables are correlated (Hair *et al.*, 2017:3-5).

There are several tests that can be used to determine validity. For example, according to Bartlett's test of sphericity (Bartlett 1950), small values below 0.05 indicate a high probability that there are significant relationships between the variables, whereas higher values (above 0.05) indicate that the data is inappropriate for factor analysis..

On the other hand, Cronbach's alpha is referred to as the objective measure for reliability (Garson, 2012; Hair *et al.*, 2006). Cronbach's alpha estimates reliability or coefficient of the internal consistency (Cooper and Schindler 2007) and is fundamentally based on the average correlation of variables within a group of items measuring a construct. In simple terms, it measures the internal consistency to determine how the variables are closely related as a set of items in a group. The reliability index ranges between zero ($\alpha=0$) to one ($\alpha=1$), indicating that a high alpha value means higher reliability (Chan and Idris, 2017: 400). In using the Likert scale

type of questions to measure constructs, researchers often adopt 0.7 Cronbach alpha as significant relative to the rule of thumb.

In a nutshell, Ab Hamid, Sami, and Sidek (2017: 2-3) opine that the construct validity and reliability test results provide a clear understanding of the quality measures employed for the reason that the relationship testing in the model structure needs to attain the degree of significance for satisfactory.

5.10 SUMMARY OF THE CHAPTER

This chapter has provided a detailed background on the research methodology approach employed when collecting field data for this research study.

The next chapter presents the empirical data analysis.

CHAPTER SIX

PRESENTATION OF THE EMPIRICAL DATA ANALYSIS

6.1 INTRODUCTION

The previous chapter highlighted the research methodology approach, philosophy, described instrument developed for data collection, and the software packages used to analyse the data. This chapter presents the empirical data analysis.

The object here is data analysis to establish the proposed model. Amos 24 and SPSS version 26 were used to conduct the statistical analysis, which had four stages. Stage 1 was the screening of the collected data to ensure clean, usable and valid for testing. Missing data, outliers and normality were all evaluated during the data screening stage to prepare the data for use. Stage 2 was the analysis of the descriptive statistics of the respondents' demographic characteristics. Stage 3 was assessing the measurement model. Stage 4 presented the results of the interrelationships between the constructs.

6.2 DATA PREPARATION

The first stage of data analysis is data preparation. Editing, coding, and data entry were all part of data preparation. Data processing, according to Cooper and Schindler (2008: 15-20), ensures that the process of translating raw data into forms appropriate for analysis is accurately executed. Coding, editing, outlier evaluation, and normality test are covered in the following sections.

6.2.1 Coding

Coding is the process of assigning numbers to the responses of respondents (Cooper and Schindler, 2008). Respondents' responses were coded so that they could be classified into a limited number of categories. Both pre-and post-coding techniques were used in this study. According to Hair *et al.* (2014), pre-coding is assigning a code during the questionnaire design. Post-coding is done when the respondents have already collected the data (Hair, Hult, Ringle, and Sarstedt, 2014: 15-21). In this study, all the questions except demographics and the few open-ended were a 7-point Likert scale with categories; (1) strongly disagree, (2) disagree, (3) somewhat disagree (4) neutral, (5) somewhat agree, (6) agree, and (7) strongly

agree. These codes were assigned during the questionnaire's development (pre-coding). After data collection, post-coding was done. Post-coding was used for the demographics. For example, after respondents had already given their answers, code one was assigned to the questionnaire's private property development sector item.

6.2.2 Editing

Data were edited to ensure that it was captured correctly, accurately, and consistently (Cooper and Schindler, 2008). Additionally, editing was performed to ensure there is no missing data (Cooper and Schindler, 2008). Missing data occurs when a respondent fails to answer one or more questions on the questionnaire (Hair *et al.*, 2010). During this process, it was discovered that 22 of the 217 responses were incomplete. The missing data in these 22 responses were from 55%, implying that 22 people did not respond to more than half of the questions on the questionnaire. According to Hair, Hult, Ringle, and Sarstedt (2017), if a respondent fails to answer 50% of the questions on a questionnaire, that questionnaire should be discarded. After removing the 22 incomplete responses, the sample size of this study was not statistically affected; it was still more remarkable than the required minimum of at least 10 times the maximum number of indicators of the construct with the most indicators as recommended by (Hair *et al.*, 2017). As a result, the 22 incomplete responses were removed in order to avoid creating any artificial relationship between the model variables.

6.2.3 Evaluation of outliers

An outlier is a significantly higher or lower value than the rest of the cases (Pallant, 2010: 34-37). The SPSS's Mahalanobis distance was used to detect outliers in this research. A new variable (mah_1) was created in SPSS and compared to the critical value, which determined the upper and lower bounds of a confidence interval. An outlier is classified as a mah_1 greater than the critical value (Pallant, 2010: 34-37). Two cases were identified as outliers in this study. The responses were double-checked to ensure that they were correctly captured. It was discovered that there were some errors in data entry such as double-entry and they were corrected through visual checking.

6.2.4 Normality test

The degree to which the distribution of the sample data corresponds to a normal distribution is referred to as normality (Hair, Black, Babin, and Anderson, 2010: 43-47). The SPSS's skewness and kurtosis measures were used to assess data normality. These two main indicators are referred to the shape of the distribution and can be applied to both interval and ratio scale data (Pallant, 2010). Kurtosis and skewness are zero for perfectly normal distributions (Hair *et al.*, 2014: 16-21; Pallant, 2010). Positive skewness indicates a greater number of smaller values, whereas positive kurtosis indicates a more peaked distribution than normal (Hair, Risher, Sarstedt, and Ringle, 2019: 3). Negative values for skewness and kurtosis indicate a flatter distribution and a greater number of larger values respectively. Descriptive statistics were also scrutinized for signs of normality. Skewness should be between -3 and +3 (Hair *et al.*, 2017; Pallant, 2010). The study results presented in appendix 5 show that every measured variable was within the acceptable range of the cut-off points of Skewness -3 and +3 and Kurtosis < 10 recommended by Pallant (2010). Therefore, the data follow the normal distribution curve.

6.3 DESCRIPTIVE STATISTICS

The demographics of the respondents are very important in this study because they provide the reader with a clear picture of the commercial property developers and investors who participated. First, the distribution of these demographic characteristics will be examined. Respondents were given a total of 250 questionnaires. A total of 217 questionnaires were collected out of the 250 distributed, representing an impressive 87% return rate. However, 22 of the 217 questionnaires collected were incomplete. This implies that 195 commercial property development investors took part in this study.

6.3.1 Gender

The majority of the participants who took part in this study were males. Figure 6-1 depicts the gender distribution of participants in this study. As can be seen, 73% of the respondents were males, while 27% were females.

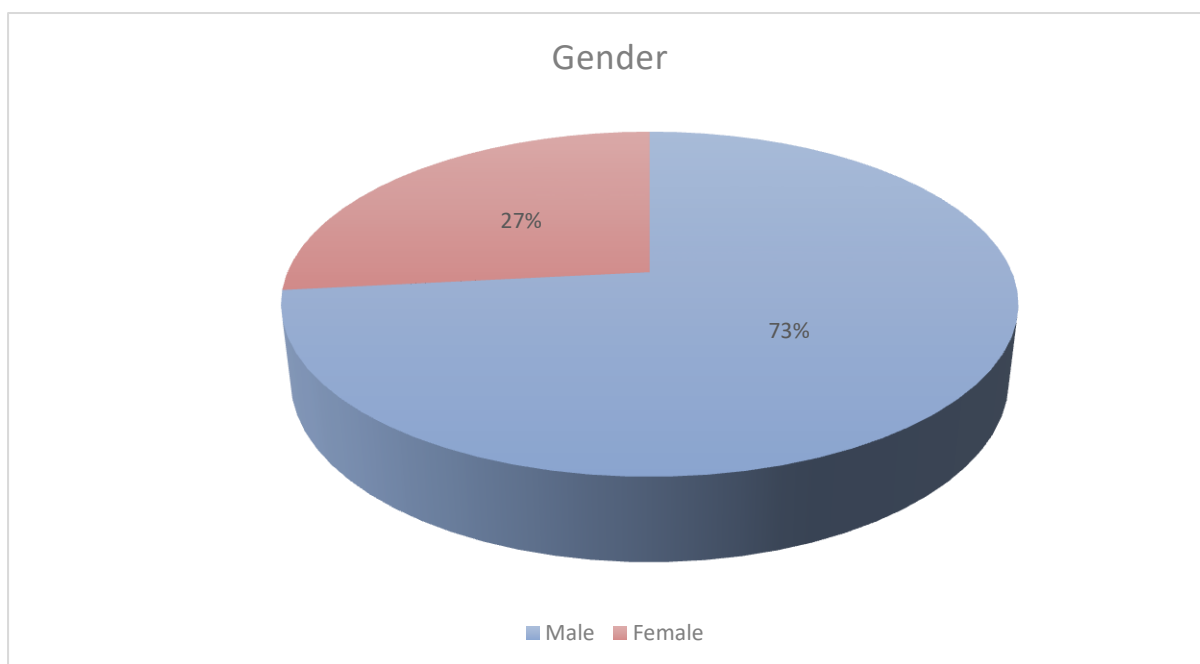


Figure 6-1: Gender Distribution

6.3.2 Age Grouping

The respondents' ages were classified into five groups based on the economic categorisation of active groups of the economy. The age distribution of participants is depicted in Figure 6-2. The youngest age group ranged from 18 to 35 years old, while the oldest was over 66 years old. Figure 6-2 shows that 10% (20Nr) of the respondents belong to the age group ranging from 18 to 35 years old, 15% (29Nr) falls between 66 years, and above, 21% (42Nr) are between 36 and 45 years, 25% (48Nr) are between 56 and 65 years while 29% (56Nr) are between 46 and 55 years old category. From Figure 6-2, it can be seen that most respondents in this study were between 46 and 55 years of age. This may indicate that the active age group of the study respondents is between 46 and 55 years category respectively.

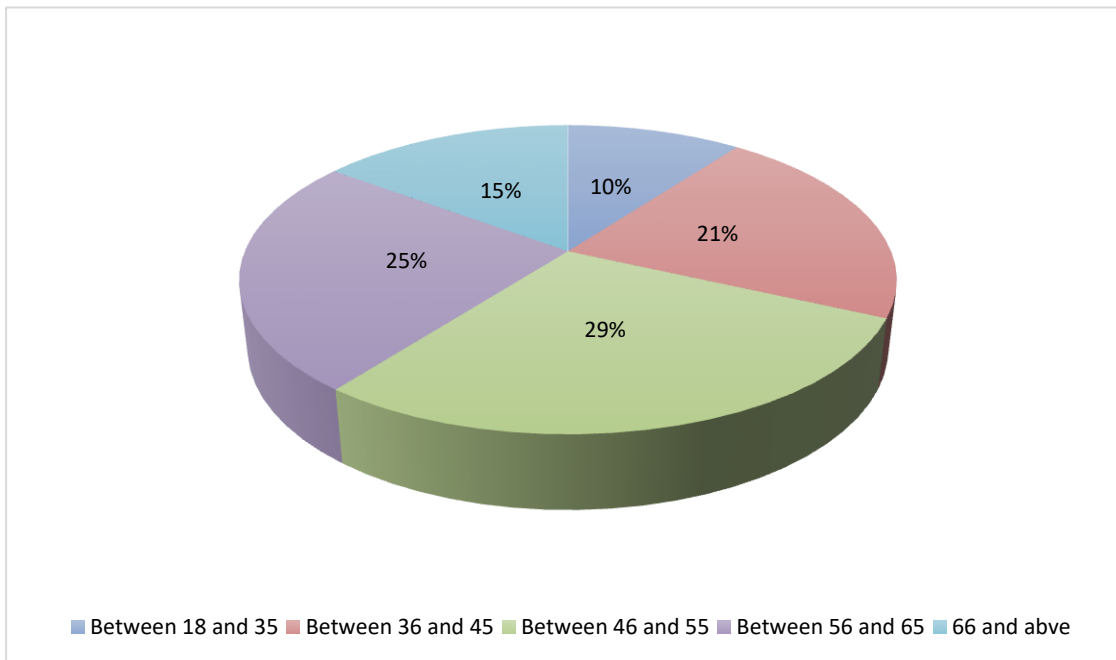


Figure 6-2: Age Grouping Pie Chart

6.3.3 Respondents’ Professional Qualification Level

In this section of the study, participants were asked to indicate their highest professional qualifications, and the results are presented in Table 6-3.

Table 6-3: Respondents Professional Qualification Level

	Frequency	Percent	Cumulative Percent
None	67	34.4	34.4
Certificate	45	23.1	57.4
Diploma	40	20.5	77.9
Degree	35	17.9	95.9
Post-graduate	8	4.1	100
Total	195	100	

The results in Table 6-3 show that 34.4% (67Nr) of the respondents did not have any related professional qualifications. Out of the 65.6% of the respondents who reported having related professional qualification, 23.1% (45Nr) had a professional certificate, 20.5% (40Nr) had a professional diploma, 17.9% (35Nr) had a related professional degree, and 4.1% (8Nr) had a post-graduate. This means that a huge number of respondents (34.4%) are less professionally qualified to practice.

6.3.4 Property Development Sector

The question in this theme sought to identify the various commercial property development projects respondents have engaged in over the years. Figure 6-4 shows that 81% (158Nr) have engaged in private commercial property development projects, while 19% (37Nr) of the respondents indicated their involvement in the commercial property public-private partnership projects. None of the respondents indicated his/her engagement in public sector commercial property development projects. The results may imply that majority of respondents were engaged in private commercial property development projects. In addition, the results may indicate that public-private partnership has not been encouraged in the commercial property development industry in Ghana over the years.

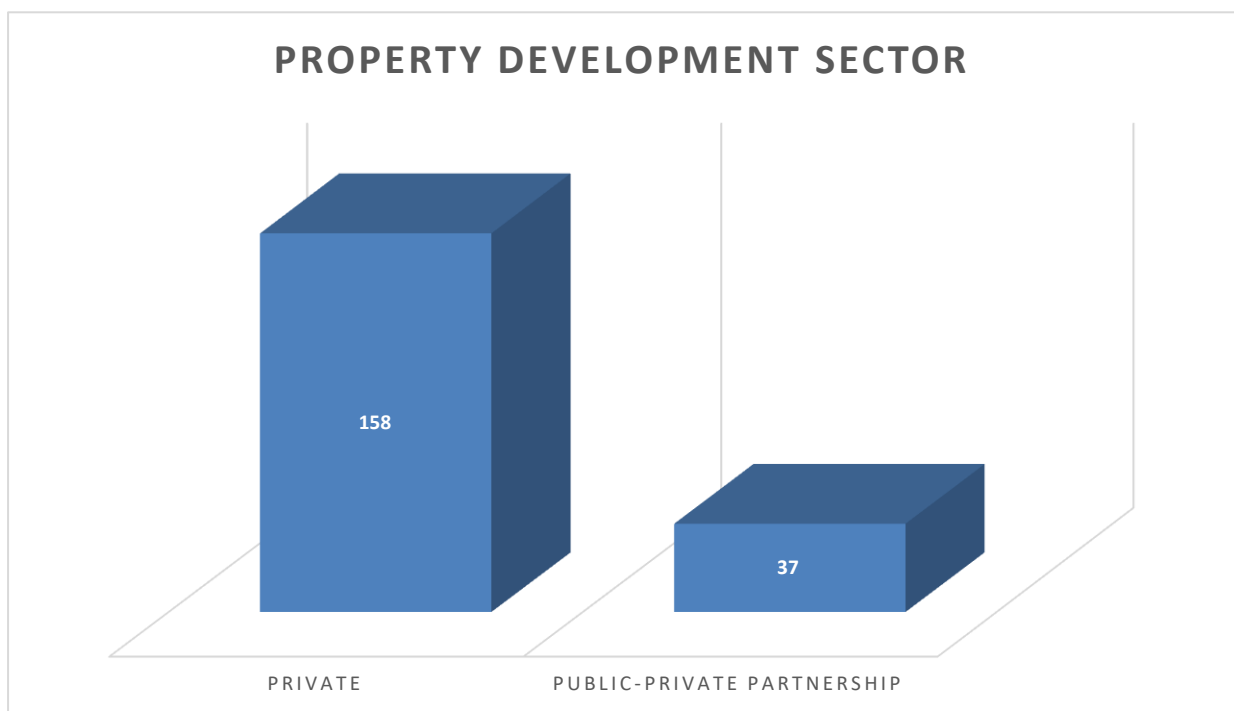


Figure 6-4: Property Development Sector

6.3.5 Years of experience in commercial property development projects

This question sought to determine respondents' years of experience in the commercial property development industry. Respondents were asked to indicate the number of years they had been involved in commercial property development projects, and the results are shown in Figures 6-5. The number of years a respondent has worked on commercial property development projects is critical for

this study. This may help the researcher to solicit the various factors that influence the viability of commercial property development and investment projects.

Figure 6-5 shows that 10.2% (20Nr) of respondents had 5 or fewer years of experience in commercial property development and investment projects. Exactly 31.3% (41Nr) respondents had 6 to 10 years of experience in commercial property development and investment projects. Approximately 28.2% (55Nr) respondents had 11 to 15 years of working experience. The percentage number of respondents who stated they had 16 to 20 years of experience was 25.6% (50Nr). Only 14.9% (29Nr) respondents reported having 21 or more years of experience in commercial property development and investment projects. This implies that the study received attention from more respondents who have more working experience and that their inputs could be relevant in achieving the study's objectives.

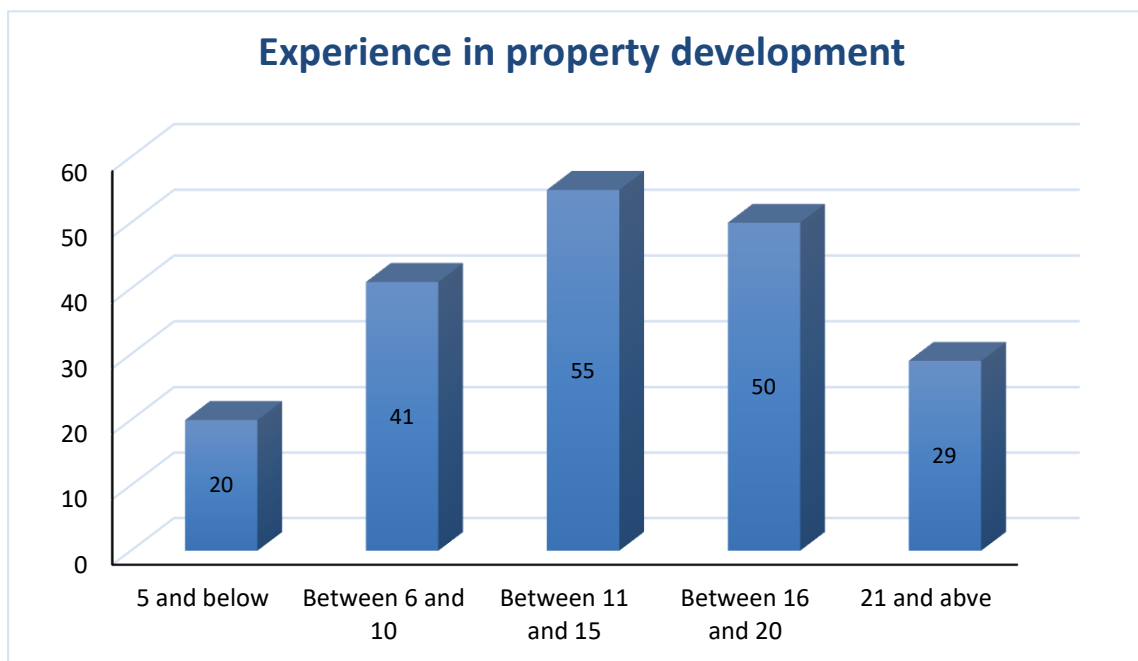


Figure 6-5: Experience in Commercial Property Development

6.3.6 Category of the Commercial Property Development

Respondents were asked to identify the category/type of commercial property development they had been mostly involved in over the last five years. Figure 6-6 depicts the outcomes. Figure 6-6 shows that 2.0% (4Nr) of the respondents were involved in the shopping mall development over the last five years. 34.8% (66Nr) of the respondents expressed that they were mostly involved in office development for the past five. Forty-one (22.5%) revealed that there were rather involved in the hotel

and guest house development. Finally, the majority of respondents (43.0% (84Nr) disclosed that they were involved in the development of residential flats. Therefore, the results indicate that most of the respondents have been mostly involved in the residential flats development project category over the last five years.

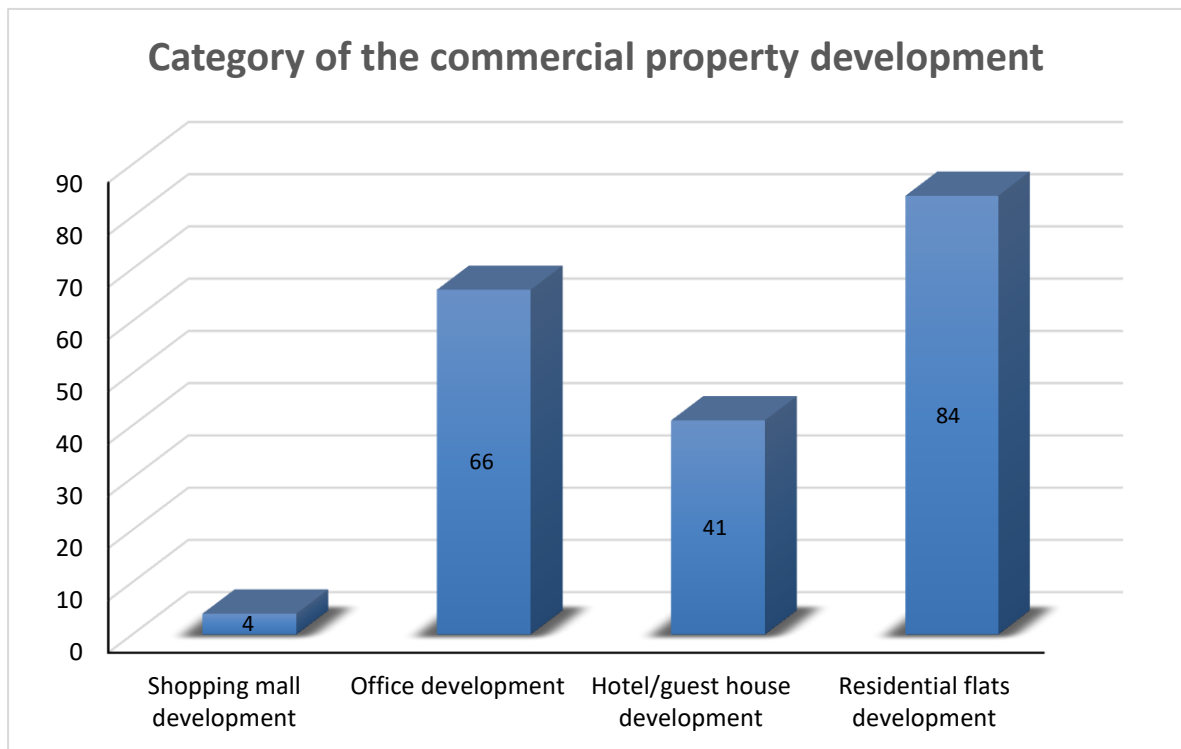


Figure 6.6: Category of the Commercial Property Development

6.3.7 Professional Association

Respondents were asked to identify the professional association they are affiliated with. According to the results shown in Figures 6-7, 85.6% (167Nr) belonged to the Ghana Real Estate Developers Association (GREDA). Ten (10Nr) of the respondents, which represented 5.1%, disclosed that they belonged to the Ghana Institution of Surveyors (GhIS), while 9.2% (18Nr) indicated that they did not belong to any professional organization. The results show that most of the respondents belong to the GREDA.

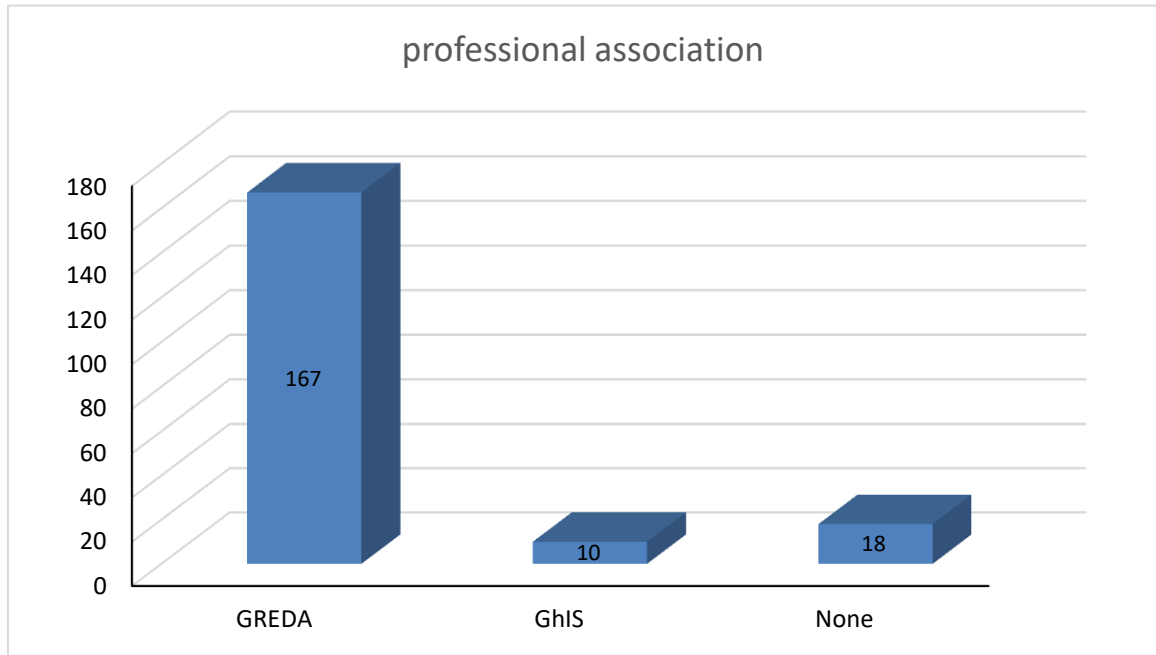


Figure 6-7 Professional association

6.4 DESCRIPTIVE STATISTICS AND RELIABILITY OF THE INSTRUMENT

As stated earlier, the total number of completed responses was 195. All 195 completed responses were used for the statistical analysis, and the descriptive statistics of all indicators are shown in Table 6-8. Cronbach's alphas were used to assess the instrument's internal consistency reliability. Cronbach's alpha is determined by the average correlation between the items on a scale. The Cronbach's alpha coefficient of 0.7 or greater indicates acceptable internal consistency reliability (Hair *et al.*, 2017). Table 6-8 therefore shows a Cronbach's alpha coefficient between 0.727 to 0.931 respectively. This indicates that the instrument demonstrates adequate levels of internal consistency reliability.

Table 6-8: Cronbach's Alpha coefficient

Constructs	No. of Items	Cronbach's Alpha
Real Estate Trends & Cycles		0.797
Construction Project Management		0.895
Governance Structures		0.750
Outside Advice & Mentorship		0.850

Spatial Development		0.727
Strategic Factors		0.910
Business Skills Set		0.804
General Management		0.801
PESTEL Analysis		0.851
PMBOK		0.875
Financial Feasibility & Practical Viability Considerations		0.911
Professional Feasibility & Viability Reporting		0.841
Perceived Successful Risk Management		0.931

6.5 Exploratory Factor Analysis on Factors that Influence CPDI Projects

Exploratory Factor Analysis (EFA) of factors that influence commercial property development and investment projects was presented in table 6-9. The EFA employed Principal Component Analysis (PCA) and varimax with Kaiser Normalisation as the extraction and rotation methods. The study analyse the thirteen (13) different constructs exploratively and saved the factor scores to create composite measure for model assessment and estimation of the relationship between the factors that influence commercial property development and investment projects.

Preceding to the EFA, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity was performed. From table 6-9, the test results for KMOs greater than 0.70 (recommended minimum value of KMO) according to Hair Jr et al., (2010), thus, sampling adequacy established. The Bartlett's test of sphericity recorded chi-square values substantially high with corresponding p-value < 0.05, indicating significant factorability of the correlation matrix. There were possible correlation among the indicators which meant there exist accurate factor(s) from the indicators and justification to proceed with EFA according to (Field, 2009).

The next diagnosis assessment was the extraction thus, communalities extracted which helped to decide the indicators contribution to the EFA model and to decide which variable to retain and which to remove (Field, 2009). According to (Field, 2009; Hair et al. 2014), a significant indicator should yield eigenvalue not less than

0.50 at extraction. The communality values recorded for the indicators were high; minimum eigenvalue > 0.50. This suggested the extracted communalities values supported the utilisation of factor analysis in the indicators.

The total variance explained was also presented in Table 6-9. It shows unidimensional components for all the constructs. Also, the total variance explained by the single extracted factors accounted for between 58.20% and 82.85%, more than half of the data were presented.

Table 6-9: Exploratory Factor Analysis on Factors that Influence CPDI Projects

Items	CE	EC	KMO	Bartlett's Test of Sphericity			Total Variance Explained			Cronbach's Alpha
				χ^2 -value	df	p-value	Total	% of Variance	Cumulative %	
OT1	0.832	0.912	0.639	208.637	3	0.000	2.154	71.785	71.785	0.797
OT2	0.672	0.820								
OT3	0.650	0.806								
PM1	0.801	0.895	0.743	352.772	3	0.000	2.485	82.847	82.847	0.895
PM2	0.826	0.909								
PM3	0.858	0.926								
SP1	0.511	0.715	0.642	226.862	6	0.000	2.328	58.210	58.210	0.750
SP2	0.638	0.799								
SP3	0.615	0.784								
SP4	0.564	0.751								
BM1	0.625	0.790	0.632	637.453	6	0.000	2.813	70.336	70.336	0.850
BM2	0.681	0.825								
BM3	0.758	0.871								
BM4	0.749	0.866								
GM1	0.632	0.795	0.680	117.991	3	0.000	1.941	64.715	64.715	0.727
GM2	0.629	0.793								
GM3	0.680	0.825								
GS1	0.668	0.817	0.890	826.842	21	0.000	4.553	65.044	65.044	0.910
GS2	0.616	0.785								
GS3	0.638	0.799								
GS4	0.562	0.749								
GS5	0.724	0.851								
GS6	0.676	0.822								
GS7	0.670	0.818								
CP1	0.688	0.830	0.710	189.248	3	0.000	2.166	72.188	72.188	0.804
CP2	0.740	0.860								
CP3	0.738	0.859								
RC1	0.651	0.807	0.686	192.927	3	0.000	2.153	71.756	71.756	0.801
RC2	0.715	0.845								
RC3	0.787	0.887								
SF1	0.790	0.889	0.688	277.337	3	0.000	2.316	77.189	77.189	0.851
SF2	0.847	0.920								
SF3	0.679	0.824								
PS	0.647	0.804	0.789	411.518	6	0.000	2.913	72.829	72.829	0.875
PS2	0.773	0.879								

PS3	0.802	0.895								
PS4	0.692	0.832								
FF1	0.732	0.855	0.830	563.065	6	0.000	3.184	79.592	79.592	0.911
FF2	0.768	0.876								
FF3	0.844	0.919								
FF4	0.839	0.916								
PF1	0.717	0.847	0.750	348.001	6	0.000	2.733	68.323	68.323	0.841
PF2	0.685	0.828								
PF3	0.766	0.875								
PF4	0.565	0.752								
EE1	0.868	0.932	0.874	926.844	10	0.000	3.945	78.892	78.892	0.931
EE2	0.505	0.711								
EE3	0.859	0.927								
EE4	0.822	0.907								
EE5	0.890	0.943								

CE: Communalities Extraction; EC: Extracted Component; KMO: Kaiser-Meyer-Olkin
Measure of Sampling Adequacy

6.6 MEASUREMENT MODEL ASSESSMENT AND TEST OF RELATIONSHIP

6.6.1 Fit Indexes of the Model

Fit indexes present a baseline to evaluate and establish an acceptable model that fit the data (Cheung and Rensvold, 2002). Once the model was acceptable, it becomes imperative to establish the strength and significance of the model path (Raykov, 2005). However Cheung and Rensvold (2002), added that, significant fit indices do not guarantee a strong relationship between the independent and the dependent variables in the model.

In a model fit evaluation, Hair *et al.*, (2013), Kline, (2010) and Byrne, (2006) recommended for the use of several criteria that include both incremental and absolute fit indices as complement to the chi-square test. Accordingly, the study used a combination of indices including the Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Normed Fit Index (NFI), and Non-normed Fit Index (NFI) from incremental category of fit indices, as well as the Standardised Root Mean Square (SRMS) and Residual Mean Square Error of Approximation (RMSEA) from the absolute category of model fit assessment.

Comparative Fit Index (CFI) was chosen because of its capacity to represent fit across all sample sizes and evaluate the reduction in non-centrality (Iacobucci, 2010; Lei and Wu, 2008; Bentler, 2005). The use of numerous indices allows for easier identification and elimination of biasness that comes with single index techniques (Kline, 2010; Lei and Wu, 2008). The chi-square test is a good measure of fit, but

sample size affects the accuracy of its probability results (Lacobucci, 2010; Byrne, 2010; Kaplan, 2006). In this model, the Satorra-Bentler scaled chi-square (S-B χ^2) was chosen as a metric to deal with the chi-square's sensitivity of sample size (Lacobucci, 2010; Kline, 2010; Kaplan, 2009). This helps to develop a composite model that can fit the purpose of the study.

From table 6-10, the study utilized absolute fit indices, incremental fit indices and parsimony fit indices to establish the fitness of the model (Hair *et al.*, 2010). The various indices employed among others were the chi-square (χ^2/df), the incremental indices; CFI, TLI, NFI, IFI) and RMSEA.

The ratio of chi-square and degree of freedom (χ^2/df) of 1.217 < 3.0 was considered good fit. According to Hair *et al.*, 2010 chi-square (χ^2/df) value < 3.0 was good fit and < 5.0 was acceptable fit, hence the NFI fit well.

From the results table 6-10, CFI value of 0.990 > 0.95, IFI value of 0.992 and NFI value of 0.958 and TLI had value of 0.943; all were within the acceptable range and hence the model fitness was good. These values were above the cut off criteria recommended by Hooper, Coughlan and Mullen (2008).

The RMSEA was considered the most important informative indices due to its sensitivity to the number of parameters in the model (Hooper, Coughlan and Mullen, 2008). The recommended value of RMSEA < 0.08 was considered acceptable and RMSEA < 0.05 was considered good fit. From the results (showing on table 6-10), the value of RMSEA was 0.003 < 0.05, within the good fit and the RMSEA range 0.000 and 0.082 and therefore the results suggesting a good fit.

Table 6-10: Fit Indexes of the Composite Model

Model Fit Indices	Threshold/Values	Estimates	Comment
p-value of χ^2	p-value > 0.05 (good fit)	0.000	Sensitive to sample size > 200
S-B χ^2		15.821	-
Df		13	
Chi-square (χ^2/df)	< 5 (acceptable fit); < 3 (good fit)	1.217	Good fit
Comparative Fit Index (CFI)	> 0.90 (acceptable fit); > 0.95 (good fit)	0.990	Good fit
Incremental Fit Index (IFI)	> 0.90 (acceptable fit);	0.992	Good fit

	> 0.95 (good fit)		
Normed Fit Index (NFI)	> 0.90 (acceptable fit); > 0.95 (good fit)	0.958	Good fit
Tucker Lewis Index (TLI)	> 0.90 (acceptable fit); > 0.95 (good fit)	0.943	Good fit
Root Mean-Square Error of Approximation (RMSEA)	≤ 0.08 (acceptable fit); ≤ 0.05 (good fit)	0.003	Good fit
RMSEA 90% CI		[0.000,0.082]	Acceptable fit range

6.6.2 Statistical Significance of Parameter Estimate

Table 6-10 presented the results for the parameter estimate which was a requirement according to Musonda, (2013) and Raykov et al. (1991:501) to examine the factor loadings (parameter coefficients), standard errors and the test statistics. The results revealed high factor loadings, high Critical Ratio (CR) > 1.96 with corresponding P-values < 0.001 on table 6-11. This shows that estimates are considered reasonable and statistically significant.

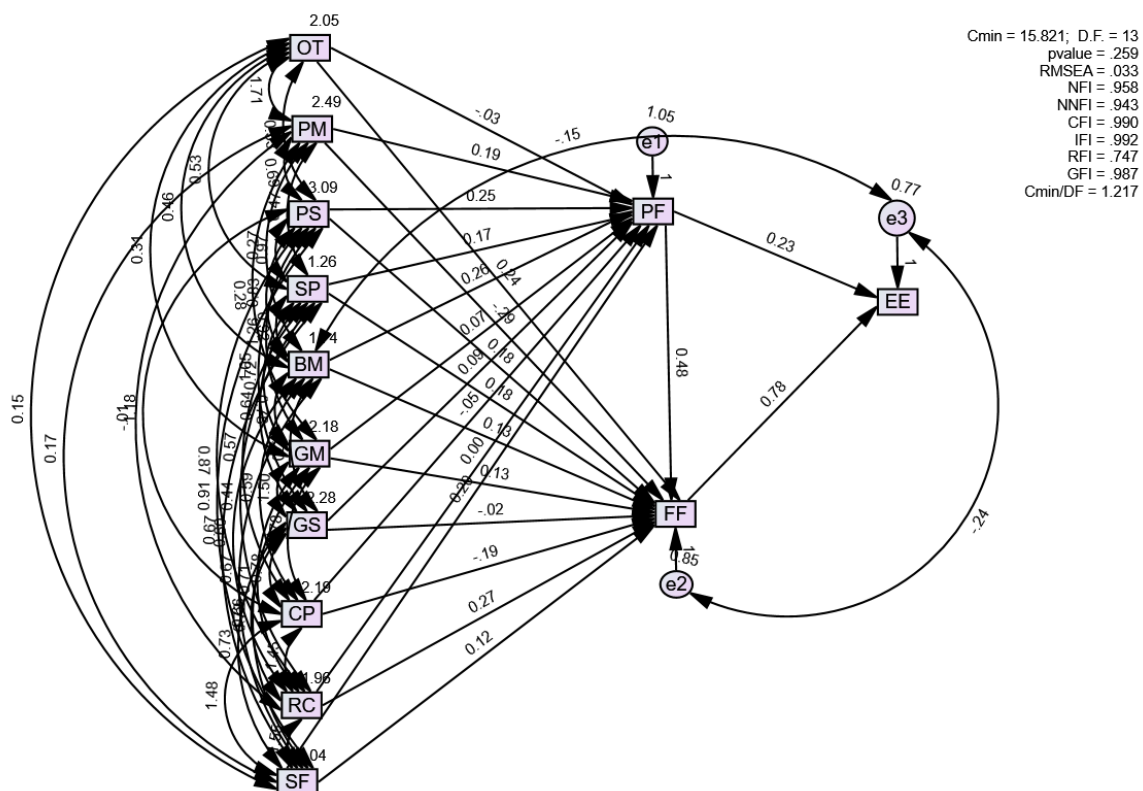


Figure 6-8: Composite Model for CPDI Risk Management

Table 6-11: Test of Significance of the Variables in the Model

			Unstd Estimate	Coefficie nt	S.E.	C.R.	P
PM	--->	PF	0.192	0.197	0.074	2.601	0.009
PS	--->	PF	0.254	0.290	0.055	4.597	0.000
BM	--->	PF	0.260	0.223	0.075	3.476	0.000
SF	--->	PF	0.200	0.186	0.092	2.185	0.029
OT	--->	PF	-0.030	-0.028	0.084	-0.355	0.723
GM	--->	PF	0.068	0.065	0.074	0.922	0.356
CP	--->	PF	-0.046	-0.044	0.079	-0.584	0.559
RC	--->	PF	0.002	0.002	0.092	0.025	0.980
SP	--->	PF	0.167	0.122	0.096	1.733	0.083
GS	--->	PF	0.092	0.090	0.069	1.330	0.183
OT	--->	FF	0.237	0.196	0.072	3.271	0.001
PM	--->	FF	-0.288	-0.263	0.065	-4.437	0.000
PS	--->	FF	0.183	0.186	0.050	3.643	0.000
SP	--->	FF	0.179	0.117	0.084	2.123	0.034
GM	--->	FF	0.130	0.111	0.063	2.048	0.041
CP	--->	FF	-0.188	-0.161	0.068	-2.771	0.006
RC	--->	FF	0.271	0.220	0.079	3.426	0.000
SF	--->	FF	0.119	0.098	0.080	1.490	0.136
PF	--->	FF	0.478	0.426	0.064	7.483	0.000
BM	--->	FF	0.130	0.100	0.069	1.877	0.061
GS	--->	FF	-0.017	-0.015	0.059	-0.292	0.770
PF	--->	EE	0.232	0.208	0.088	2.650	0.008
FF	--->	EE	0.775	0.780	0.094	8.222	0.000

The study has established model fitness and proceeded to evaluate the path coefficients model to establish the relationship among composite variables. Evaluation of the composite model was not limited to its goodness of fit rather the feasibility of the model from the established solutions; statistical significance of the parameters, statistical test and standard errors Raykove (1991:501, Aigbavbo, 2014).

Flowing from table 6-11, the hypothesed model constituted three endogenous variables; financial feasibility & practical viability considerations, professional feasibility & viability reporting and perceived successful risk management for commercial property development and investment projects.

The results in table 6-11 shows that there is a significant relationship existing between

professional feasibility & viability reporting and the following factors; spatial development, business skills set, PESTEL analysis and PMBOK. This is based on their respective coefficient, critical ratios and p-values obtained (coefficient = 0.186,

critical ratio = 2.185 and p-value < 0.05); (coefficient = 0.223, critical ratio = 3.476, p-value < 0.05), (coefficient = 0.290, critical ratio = 4.597, p-value < 0.05) and (coefficient = 0.197, critical ratio = 2.601 & p-value < 0.05) respectively. The remaining factors; outside advice & mentorship, general management, construction project management, real estate trends & cycle, PESTEL analysis and governance structures had insignificant relationship with professional feasibility & viability reporting.

The results show that, seven (7) of the factors had statistically significant relationship with financial feasibility & practical viability considerations having p-values < 0.05. These variables were; outside advice & mentorship, general management, construction project management (negative relationship), real estate trends & cycle, PESTEL analysis and, PMBOK (negative relationship), professional feasibility & viability reporting and spatial development. The remaining factors had no significant relationship with financial feasibility & practical viability considerations, p-values > 0.05.

The results demonstrate that there is statistically significant relationship between professional feasibility & viability reporting, perceived successful risk management for commercial property development and investment projects and also between financial feasibility & practical viability considerations and perceived successful risk management for commercial property development and investment projects concurrently.

6.7 SECTION D QUESTIONS ANALYSIS

Section D part of the questionnaire contained 4 questions. Out of the 195 questionnaires accepted, the following observations were made in terms of the answers provided in the section D part; all the 195 respondents answered question 1, Twenty-Eight (28) answered question 2, One Hundred and Ninety-Five (195) answered question 3 and Fifty (50) respondents answered question 4. The analyses of the questions (*italized*) are shown below.

6.7.1 Question 1

Why do commercial property developers and investors incur losses in CPDI projects? As stated above, the total number of respondents (195) answered this question, and those responses were viewed into four (4) themes as shown in Table 6-12.

Table 6-12: Reasons why developers and investors incur losses

Response Categorisation	No. of Respondents	Response Rate %
Because there is a low rate of property sales and rent patronisation due to the high cost of development.	30	15
Because there is a high cost of borrowing (loans/mortgages).	22	12
Developers and investors lack proper financial feasibility analysis	75	38
Developers do not employ built environment professionals to manage their projects for them.	68	35

Table 6-12 results have revealed that 38% (75Nr) of the respondents believe that lack of proper financial feasibility analysis causes losses in CPDI projects. Other respondents who constituted 35% (68Nr) also reported that developers' failure to employ built environment professionals to manage CPDI projects contributes into projects losses.

6.7.2 Question 2

What do you usually do to manage risks in property development processes? Twenty-Eight (28) respondents answered this question. The rest of the rest of respondents either left the space **blank** or wrote **not applicable** on the space provided. Twenty-Five (25) of the respondents indicated that they use their equity or borrow fewer amounts from the financial institutions to finance projects as a way to manage risks, while 3 respondents indicated that they manage risks by employing qualified and experienced construction projects managers to manage their development projects for them.

6.7.3 Question 3

Do you usually conduct feasibility and financial studies as a developer before making a development decision? (Yes/ No/Not applicable). Table 6-13 illustrates the responses given by the respondents.

Table 6-13: Feasibility and Financial Analysis

Response	No. of Respondents	Response Rate (%)
Yes	50	26
No	55	28
Not Applicable	90	46

Table 6-13 results depict that 46% (90Nr) of the respondents chose *not applicable* to question 3, which may imply that they were not aware of the importance of feasibility and financial analysis in commercial property development projects. Twenty-Eight percent (28%) of the respondents indicate that they did not conduct feasibility and financial analysis before embarking on commercial property development projects. However, 26% (50Nr) of the respondents expressed that they usually conducted feasibility and financial studies before making a development decisions. These results show that a few number of respondents usually undertook feasibility and financial studies in their operations.

6.7.4 Question 4

If you provide Yes answer to question 3 above, do you prefer a professional consultant to conduct feasibility and financial studies/reports for you? (Yes/No).....

Fifty respondents answer question 4. Thirty (30) of the respondents answered *Yes*, indicating that they preferred professional consultants to do feasibility and financial analysis reports for them and, 20 answered *No*, meaning that they did not prefer consultants to conduct feasibility and financial studies for them.

6.8 SUMMARY OF THE CHAPTER

This chapter described how data were first prepared before being analysed. SPSS was used to edit the collected data. Next, data screening was carried out by looking for missing data, outliers and normality tests. After data preparation, Amos 25 with covariance-based (CB) SEM was used to perform data analysis.

The next chapter presents the discussions and the interpretations of the results.

CHAPTER SEVEN

DISCUSSIONS AND INTERPRETATIONS OF THE EMPIRICAL FINDINGS

7.1 INTRODUCTION

The previous chapter provided a systematic process through which the field data was analysed. It mentioned and showed how the various statistical software packages were used to analyse the data to establish relationships. This chapter addresses the discussions and interpretations of the primary empirical results discovered in chapter six. Empirical findings were evaluated based on the literature review.

This chapter has three sections; they include interpretations of the empirical findings, this study's theoretical model, and a summary of the chapter.

7.2 INTERPRETATIONS OF THE EMPIRICAL FINDINGS

This section explores the significant findings and relates them to the literature review to establish whether or not the secondary objectives outlined in chapter one were achieved. Figure 6-8 obtained in chapter six shows that the following 10 constructs; real estate trends & cycle (RC), construction project management (CP), governance structures (GS), outside advice & mentorship (OT), spatial development (SP), strategic factors (SF), business skills set (BM), general management (GM), PESTEL analysis (PS) and PMBOK (PM) were tested against the financial feasibility & practical viability considerations (FF) and professional feasibility & viability reporting (PF) as intervening variables. These two intervening variables were then measured against the perceived successful risk management for commercial property development and investment projects (EE). Figure 6-8 further shows how the relationships among the constructs are coordinated and linked to each other with their associated correlated values.

Under this section, each construct is interpreted and discussed by considering the p-value and critical ratio results obtained in tables 6-11 in chapter six. Results interpretation is that any p-value which is less than 0.05 provides an acceptance decision, whereas any p-value greater than 0.05 indicates rejection. For critical ratio, a value less than 1.96 represents rejection, and a value greater than 1.96 indicates

acceptance. Similarly, when the coefficient value of a variable is positive, a positive relationship is said to be established whereas a negative coefficient value signifies a negative relationship. The decision rules stated above were adopted (see table 6-11 for the values).

Hypotheses in this study were analysed below.

7.2.1 Real Estate Trends & Cycles

Real estate trends and cycles may be a factor to consider when assessing the viability of CPDI projects. This enhances innovation and creativity in the property development sector (Pwc Report, 2015:14). It is in this light that the current study examines this factor, and the following hypotheses below were tested:

H₁: There is a positive relationship between real estate trends/cycles and financial feasibility/practical viability considerations.

H₂: There is a positive relationship between real estate trends/cycles and professional feasibility/viability reporting.

According to Table 6-11 findings, **H₁** (shown on the table as RC—FF) results depict 0.000 as the p-value < 0.05 and 3.426 as the critical ratio. The results received affirm that the decision for the H₁ test was accepted. The positive relationship between real estate trends/cycles and financial feasibility/practical viability considerations could be inferred that a thorough search during the financial feasibility stage to establish and follow current real estate trends/cycles might increase the practical viability of CPDI projects. This study's finding supports the notion that the emerging real estate projects should be developed by using an innovative approach in order to meet current demands and that this helps in achieving the bottom-line goals to promote efficiency (Mills *et al.*, 2018: 24). For example, promoting efficiency in CPDI can determine the price that enables a project to become competitive in the market (Chatterjee *et al.*, 2018: 46). In this current study, real estate trends and the cycle can be identified as one of the factors that influence financial feasibility and practical viability considerations in CPDI projects.

Hypothesis 2 (**H₂**) was accepted with a p-value of 0.980 and critical ratio of 0.025, which indicates that there is positive relationship between real estate trends & cycles and professional feasibility/viability reporting (RC—PF) but statistically not significant

as far this study is concerned.. The reason might be that most of the respondents have not acquired professional qualifications in real estate development and investment management and, the rest have a low level related professional qualification which has made them not to acquire enough knowledge or become familiar with the various modern real estate trends/cycle (refer to table 6-3 for details of this finding). Meanwhile, real estate trends and cycles in this modern era are increasingly taking a unique dimension due to factors such as technology and human economic endeavours, according to Rogerson (2014: 234) and Freire, (2013:452-455).

7.2.2 PESTEL Analysis

PESTEL analysis was adopted as part of the theoretical model that could be employed to evaluate the viability of CPDI projects relative to risk assessment and risk management. The PESTEL could be viewed as a tool to carry out external environmental analyses when assessing opportunities and threats associated with business/project establishment (Zafar, Rajpoot and Khalid, 2014: 42-46; Jurevicius, 2013: 2). The two hypotheses (**H₃** and **H₄**) below were formulated and tested as a result of measuring PESTEL analysis relevant to the current study:

***H₃**: There is a positive relationship between PESTEL analysis and financial feasibility/practical viability considerations.*

***H₄**: There is a positive relationship between PESTEL analysis and professional feasibility/viability reporting.*

Table 6-11 findings indicate that the above two hypotheses were accepted with the highest p-value of 0.000 each. Again, the t-statistics value for PS-FF was 3.643, and PS-PF was 4.597. The results show that the two hypothetical statements were confirmed to be true based on the statistical decision rules.

The above findings suggest that proper assessment of legal requirements governing commercial property development processes such as a thorough search for land ownership and type of interest discussed in chapters two and three may be essential as part of the measures to address risk in CPDI projects. It can be ensured through the process of fulfilling all the institutional requirements before a real estate development project commences (The Real Estate Law Review Eighth Edition,

2019: 130). On the other hand, an economic indicator has a huge potential effect on commercial property development and investment projects (Kauškale and Geipele, 2017; Kauškale and Geipele, 2016:49). That is why Kauskale and Geipele (2016: 39) argue that economic problems affect the business environment. Mulliner, Malys and Maliene (2016: 146-149) also believe that housing affordability is a socio-economic requirement that improves the quality of life in every society. This could indicate that target clients/customers income level has to be considered when undertaking commercial property development for them.

Furthermore, the built environment is gradually influenced by the rapid and intensive creation of the use of information, knowledge and automation technologies as decision support systems (Kaplinski and Tupenaite, 2011: 170-172). Hence the introduction of technology into the built environment industry reduces cost, improves quality and adds value to the development process (Kaplinski and Tupenaite, 2011: 170-172; Kaplinski and Tupenaite, 2011:172).

The above findings corroborate the assertions made by Soriano Llobera and Roig Hernando (2015:35-38); Mulliner, Malys and Maliene (2016: 146-149). These authors point out that considerations such as innovations and the socio-economic life of people are necessary factors in real estate development. This can be implied that developers can not achieve their investment objectives if their products are not patronised by their target customers.

7.2.3 Governance Structures

Governance Structures (GS), according to Bennett and Dearden (2014:96-99), refers to the legal policies and requirements put in place by the state institutions to enhance effective physical development. A governance structure was identified as one of the theoretical factors that influence financial and professional feasibility in CPDI viability assessment. The two hypotheses which were set to test and measure GS in this current study were as follows:

H₅: There is a positive relationship between good governance structural factors and financial feasibility/practical viability considerations.

H₆: There is a positive relationship between good governance structural factors and professional feasibility/viability reporting.

Table 6-11 findings show that there is no positive relationship between governance structures and financial feasibility/practical viability considerations (GS-FF on table 6-11). The findings further indicate that governance structures do positively correlate with the professional feasibility/viability reporting (GS-PF) however it is statically not significant. The reasons were that the two hypotheses (**H₅** and **H₆**) produced p-values of 0.770 and 0.183, while their associated critical ratios were -0.292 and 1.330, respectively. Upon this basis, the decision rule of rejection was applied for the two hypotheses.

However, Cowling and Tomlinson (2011:840-843) argue that good governance structures play a vital role in the property development sector. In addition, other authors such as Darabi and Jalali (2019:100-104); Almagor, Benenson, and Czamanski (2018:93-97) support the view that flexible policies, including development permit acquisition, land title registration and low property tax rating, reduce the cost of property development projects. Over the years, evidence shows that the effective role of government in the real estate industry usually brings significant growth in the property development sector (Zhang, 2015:1-5).

The disparity between the findings of this current study and the literature might be due to a number of factors, such as respondents' lack of knowledge and understanding in governance structures relative to financial and professional feasibility concepts in commercial property development. Respondents' lack of understanding of financial feasibility and professional reporting could be confirmed and shown based on the results table and question 4 provided in chapter six. Therefore, this shows that there is a need to provide educational and consulting assistance to commercial property developers.

7.2.4 Outside Advice/ Mentorship

Sourcing for consultants' advice and establishing professional mentoring can help to improve quality and cost-efficiency in the property development process (De Janasz, Sullivan and Whiting, 2003: 82-83). Quality constraints may cause long term damage to the developer's reputation and any structural defect that requires financial and technical resources to rectify (Khalid *et al.*, 2018; Alaloul *et al.*, 2016). This motivated the researcher to include outside advice/mentorship as one of the factors to consider

and evaluate in the theoretical model of this study. The following hypotheses below were set to test outside advice/mentorship factor (OT):

***H₇**: There is a positive relationship between outside advice/mentorship and financial feasibility/practical viability considerations.*

***H₈**: There is a positive relationship between outside advice/mentorship and professional feasibility/viability reporting.*

Some of the key elements which were discussed under outside advice/mentorship in chapter three included the various functions of the real estate professional consultants (architects, construction project managers and property economists) and mentoring in real estate practices.

Based on table 6-11, findings show that p-value obtained for **H₇** (OT-FF) was 0.001, whereas the **H₈** (OT-PF) p-value was 0.723. The p-value obtained for **H₇** confirms that there is a positive relationship between outside advice/mentorship and financial feasibility/practical viability considerations. The **H₈** p-value obtained rather proves that there is no positive relationship between outside advice/mentorship and professional feasibility/viability reporting.

Mentoring today promotes developmental partnership where employees receive guidance, information and advice from experienced professionals, and this equip the project team to minimise construction practice cost and risk (Ghosh, Chasey and Mergenschroer, 2015; Ilieva-Koleva, 2015: 50). Hence the acceptability of **H₇** results in this study has proved the fact brought forward by Ghosh, Chasey and Mergenschroer (2015); Ilieva-Koleva (2015: 448). In addition, mentorship in business helps mentees acquire knowledge and technical skills in their field of operation (Ilieva-Koleva, 2015: 446; UK Business Mentoring Guide, 2011). The experts guidance gained through outside advisers (consultants) and mentoring may also help commercial property developers conduct efficient financial feasibility studies to improve project viability standards.

The results obtained for the **H₈** test, on the other hand is in reverse of the **H₇** test results. The reason why the outcome of **H₈** differs from **H₇** could be seemly linked to participants' inability to employ outside advice/mentorship vis-à-vis professional feasibility/ viability reporting in practices and operations. However, there is a need to

advise commercial property developers to seek outside advice and also encourage their project team members to seek mentors.

7.2.5 Spatial Development Factors

Under spatial development, literature was reviewed to cover factors such as location, population movement and the neighbourhood dynamics in chapter two. These factors are purported to influence the success of commercial property development and investment projects, according to Korah, Cobbinah and Nunbogu (2017:361-365). Hence the following two hypotheses were set and tested in order to measure spatial development:

***H₉**: There is a positive relationship between spatial development factors and financial feasibility/practical viability considerations.*

***H₁₀**: There is a positive relationship between spatial development factors and professional feasibility/viability reporting.*

Table 6-11 findings indicate that the critical ratio obtained is 2.123 and the p-value is 0.034 indicating an acceptance for **H₉** test results (SP-FF). This justifies that there is a positive relationship between spatial development factors and financial feasibility/practical viability considerations. The **H₁₀** test results (SP-PF) discovered that the critical ratio of 1.733 and p-value of 0.083 was obtained showing positive relationship. Such values demonstrate that there is significant relationship (at 10% level) between spatial development and professional feasibility/viability reporting and that acceptance decision rule is applied.

Hypothesis 9 (**H₉**) outcome agrees that many African countries do not have good spatial development systems to support commercial property development (Korah, Cobbinah and Nunbogu, 2017:361-365; Watson, 2009:2259-2262; Roy, 2005: 147-149). This poses a serious viability risk to the CPDI in most African countries, including Ghana. That is why Korah *et al.* (2017: 365-368) suggest that spatial planning and development in African urban areas need to go beyond the formal scheme planning preparation so that economic and social growth integration can be achieved.

Hypothesis 10 (**H₁₀**) results refute claims made by Owens and Cowell (2011). They assert that many countries across the globe formulate effective spatial planning and

land use layout purposely to establish governance systems that promote integrated and functional economic activities. The H_{10} results ought to be examined further through another research study so that the reasons why respondents agreed that there is no positive relationship between spatial development and professional feasibility/viability reporting can be established.

7.2.6 Strategic Factors

Strategic factors may be considered as factors many organisations need to succeed in achieving their set goals and targets (Daft, 2011: 350-351). Such factors may include effective marketing, partnership, strategic planning, and leadership. Besides, Strategic management can be simply described as the process of forming and executing the necessary evaluated changes that put an organisation on a competitive edge to achieve its long-term goals (Pournasir, 2013: 66). To achieve the optimum level of success in CPDI projects, strategic leadership and management are critical (Pournasir, 2013: 67-72; Daft, 2011: 350). For this reason, strategic factor(s) was identified as a construct to be assessed in this present study. The hypotheses stated for assessing strategic factors were as follows:

H_{11} : There is a positive relationship between strategic factors and financial feasibility/practical viability considerations.

H_{12} : There is a positive relationship between strategic factors and professional feasibility/viability reporting.

Table 6-11 reports that the above two hypotheses (SF-FF on the table represents H_{11} results and SF-PF represents H_{12} results) were tested positive (acceptance). Both hypotheses (SF-FF and SF-PF) were supported suggesting that there is a positive relationship between the two. The fact is that the fundamental strategy to achieve excellence is to employ strategic planning and leadership approach and this enables managers to envision the future (Setiawan and Yuniarsih, 2018: 63- 66; Lear, 2012; Daft, 2011: 350).

The study findings in this section, therefore, agree with the assertion made by Lear (2012); Setiawan and Yuniarsih (2018: 63- 66); Daft (2011: 350) when it comes to the way of ensuring sustainable growth in CPDI projects. In addition, the adoption and implementation of strategic factors such as effective marketing can be used as

an effective mechanism to enhance project viability (Goodwin and Stetelman, 2013: 93-96; Frost and Strauss, 2016).

7.2.7 Business Skills Set

The business skill set is one of the factors identified and examined in this study. It is suggested that property developers and the operation managers, such as construction managers and supervisors, are required to acquire business skill set so that they can improve their managerial competence. Financial management skills, technical skills, and negotiation skills are noted to be necessary in business management (Mamabolo, Kerrin and Kele, 2017:3-9; Zahra, Nouri and Imanipour, 2014: 43). Such skills level among the respondents was measured under one unit as a business skill set with the help of the following hypotheses:

H₁₃: There is a positive relationship between business skills set acquisition and financial feasibility/practical viability considerations.

H₁₄: There is a positive relationship between business skills set acquisition and professional feasibility/viability reporting.

According to table 6-11, the BM-FF test produced 1.877 as critical ratio with an associated p-value of 0.067, respectively. The BM-FF results indicate that there is a positive relationship between business skills set and financial feasibility/practical viability considerations. This particular result stands to oppose the view Mamabolo *et al.* (2017:3-9); Zahra *et al.* (2014: 43) expressed above. The difference which has surfaced between this current study results and the existing literature could be due to the respondents' lack of knowledge in some of the business management skills. This can be dealt with by offering basic business management programmes such as financial management to the developers and their project supervisors through education and training as the key interventions (Kirsten and Fourie, 2012: 460-465). It can be in the form of seminars and workshops.

However, the **H₁₄** test results (BM-PF) approved a positive relationship between business skills set and professional feasibility/viability reporting. The acceptance decision rule was based on the fact that BM-PF critical ratio and p-value (3.476 and 0.000) recorded on table 6-11 fell within the acceptance interval. The result obtained in this section confirms that property developers need a business skillset. Acquisition

of the skills will help the developers to perform some basic business management functions in managing losses (Kirsten, 2013: 826-827; Kirsten and Fourie, 2012: 460-465; Mohd *et al.*, 2010: 16-21). Furthermore, it may improve their reporting and management efficiency as well as helping to promote the progress of work (Kerzner, 2018; Bettinger, Boston, *et al.*, 2016).

7.2.8 General Management Skills

As stated earlier in chapter three, management is the act of planning, leading, and organising resources effectively and efficiently in achieving organisational goals (Tortorella and Fogliatto, 2014: 4625- 4629). General Management (GM) forms part of the property developer's activities in ensuring project efficiency. Hence it has been captured as one of the factors in the theoretical model purposely to assess respondents' GM ability level. Below are the two hypotheses tested under GM:

H₁₅: There is a positive relationship between the acquisition of general management skills and financial feasibility/practical viability considerations.

H₁₆: There is a positive relationship between the acquisition of general management skills and professional feasibility/viability reporting.

Table 6-11 results show that GM-FF measuring **H₁₅** has a 2.048 critical ratio and 0.041 p-values. The results (GM-FF) demonstrate that the GM factor has positive relationship with financial feasibility/practical viability. The results obtained in this section tend to agree with Agbim's (2013: 8) opinion, which states that management skills can be perceived to be a vital factor for organisational success at large (Agbim, 2013: 8).

However, GM-PF test results for **H₁₆** produces 0.922 critical ratio and 0.356 p-values. These results (GM-FF and GM-PF) demonstrate that the GM factor has positive relationship with professional feasibility/viability reporting but statistically insignificant. The results obtained in this section tend to agree with Agbim's (2013: 8) opinion, which states that management skills can be perceived to be a vital factor for organisational success at large (Agbim, 2013: 8). Kirsten (2013: 826) and Ihua (2010: 3-7) suggest that lack of management skills can lead to poor management decision-making.

7.2.9 Project Management Body of Knowledge (PMBOK)

Project Management Body of Knowledge (PMBOK) is the set of key knowledge areas used by the project management professionals as techniques to manage projects (PMBOK Guide, 2017; Liljedahl and Möller, 2014). These knowledge areas include project integration, scope, and risk management. Effective application of the knowledge areas may increase project efficiency. The associated hypotheses (**H₁₇** and **H₁₈**) on PMBOK were tested, and the results were presented in chapter six. The purpose was to establish whether the application of PMBOK in CPDI projects could have a positive relationship with financial and professional feasibility.

***H₁₇**: There is a positive relationship between the application of PMBOK and financial feasibility/practical viability considerations.*

***H₁₈**: There is a positive relationship between the application of PMBOK and professional feasibility/viability reporting.*

According to the hypotheses test results shown in table 6-11, PM—FF represents **H₁₇** measurement, and a p-value of 0.000 was obtained, which does not support the assertion that there is positive relationship between application of PMBOK and financial feasibility/practical viability considerations. This outcome signifies an area of research another researcher can carry out to determine why such results was obtained.

However, PM—PF that assesses **H₁₈** scored a p-value of 0.009 supported. The interpretation is that PM-PF results are in the acceptance category based on the decision rule was adopted for this study. This confirms that there is a positive relationship between PMBOK application professional feasibility/viability reporting. The findings discovered in this section corroborate that the project management discipline has gained remarkable attention over the years due to the increased number and size of projects carried out in many sectors (Desalegn, 2018: 10). Evidence shows that many modern organisations carry out their business activities by using the concept of project-based techniques (Kerzner, 2018; 134- 137; Muszynska *et al.*, 2015: 1360).

7.2.10 Construction Project Management

Construction is an important activity that needs effective and efficient management techniques to accomplish (Liljedahl and Moller, 2014: 2; Caputo, 2013: 65-67). One

of the factors the theoretical study model captures is construction project management since commercial property development is construction management related. Under this sub-topic, the four basic stages of construction project management were discussed under this sub topic and their efficient ways to ensure cost efficiency and construction resources management (refer to chapter 3). To measure and assess respondents' level of knowledge on effective construction project management delivery relative to practical viability and reporting, the following hypotheses were tested:

H₁₉: There is a positive relationship between effective construction project management delivery and financial feasibility/practical viability considerations.

H₂₀: There is a positive relationship between effective construction project management delivery and professional feasibility/viability reporting.

According to table 6-11, CP—FF scores 0.006 and 2.771 as p-value and critical ratio. This shows a rejection decision for **H₁₉** although it is statistically significant. The interpretation is that there is a negative relationship between construction project management delivery and financial feasibility/practical viability considerations. This finding contradicts the growing tendency of stakeholder groups to influence the implementation of the effective construction project management techniques to achieve the set investment goals (Azadi *et al.*, 2011: 785-788; Onkila, 2011:379-383). Hence this particular results may provide a path for a further research so as to establish the reason why CP-FF relationship shown negative.

The CP—FP results in table 6-11 recorded 0.559 as p-value and -0.584 as critical ratio. The two values indicate a rejection decision for **H₂₀**. This means that there is no positive relationship between construction project management delivery and professional feasibility/viability reporting. This finding could suggest that respondents lack a deep understanding of professional reporting standards on construction project management. Hence, González *et al.* (2015: 681-684) believe that the construction sector needs competent professionals.

7.2.11 Financial and Professional Feasibility/Viability

In this research study, financial feasibility/viability considerations and professional feasibility reporting were adopted as the two intervening variables for the purpose of

evaluating the chosen antecedent/independent variables against the dependent variable (the perceived successful risk management for CPDI projects). Financial feasibility analysis pertaining to commercial property development and investment according to this research is viewed as a combination of market and practical viability of consideration analyses that can be used to establish the validity or invalidity of a project after putting it on the reporting balance scale. Financial feasibility analysis needs to be supported with empirical market research even if the financial mathematics calculations conducted on the project prove feasible (Mintah, 2018). Botha (2013:29) defines viability analysis as an in-depth investigation conducted on the profitability of a business idea that can be converted into practical business practice.

Based on the submissions made above, the following hypotheses were set and tested:

***H₂₂**: There is a positive relationship between financial feasibility/practical viability considerations and the perceived successful risk assessment/risk management for CPDI projects.*

***H₂₃**: There is a positive relationship between professional feasibility/viability reporting and the perceived successful risk assessment/risk management for CPDI projects.*

Table 6-11 elaborates on the relationship results that exist between FF-EE, and PF-EE. The table shows that all the two variables associations (FF-EE, and PF-EE) obtained a p-value < 0.05. The interpretation is that **H₂₂**, and **H₂₃** tested positive, indicating the acceptance decision rule for the hypotheses. This finding proves that adequate financial and professional feasibility reporting on the CPDI projects helps to provide possible alternatives and thereby increase their viabilities (Koleda, and Oganisjana, 2015:196; Hui and Lau, 2011:22-24). It has been noted that economic dynamics usually affect commercial property development and investment sector (Kołodziejczyk, Mielcarz and Osiichuk, 2019: 301-304).

Table 6-11 further shows the detailed value scores obtained for critical ratios associated with the indirect relationships that exist between other study variables (independent variables).

7.3 THEORETICAL MODEL OF THIS STUDY

A conceptual model was first formulated for this research study in chapter 1 based on the researcher's experience and knowledge in the commercial property development and investment industry. The model was modified after the researcher conducted a mini-focus group discussion with the property development professionals during the pilot study period. The model constituted 10 antecedent variables, 2 intervening variables, and 1 dependent variable (see figure 1-3). Literature review was conducted on each variable in order to establish secondary facts for this research study.

After the field data was collected and analysed, it surfaced that all the ten (10) antecedent/independent variables were supported statistically. Though one of the independent variables (construction project management) tested negative, it was however statistically significant according to its critical ratios obtained in table 6-11 respectively. In addition, a review of literature conducted in this study supported that all the variables identified have influence on financial and professional feasibility.

Finally, figure 7-1 depicts a theoretical composite model product this study features.

Antecedent variables

Intervening Variables

Dependent variable

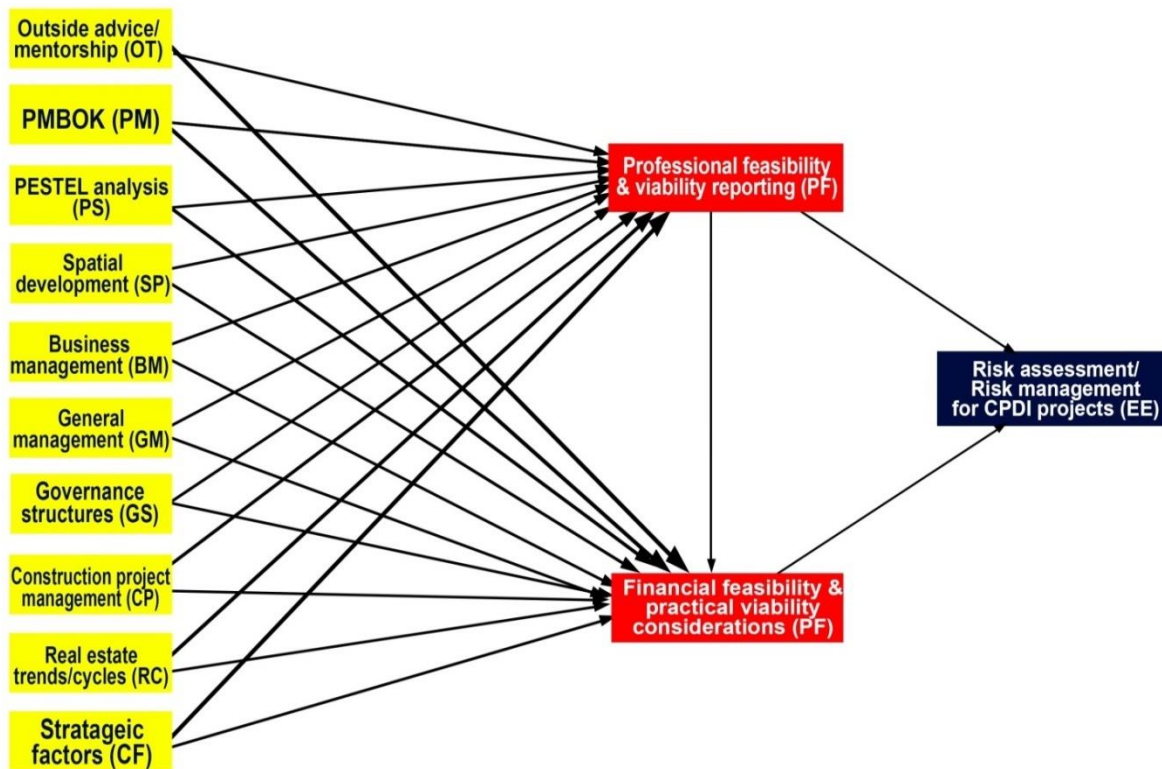


Figure 7-1: Risk Management Model for CPDI (Author's Own Construct, 2022)

After testing for the normality of the data, the above theoretical model (Figure 7-1) was developed based on the empirical data tested by applying SEM concept of analysis. This was done by testing all the ten (10) identified variables (outside advice, PMBOK, PESTEL analysis, spatial development, business management skills, general management, governance structure, construction project management, real estate trends/cycles and strategic factors) – antecedent variables against the two (2) intervening variables (professional feasibility/viability reporting and financial feasibility/practical viability considerations). According to this study, the assumption established as guiding principle was that the two intervening variables vice versal have positive relationship to the risk assessment/risk management in commercial property development and investment projects in Ghana (dependent variable).

Based on the results (according to table 6-11) captured in the development of this study theoretical model (Figure 7-1), it indicates the following below as far as the operation of this theoretical model is concerned:

- Real estate trends/cycle assessment has a positive relationship with financial feasibility and professional feasibility which eventually influence on the effective risk assessment/risk management in commercial property development and investment projects.
- PESTEL analysis has a positive relationship with financial feasibility and professional feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.
- The adoption of strategic factors has a positive relationship with financial feasibility and professional feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.
- Employing business management skills set has a positive relationship with financial feasibility and professional feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.
- General management skill set has a positive relationship with financial feasibility and professional feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.
- Outside advice/mentorship has a positive relationship with financial feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.
- Spatial development assessment has a positive relationship with financial feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.
- Governance structures assessment has a positive relationship with professional feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.

- Application of PMBOK has a positive relationship with professional feasibility which eventually has influence on the effective risk assessment/risk management in commercial property development and investment projects.

The above indications from the study's theoretical model suggest that commercial property developers and investors ability to do effective assessment on factors such as real estate trends/cycles, PESTEL analysis, strategic factors, business management skill set and general management skill set when conducting financial and professional feasibility tends to increase project viability which doubles as the way to assess and manage risks in commercial property development and investment projects respectively. These factors need to be understood, assessed, implemented and integrated into their risk assessment/risk management framework in order to achieve a successful commercial property development and investment product.

Secondly, developers' ability to inculcate the effective use of outside advice/mentorship and spatial development planning when undertaking financial feasibility studies can help to decrease or manage project risk.

Lastly, commercial property developers and investors ability to adopt and follow good governance structures/systems as well as employing Project Management Body of Knowledge (PMBOK) principles in their professional dealings can help to manage risks during their production process.

Hence the development of this study model (figure 7-1) is therefore recommended for adoption and use by commercial property developers and investors.

7.4 SUMMARY OF THE CHAPTER

This chapter provided a detailed roadmap of the study geared toward developing a risk management model for CPDI projects.

The next chapter presents the research conclusions, contributions and recommendations.

CHAPTER EIGHT

SUMMARY, CONCLUSIONS, CONTRIBUTIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

The previous chapter provided discussions and interpretations of the empirical findings. It led to the final level – presenting a risk management model for CPDI projects, as per the study aim. This chapter presents a summary, conclusions, contributions, and recommendations emanated as a result of this research.

8.2 SUMMARY AND SYNOPSIS OF THIS STUDY

This study sought to contribute to the body of knowledge on risk management in the commercial property development and investment industry in an attempt to address the losses incurred by the commercial property developers and investors in Ghana. Losses are incurred as a result of a lack of credible risk assessment and management model to evaluate CPDI projects. The study achieved its aim of developing a credible risk management model for CPDI projects. The secondary research objectives were:

- to identify factors that influence financial feasibility and practical viability considerations in CPDI projects;
- to identify factors that are necessary for professional feasibility and viability reporting for CPDI projects;
- to analyse the best practices that have significant relationships with risk management strategies in CPDI;
- to find out the business skills and strategies that property development managers usually employ when managing risks;
- to investigate some existing risk management models used by CPDI professionals when assessing and managing risks; and
- to develop a theoretical model that may be used to conduct risk assessment and risk management for CPDI projects.

Based on the secondary objectives, a conceptual framework (Figure 1-3) with 13 constructs was formulated to guide the study. A comprehensive literature review was

done on each of the constructs to gather secondary facts for the study. Twenty-three hypotheses were formulated and tested to determine whether there were positive relationships between the identified variables/constructs. A mixed methodology (embedded) was used to collect field data; Amos 28 statistical software was used to analyse the quantitative data received from the respondents. Amos 28 was also used to run the exploratory factor analysis to confirm the measuring instrument's validity and reliability. With the qualitative data, themes were drawn and analysed in line with the key results obtained from the quantitative analysis (this research's major data analysis approach).

Following all the outlined steps helped the researcher to create the risk management model for CPDI projects (Figure 7-1) and to draw credible conclusions and recommendations.

8.3 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings established in chapters 6 and 7, the researcher concludes and recommends:

- i. Factors that influence CPDI projects' viability include real estate trends and cycles analysis; governance structures analysis; seeking outside professional advice and mentorship; conducting effective spatial development analysis; increasing developers' knowledge in strategic factors; applying business management skills; conducting effective PESTEL analysis; applying the PMBOK; using general management skills; and using construction project management strategies. This discovery is based on the respondents' ratings (along a seven-point Likert scale) provided for each factor, as a way to assess factors that influence CPDI projects (see section B - Appendix 1). It was evident that using construction project management strategies have little effect on CPDI projects, as the two associated hypotheses (H_{19} and H_{20}) tested negative although H_{19} was statistically significant.
- ii. Most of the respondents (145 of 195 respondents, representing 74%) did not base their commercial property development decision-making on feasibility and financial study reports. This greater percentage was reported because 28% of the respondents stated that they did not do feasibility and financial

studies before undertaking development, while 46% indicated *not applicable* to register a non-awareness of feasibility and financial studies (see Tables 6-13, chapter 6).

- iii. The results show that there is a need for commercial property developers to do professional feasibility and financial studies so as to determine project viability before a decision to develop or to not develop can be taken. It is recommended that commercial property developers and investors attend seminars, workshops and short courses on how to do feasibility and financial studies. It is further recommended that commercial property developers use independent professionals such as consultants and mentors when doing feasibility and financial studies.
- iv. The study outcomes disclose that effective application of PMBOK, PESTEL analysis, the use of strategic factors, general management and business management skills, effective spatial development and real estate trends and cycles analysis in CPDI projects are the main factors to consider in risk assessment and risk management. Because these seven factors' test results had high p-values and critical ratios providing acceptance decisions. Here, it is recommended that commercial property developers build their professional capacities in these factors.
- v. The study also discovered that effective financial feasibility and practical viability considerations as well as professional reporting should be used as measures to assess and manage risks in CPDI projects. This key finding is confirmed based on the test results obtained for FF-EE and PF-EE in Table 6-11. Thus, this study concludes that commercial property developers and investors should conduct effective financial and professional feasibility analyses so as to assess and manage risks in CPDI projects.

8.4 CONTRIBUTIONS

The following are the significant contributions the study brings into the CPDI body of knowledge:

- Outlines the various risk associated with CPDI projects. This helps to provide better understanding of the various risks that affect CPDI projects.
- Findings and and recommendations of this study serve to show new information due to the use SEM application based on the study sample size. This offers useful recommendations and suggestions in CPDI projects.
- The composite and theoretical model developed in this study demonstrate a new paradigm to assess and manage risks in CPDI sector. This adds to the existing models available for measuring CPDI projects.
- Provides deeper understanding of factors that influence CPDI as far as viability is concerned. These factors relevance in determing CPDI projects are vital.
- This study has broken new grounds for further research. With minor adjustments on the study measuring instrument, it can be used to measure factors that influence success in other property development segments.

8.5 LIMITATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

The researcher sought to develop a credible theoretical risk assessment/risk management model for CPDI projects. Quantitative methodology was adopted to gain in-depth data from the commercial property developers registered with GREDA. The research scope was limited to the identified factors labelled in the conceptual framework (Figure 1-3) shown in chapter one. The assessment of the measuring instrument was based on the 195 respondents in the research study. The above reasons make the findings generally inconclusive. Thus, the researcher suggests that, when doing further or similar research into risk management for CPDI, researchers should broaden the research scope to cover more risk factors and increase the sample size in order to get close or conclusive findings.

The following five research topics are proposed for future research:

- Determining critical factors that influence real estate development in the sub-sarahan Africa. This will help to establish factors that can be employed in assessing real estate projects.

- The influences of applying PMBOK on professional viability reporting in commercial property development. This will help to determine the effects of applying PMBOK on successful commercial property developments in Ghana.
- The influences of construction project management delivery on financial feasibility and practical viability considerations. The outcome from this proposed study may help to establish the relationships between construction project management delivery and financial and practical viability considerations.
- Analysis of economic risk factors on commercial property investment and development, to critically assess purely economic factors that influence commercial property investment and development in Ghana.
- The adoption of PPPs as a risk management approach in commercial real estate development, to establish a leeway (partnership) approach to managing risks in commercial real estate development in Ghana.
- Effective ways of using technology to manage risks in commercial property development projects. This could establish innovative ways to manage risks in commercial property development projects.

In the researcher's view, further research in these areas may help broaden knowledge and understanding in risk management in commercial property development and investment.

8.6 A NOTE OF CAUTION

It is recommended that quoting from and utilising this research should be done with caution, as the findings and conclusions were based on the chosen methodology and the study sample size.

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APPENDICES

APPENDIX 1: Invitation Letter to Property Professionals for Focus Group



Department of Construction Management
Summerstrand North

• PO Box 77000 • Nelson Mandela Metropolitan University

• Port Elizabeth • 6031 • South Africa • www.nmmu.ac.za

• South Africa • www.mandela.ac.za

20th May, 2021.

Dear Sir/Madam,

INVITATION FOR AN ACADEMIC FOCUSED GROUP DISCUSSION

Please, I am a PhD candidate in the Construction Management Department at the Nelson Mandela University conducting a research on “**A risk management model for commercial property development and investment in Ghana**”. You are hereby voluntarily invited to participate on 15minutes focused group discussion on the following 2 questions below:

1. What are the risk factors that influence commercial property development and investment projects in Ghana?
2. What are the available risk management measures commercial property developers and investors can adopt in their operations in attempt to manage risks?

Date: 29th May, 2021

Time: 10 O'clock am

Venue: Office No. 12, 45 Farrar Avenue, Asylam Down Accra, Ghana.

Kindly note that the information gathered from this discussed is reserved for academic purpose only and a participant may have the right not to provide any information which may breach his/her confidentiality and privacy rights.

Please note that social distancing protocols will be applied in the discussion venue.

Thank you in advance.

A handwritten signature in blue ink, appearing to read "Kofi".

Rexford Kofi Asianoah

Researcher

Email: s212469169@nmmu.ac.za/rasianoah@gmail.com

Cell: +233245219155/+277 8152 5728

APPENDIX 2: Informed Consent



Faculty of Engineering, Built Environment & Technology

Nelson Mandela University

E-mail Faculty Chairperson

22nd May, 2021.

Research ethical clearance number: (H20-ENG-CMA-007)

Researcher's contact: +277 8152 5728 /+233241952155

Dear Participant,

Letter of Informed Consent

Study Title: A risk management model for commercial property development and investment in Ghana.

Department of Construction Management – Nelson Mandela University

Principal Investigator: Rexford Kofi Asianoah

Primary Responsible Person: Professor Brink Botha

1. **The main purpose of the study:** The purpose of this study is to develop a risk management model for commercial property development and investment projects in Ghana. To address the above purpose, the following research objectives are set:
 - To identify and examine factors that influence commercial property development and investment project;
 - To analyse the best professional practices which have significant relationships with the risk management strategies in commercial property development and investment;
 - To analyse business skills set and business strategies property development managers usually employ in managing risks; and
 - To investigate some of the existing risk management models used by the commercial property development and investment professionals when assessing and managing risks; and

2. **Confidentiality:** I understand that the information provided by this study may be used for academic research purposes including publications in research journals. All individuals' information will be coded and at no time will my personal identity be revealed. This applies to both the questionnaire feedback as well as participants in the focused group. All reasonable measures will be taken to protect the identity of the participants.

3. **Voluntary Participation:** The purpose of the study has been briefly explained in this letter above. I understand that participation in this study is voluntary and refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled. I may terminate my participation at any time I choose without penalty.

4. **Benefits of Participation:** The benefits of participating in this study will enable a participant to request a summary of the study after the study is completed. My participation will make a contribution to further understanding of risk management on commercial property development and investment projects.

5. **Remuneration:** I understand that I will not receive money or any other reward or gift for participation.

6. **Selection of participants and participant's role:** To select qualified and experienced commercial property developers to conduct the study, random sampling was done based on the list collected from the Ghana Real Estate Developers Association Head Office-Accra. For the focused group participation, purposive selection was done based on the researcher's knowledge.

7. **Expected duration of participation:** The duration of participation will take approximately 15 minutes for the questionnaire filling and 15 minutes for the focused group discussion. All conversations with the focused group will be recorded.

8. **Participant Withdrawal:** I understand that I can withdraw from the study at any point in time or not be part of the focus group discussion at all.

9. **Record Retention:** The period for which the records relating to the participant will be retained are for a period of five (5) years. Thereafter, the records will be deleted.

10. **Information Disclosure:** The type of information to be collected for this study is disclosed to Doctorate's studies. Individuals will be able to access the final dissertation through the Nelson Mandela University library and its website once the study has been concluded.

The social distancing protocols will be applied throughout the data collection processes.

This informed consent statement has been prepared in compliance with the current statutory guidelines of the Nelson Mandela University.

In acknowledgement of the informed consent, please place your signature below:

Respondent: _____ Date: _____

APPENDIX 3: Gate Keeper's Letter of Notice



Department of Construction Management
Summerstrand North Campus

• PO Box 77000 • Nelson Mandela Metropolitan University

• Port Elizabeth • 6031 • South Africa • www.nmmu.ac.za

• South Africa • www.mandela.ac.za

22nd May, 2021.

The Chairman
Ghana Real Estate Developer Association
Head Office-Accra

Dear Sir/Madam,

Permission to Conduct an Academic Research

Please, I am a PhD candidate in the Construction Management Department at the Nelson Mandela University conducting a research on “**A risk management model on commercial property development and investment in Ghana**”.

I wish to seek your corporate support by introducing and providing me a list of registered commercial property developers' telephone contacts together with their physical addresses which may enable me to consult them for this study survey.

The study is meant for academic purposes and I can assure you that data that will be received from your corporate members shall be kept confidential. Again, the anticipated data to gather for this study may not expose any member's trade secrete whatsoever.

Please see the attached prepared questionnaire for the study. Covid-19 safety protocols will be adhered to during the process of collecting data.

I hope to receive your cordial support and approval in this regard.

Thank you.

A handwritten signature in blue ink, appearing to read 'Rexford Kofi Asianoah'.

Rexford Kofi Asianoah
Researcher
Cell number: +233241952155/ +277 8152 5728

Email: s212469169@nmmu.ac.za/ rasianoah@gmail.com

APPENDIX 4: Covering Letter



P. O. Box 77000, Nelson Mandela University
Summerstrand North Campus
Construction Management Department
Port Elizabeth, 6081, South Africa.

22nd May, 2021.

Dear Sir/ Madam,

Re: A risk management model for commercial property development and investment in Ghana.

Please, I am Rexford Kofi Asianoah, a Phd candidate in the Department of Construction Management within the School of Built Environment and Technology at the Nelson Mandela University in Port Elizabeth-South Africa. I am conducting a research on "**A risk management for commercial property development and investment in Ghana.**" The purpose of this research is to assess risk factors in commercial property development and investment industry and to develop a model that could be used to manage risks. The population targeted for this research study is the commercial property developers and investors in Ghana.

Kindly note that taking part of this survey study does not attract any compensation. To ensure that all information will remain confidential, please do not include your name. If you choose to participate in this survey, please answer all questions as honestly as possible and return the completed questionnaires to the researcher promptly. Participation is strictly voluntary, and you may decide not to participate or continue at any time.

The attached questionnaire constitutes four (4) sections (section A, B, C and D). I plead with you to spend at least 15-20 minutes of your time to answer the questions appropriately. I confidently assure you that your response will be kept confidential.

Your co-operation is highly appreciated in advanced.

Thank you.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Kofi'.

Asianoah Rexford Kofi
PhD (Construction Management) Candidate
Department
Email: s212469169@nmmu.ac.za/ rasianoah@gmail.com

A handwritten signature in black ink, appearing to read 'Brink Botha'.

Professor Brink Botha
Construction Management

Email: brink.botha@mandela.ac.za

Cell: +277 8152 5728

Tel. +27 (0)41 504 2085

STUDY QUESTIONNAIRE

SECTION A: Demographic data

Please answer the questions in this section by using ink to tick (✓) in appropriate space provided. Kindly fill in where applicable.

1. Indicate your gender category:

Male	
Female	

2. Indicate your age category:

18 ≥ x ≥ 35	
36 ≥ x ≥ 45	
46 ≥ x ≥ 55	
56 ≥ x ≥ 65	
66 above	

3. Indicate your highest professional educational qualification in real estate/construction management:

None	
Certificate	
Diploma	
Degree	
Post-graduate	

4. Which property development sector do you work?

Private	
Public	
Public Private Partnership	

5. How long have you been involved in commercial property development projects?

0 ≥ x ≥ 5yrs	
--------------	--

6 ≥ x ≥ 10yrs	
11 ≥ x ≥ 15yrs	
16 ≥ x ≥ 20	
21yrs above	

6. Indicate the category of the commercial property development you have been mostly involved in for the past five years (You can tick more than one).

Shopping mall development	
Office/Store development	
Hotel/guest house development	
Residential flats development	
Other(Specify:.....)	

7. Which professional association do you belong?

GREDA	
GhIS	
None	

SECTION B: Assessment of factors that influence commercial property development and investment projects in Ghana.

Please, read the instruction below and answer question 1 to 39 in this section.

The selected (statements 1 - 39) in the table below have been identified as the main factors that influence commercial property development and investment projects in Ghana. Kindly **circle** the appropriate number in each statement row. Answer the questions based on your knowledge, experience and involvement in commercial property development and investment projects to date.

Please indicate to what extent you strongly disagree or agree with each statement by using the following likert scale; 1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neutral, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree.

1	FF1	There is high cost of building materials due to inflation.	1	2	3	4	5	6	7
2	FF2	There is high cost of labour due to inflation.	1	2	3	4	5	6	7
3	FF3	There is high cost of mortgage from the financial institutions due to the high interest rate.	1	2	3	4	5	6	7
4	FF4	Prices for building materials are expensive due to the foreign	1	2	3	4	5	6	7

		exchange rate (US Dollar to the Ghana Cedis).								
5	FF6	Commercial properties situate at prime areas receive high rental value.	1	2	3	4	5	6	7	
6	FF7	Dollarization (using US Dollars to buy, sell and rent) properties contribute towards high rate of inflation.	1	2	3	4	5	6	7	
7	EE 1	Property developers do not conduct effective financial feasibility studies before developing commercial properties.	1	2	3	4	5	6	7	
8	EE 2	Commercial properties such as residential flats situate at prime areas have high market value.	1	2	3	4	5	6	7	
9	PF1	Commercial property developers do not conduct adequate demand trend analysis reports before developing a property.	1	2	3	4	5	6	7	
10	PF2	Commercial property developers do not contact professional property consultants to do viability studies for them.	1	2	3	4	5	6	7	
11	GS 1	Land acquisition issues in the urban areas pose serious risk to commercial property development and investment projects.	1	2	3	4	5	6	7	
12	GS 2	Land litigation in court is too cumbersome and expensive.	1	2	3	4	5	6	7	
13	GS 3	Land registration process is too cumbersome and takes too long to complete the process.	1	2	3	4	5	6	7	
14	GS 4	The average fees charged for building permit application and processing is expensive.	1	2	3	4	5	6	7	
15	GS 5	Building permits application, processing and approval takes long.	1	2	3	4	5	6	7	
16	GS 6	Building permit applications follow up bring extra cost to the property developer.	1	2	3	4	5	6	7	
17	GS 7	Type of land ownership such as freehold, long leasehold and short leasehold affect commercial property's return on investment.	1	2	3	4	5	6	7	
18	GS 8	Commercial property developers do not consider demographic changes of the target users and occupants when making development decisions.	1	2	3	4	5	6	7	
19	SP 1	Location where a commercial property situated influences its demand.	1	2	3	4	5	6	7	
20	SP 2	Commercial properties such as malls built in the neighbourhood with high population density usually generate good rental returns.	1	2	3	4	5	6	7	
21	RC 1	Developers do not usually employ professional expertise to conduct real estate trends and cycles analyses for them before a commercial property is developed.	1	2	3	4	5	6	7	

22	RC 2	Commercial property developers lack knowledge of the modern trends real estate and cycles.	1	2	3	4	5	6	7
23	RC 3	Commercial properties lacking modern trends of development attract less rental demand.	1	2	3	4	5	6	7
24	CP 1	Poor construction project management lead to high cost of property maintenance.	1	2	3	4	5	6	7
25	CP 2	Inexperienced construction managers working on commercial property development usually commit construction errors.	1	2	3	4	5	6	7
26	CP 3	Demolitions usually occur on projects handled by inexperienced project managers during construction process.	1	2	3	4	5	6	7
27	CP 4	Lack of construction planning and execution skills increase cost of property development.	1	2	3	4	5	6	7
28	CP 5	Poor management of human resource during construction process brings cost overrun.	1	2	3	4	5	6	7
29	CP 6	Poor management of material resource during construction process lead to cost overrun.	1	2	3	4	5	6	7
30	CP 7	Commercial property developers usually do not perform pro-active planning.	1	2	3	4	5	6	7
31	SF1	Lack of marketing/advertisement contributes to reduction of commercial property rentals and sales.	1	2	3	4	5	6	7
32	SF2	Lack of marketing/advertisement contributes to high vacancy rate in commercial properties such as shopping malls.	1	2	3	4	5	6	7
33	SF3	Inefficient leadership on property management contribute to high vacancy rate in an existing commercial property.	1	2	3	4	5	6	7
34	BM 1	Commercial property developers lack negotiation skills to create partnership for joint property acquisition and development.	1	2	3	4	5	6	7
35	BM 2	Commercial property developers do not have adequate business management skills set such as financial and entrepreneurial skills to conduct effective real estate business.	1	2	3	4	5	6	7
36	BM 3	Commercial property developers lack financial and business skills set to manage finance and development operations.	1	2	3	4	5	6	7
37	GM 1	Lack of effective and efficient general management practices among the commercial property development team managers lead to waste of resources.	1	2	3	4	5	6	7
38	GM 2	Commercial property development team managers lack general management skills to conduct their activities.	1	2	3	4	5	6	7
39	OT 1	Commercial property developers do not consult outside professional/consultants during the property development	1	2	3	4	5	6	7

		process.								
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SECTION C: Risk management factors for commercial property development and investment projects in Ghana.

Please, read the instruction below and answer question 1 to 45 in this section.

Based on this research, the selected (statements 1 - 45) in the table below have been suggested as factors to consider in attempt to manage risk for commercial property development and investment projects in Ghana. Kindly **circle** the appropriate number in each statement row. Please answer the questions based on your experience and involvement in commercial property development and investment projects over the past ten years to date.

Indicate to what extent you strongly disagree or agree with each statement by using the following likert scale; 1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neutral, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree.

1	FF7	The government has to adopt inflation target policy to manage inflation.	1	2	3	4	5	6	7
2	FF8	The uses of local building materials are to be encouraged in property development in order to reduce cost of building.	1	2	3	4	5	6	7
3	FF8	The Ministry of Housing and Construction in collaboration with the property development associations are to set standardised fees structure for construction workers in order to manage labour cost escalation.	1	2	3	4	5	6	7
4	FF9	The Ministry of Housing and Construction in collaboration the property development associations are to monitor to ensure construction workers fees structure adherence.	1	2	3	4	5	6	7
5	FF10	Building materials should be utilised efficiently during the construction process to minimise waste.	1	2	3	4	5	6	7
6	OT2	Property developers are to consult property economists/valuers to undertake financial feasibility studies for them.	1	2	3	4	5	6	7
7	OT3	A property lawyer needs to be consulted by the commercial developer to do due diligence on a proposed land before purchase is done.	1	2	3	4	5	6	7
8	OT4	Commercial property developers are to seek for outside advice to improve development efficiency.	1	2	3	4	5	6	7
9	OT5	Professional mentorship helps new commercial property developers to sharpen their professional tools in managing commercial property development risks.	1	2	3	4	5	6	7

10	OT6	Professional mentorship can help commercial property development team members to improve their professional work efficiency.	1	2	3	4	5	6	7
11	PF3	Location and neighbourhood analysis need be conducted before a suitable commercial property can be proposed and built.	1	2	3	4	5	6	7
12	SP3	Population movement and trends need be taken into consideration when choosing a site for a commercial property.	1	2	3	4	5	6	7
13	SP4	The average population income prevailing in the area is to be considered when developing a commercial property.	1	2	3	4	5	6	7
14	BM4	Commercial property developers need to acquire business skills set such as financial and entrepreneurial to enhance their work performance.	1	2	3	4	5	6	7
15	BM5	Commercial property developers should seek for financiers as joint partners in development in order to prevent them from paying loans.	1	2	3	4	5	6	7
16	GM3	Commercial property development team managers need to acquire effective management skills.	1	2	3	4	5	6	7
17	CP8	Qualified and experienced construction managers need to be employed to manage commercial property development projects.	1	2	3	4	5	6	7
18	CP9	Effective activity planning helps to minimise waste in the development process.	1	2	3	4	5	6	7
19	CP10	A resource such as human resource needs to be utilised optimally in the commercial property development process.	1	2	3	4	5	6	7
20	CP11	Effective construction management in the commercial property development process helps to minimise construction risk.	1	2	3	4	5	6	7
21	RC4	Property developers and investors need to develop multi-purpose commercial development projects to serve variable uses as a way of diversifying their investments.	1	2	3	4	5	6	7
22	RC5	Proper commercial real estate trends and pattern analysis should be conducted before development is commenced.	1	2	3	4	5	6	7
23	RC6	Real Estate Investment Trusts (REITs) establishment improve risk management in commercial property	1	2	3	4	5	6	7

		development projects.							
24	SF4	Property developers should consider partnering with investors who can provide equity finance instead of borrowing finance from banks when venturing into commercial property development projects.	1	2	3	4	5	6	7
25	SF5	Property developers/managers managing commercial facilities have to do regular marketing to advertise their facilities to the potential clients and users in order to vacancy rate.	1	2	3	4	5	6	7
26	PM1	The commercial property development team managers should employ the Project Management Body of Knowledge (PMBOK) principles so that project efficiency can be achieved.	1	2	3	4	5	6	7
27	PM2	Effective communication improves work efficiency in the commercial property development process.	1	2	3	4	5	6	7
28	PM3	Project risk management techniques should be applied throughout the commercial property development process.	1	2	3	4	5	6	7
29	GS9	Commercial property developers and investors should hire qualified and experienced property lawyers/conveyancers to handle land transactions for them in order to address issues that relate to land acquisitions and ownership.	1	2	3	4	5	6	7
30	GS10	Government needs to streamline land registration process to promote commercial property development.	1	2	3	4	5	6	7
31	GS11	Cost of building permit application and processing needs to be reduced to a bearable level for commercial property developers.	1	2	3	4	5	6	7
32	GS12	Municipalities need to speed up building permit processing period to ensure quick delivery of permit approval.	1	2	3	4	5	6	7
33	PS1	Potential users taste and preferences should be researched and factor into commercial property development in order to increase users patronisation.	1	2	3	4	5	6	7
34	PS2	Public-private partnership in commercial property development needs to be encouraged in order to share risks.	1	2	3	4	5	6	7
35	PS3	Commercial property developers have to introduce appropriate technology into their development facilities in order to attract more potential users.	1	2	3	4	5	6	7
36	PS4	The environment of the commercial property has to	1	2	3	4	5	6	7

		be well designed and clean to attract potential users and occupants.							
37	PS4	Building materials to be used for the development of the commercial properties should be environmental friendly and harmless to the users and occupants.	1	2	3	4	5	6	7
38	PS5	The use of PESTEL analysis helps to identify and address potential risk in commercial property development projects.	1	2	3	4	5	6	7
39	EE3	Proper real estate trends and cycle movement affecting commercial property development and investment should be conducted before a proposed project is developed.	1	2	3	4	5	6	7
40	EE4	Potential clients needs should be researched and factor into commercial property development projects.	1	2	3	4	5	6	7
41	EE5	Property developers should seek for anchor tenants for commercial developments such as shopping mall.	1	2	3	4	5	6	7
42	EE6	Viability report needs to be fully conducted on a proposed commercial property development before the project is developed.	1	2	3	4	5	6	7
43	EE7	Litigation free land acquisition helps commercial property developers to avoid litigation cost and double payment of land.	1	2	3	4	5	6	7
44	EE8	Most commercial property owners insure their properties.	1	2	3	4	5	6	7
45	EE9	Commercial property developers should employ professional service providers who have valid professional indemnity insurance as a way to share risk.	1	2	3	4	5	6	7

Code Representations

FF = Financial feasibility

GS = Governance structure factor

SP = Spatial development factor

CP = Construction project management factor

RC = Real estate trends and cycles factor

SF = Strategic factor

BM = Business management skills set factor

GM = General management skills set factor

PF = Professional reporting factor

PM = Project Management Body of Knowledge factor

OT = Outside advice/mentorship factor

PS = PESTEL factor

EE= Perceived risk management factor

SECTION D: Respondent’s input based on his/her experience and knowledge in commercial property development

Kindly fill in the blank spaces provided under each question.

1. Why commercial property developers and investors incur losses in their CPDI projects?

.....
.....
.....
.....
.....
.....

2. What do you usually do to manage risks in property development processes?

.....
.....
.....
.....
.....
.....

3. Do you usually conduct feasibility and financial studies as a developer before making development decision? (Yes/ No/ Not applicable).....

4. If you provide Yes answer to question 3 above, do you prefer a professional consultant to conduct feasibility and financial studies/reports for you? (Yes/No)

Kindly provide your email below if you like to receive the summary of findings for this study:

.....

Thank you very much

Appendix 5

CB FACTOR ANALYSIS RESULTS OF THE STUDY

CRONBACH ALPHA RELIABILITY

Correlation Matrix^a

a. Determinant = .338

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.639
Bartlett's Test of Sphericity	Approx. Chi-Square	208.637
	Df	3
	Sig.	<.001

Communalities

	Initial	Extraction
OT1	1.000	.832
OT2	1.000	.672
OT3	1.000	.650

Extraction Method: Principal
Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.154	71.785	71.785	2.154	71.785
2	.573	19.088	90.873		
3	.274	9.127	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings
	Cumulative %
1	71.785
2	
3	

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
OT1	.912
OT2	.820
OT3	.806

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the
procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.797	3

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.895	3

Factor Analysis

Correlation Matrix^a

a. Determinant = .159

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.743	
Bartlett's Test of Sphericity	Approx. Chi-Square	352.772

Df	3
Sig.	<.001

Communalities

	Initial	Extraction
PM1	1.000	.801
PM2	1.000	.826
PM3	1.000	.858

Extraction Method: Principal

Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.485	82.847	82.847	2.485	82.847
2	.302	10.079	92.926		
3	.212	7.074	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings	Cumulative %
1		82.847
2		
3		

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
PM1	.895
PM2	.909
PM3	.926

Extraction Method:

Principal Component

Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Factor Analysis

Correlation Matrix^a

a. Determinant = .306

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.642
Bartlett's Test of Sphericity	Approx. Chi-Square	226.862
	Df	6
	Sig.	<.001

Communalities

	Initial	Extraction
SP1	1.000	.511
SP2	1.000	.638
SP3	1.000	.615
SP4	1.000	.564

Extraction Method: Principal
Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.328	58.210	58.210	2.328	58.210
2	.892	22.298	80.508		
3	.456	11.403	91.912		
4	.324	8.088	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings	Cumulative %
1		58.210
2		
3		
4		

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
SP1	.715
SP2	.799
SP3	.784
SP4	.751

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.750	4

Factor Analysis

Correlation Matrix^a

a. Determinant = .036

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.632
Bartlett's Test of Sphericity	Approx. Chi-Square	637.453
	Df	6
	Sig.	<.001

Communalities

Initial	Extraction
---------	------------

BM1	1.000	.625
BM2	1.000	.681
BM3	1.000	.758
BM4	1.000	.749

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.813	70.336	70.336	2.813	70.336
2	.914	22.849	93.185		
3	.204	5.095	98.280		
4	.069	1.720	100.000		

Total Variance Explained

Component	Cumulative %
1	70.336
2	
3	
4	

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
BM1	.790
BM2	.825
BM3	.871
BM4	.866

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.850	4

Factor Analysis

Correlation Matrix^a

a. Determinant = .541

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.680
Bartlett's Test of Sphericity	Approx. Chi-Square	117.991
	Df	3
	Sig.	<.001

Communalities

	Initial	Extraction
GM1	1.000	.632
GM2	1.000	.629
GM3	1.000	.680

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	1.941	64.715	64.715	1.941	64.715
2	.567	18.884	83.598		
3	.492	16.402	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings	Cumulative %
1		64.715
2		
3		

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
GM1	.795
GM2	.793
GM3	.825

Extraction Method:
 Principal Component
 Analysis.^a
 a. 1 components
 extracted.

Rotated Component Matrix^a

a. Only one component
 was extracted. The
 solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the
 procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.727	3

Factor Analysis

Correlation Matrix^a

a. Determinant = .013

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.890
Bartlett's Test of Sphericity	Approx. Chi-Square	826.842
	Df	21
	Sig.	<.001

Communalities

	Initial	Extraction
GS1	1.000	.668
GS2	1.000	.616
GS3	1.000	.638
GS4	1.000	.562
GS5	1.000	.724
GS6	1.000	.676
GS7	1.000	.670

Extraction Method: Principal
Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	4.553	65.044	65.044	4.553	65.044
2	.666	9.519	74.563		
3	.522	7.464	82.027		
4	.428	6.118	88.145		
5	.361	5.161	93.306		
6	.271	3.872	97.178		
7	.198	2.822	100.000		

Total Variance Explained

Component

Extraction Sums of Squared Loadings

	Cumulative %
1	65.044
2	
3	
4	
5	
6	
7	

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
GS1	.817
GS2	.785
GS3	.799
GS4	.749
GS5	.851
GS6	.822
GS7	.818

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.910	7

Factor Analysis

Correlation Matrix^a

a. Determinant = .374

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.710
Bartlett's Test of Sphericity	Approx. Chi-Square	189.248
	Df	3
	Sig.	<.001

Communalities

	Initial	Extraction
CP1	1.000	.688
CP2	1.000	.740
CP3	1.000	.738

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.166	72.188	72.188	2.166	72.188
2	.457	15.225	87.413		
3	.378	12.587	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings
	Cumulative %
1	72.188
2	
3	

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
CP1	.830
CP2	.860
CP3	.859

Extraction Method:
Principal Component Analysis.^a

a. 1 components extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.804	3

Factor Analysis

Correlation Matrix^a

a. Determinant = .366

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.686
Bartlett's Test of Sphericity	Approx. Chi-Square	192.927
	Df	3
	Sig.	<.001

Communalities

	Initial	Extraction
RC1	1.000	.651
RC2	1.000	.715
RC3	1.000	.787

Extraction Method: Principal
Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.153	71.756	71.756	2.153	71.756
2	.520	17.332	89.088		
3	.327	10.912	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings
	Cumulative %
1	71.756
2	
3	

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
RC1	.807
RC2	.845
RC3	.887

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.801	3

Factor Analysis

Correlation Matrix^a

a. Determinant = .236

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.688
--	------

Bartlett's Test of Sphericity	Approx. Chi-Square	277.337
	Df	3
	Sig.	<.001

Communalities

	Initial	Extraction
SF1	1.000	.790
SF2	1.000	.847
SF3	1.000	.679

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.316	77.189	77.189	2.316	77.189
2	.465	15.499	92.689		
3	.219	7.311	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings	Cumulative %
1		77.189
2		
3		

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
SF1	.889
SF2	.920
SF3	.824

Extraction Method:
Principal Component Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the
procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.851	3

Factor Analysis

Correlation Matrix^a

a. Determinant = .117

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.789
Bartlett's Test of Sphericity	Approx. Chi-Square	411.518
	Df	6
	Sig.	<.001

Communalities

	Initial	Extraction
PS	1.000	.647
PS2	1.000	.773
PS3	1.000	.802
PS4	1.000	.692

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	2.913	72.829	72.829	2.913	72.829
2	.486	12.161	84.990		
3	.387	9.673	94.663		
4	.213	5.337	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings	Cumulative %
1		72.829
2		
3		
4		

Extraction Method: Principal Component Analysis.

Component Matrix^a

Component
1

PS	.804
PS2	.879
PS3	.895
PS4	.832

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the
procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.875	4

Factor Analysis

Correlation Matrix^a

a. Determinant = .053

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	563.065
	Df	6
	Sig.	<.001

Communalities

	Initial	Extraction
FF1	1.000	.732
FF2	1.000	.768
FF3	1.000	.844
FF4	1.000	.839

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	Total	% of Variance
1	3.184	79.592	79.592	3.184	79.592
2	.359	8.985	88.577		
3	.304	7.610	96.187		
4	.153	3.813	100.000		

Total Variance Explained

Component	Extraction Sums of Squared Loadings	Cumulative %
1		79.592

2	
3	
4	

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
FF1	.855
FF2	.876
FF3	.919
FF4	.916

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0

Total	195	100.0
-------	-----	-------

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.911	4

Factor Analysis

Correlation Matrix^a

a. Determinant = .163

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.750
Bartlett's Test of Sphericity	Approx. Chi-Square	348.001
	Df	6
	Sig.	<.001

Communalities

	Initial	Extraction
PF1	1.000	.717
PF2	1.000	.685
PF3	1.000	.766
PF4	1.000	.565

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance

1	2.733	68.323	68.323	2.733	68.323
2	.667	16.682	85.005		
3	.324	8.091	93.096		
4	.276	6.904	100.000		

Total Variance Explained

Extraction Sums of Squared Loadings

Component	Cumulative %
1	68.323
2	
3	
4	

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
PF1	.847
PF2	.828
PF3	.875
PF4	.752

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component
was extracted. The
solution cannot be rotated.

Reliability

Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.841	4

Factor Analysis

Correlation Matrix^a

a. Determinant = .008

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	926.844
	Df	10
	Sig.	<.001

Communalities

	Initial	Extraction
EE1	1.000	.868
EE2	1.000	.505
EE3	1.000	.859
EE4	1.000	.822

EE5	1.000	.890
-----	-------	------

Extraction Method: Principal
Component Analysis.

Component	Total Variance Explained			Extraction Sums of Squared Loadings	
	Total	Initial Eigenvalues		Total	% of Variance
		% of Variance	Cumulative %		
1	3.945	78.892	78.892	3.945	78.892
2	.573	11.458	90.349		
3	.241	4.822	95.171		
4	.128	2.570	97.741		
5	.113	2.259	100.000		

Component	Total Variance Explained		Extraction Sums of Squared Loadings	
	Total	% of Variance	Total	% of Variance
1	3.945	78.892	3.945	78.892
2	.573	11.458		
3	.241	4.822		
4	.128	2.570		
5	.113	2.259		

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
EE1	.932
EE2	.711
EE3	.927
EE4	.907
EE5	.943

Extraction Method:
Principal Component
Analysis.^a

a. 1 components
extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Reliability Scale: all variables

Case Processing Summary

		N	%
Cases	Valid	195	100.0
	Excluded ^a	0	.0
	Total	195	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.931	5

Appendix 6

Research Title Registration

7. POST GRADUATE ADMINISTRATION

7.1 Registration of project proposals/Approval of supervisors



7.1.2 Candidate: ~~Aslanah~~ Asianah, R
Student No: 212469169
Qualification: Doctor of Philosophy in Construction Management
TITLE: A RISK MANAGEMENT MODEL FOR COMMERCIAL PROPERTY DEVELOPMENT AND INVESTMENT IN GHANA
Supervisor: Prof Brink Botha
Co-supervisor: Dr A Adeniran



Ref: [H20-ENG-CMA-007] / Approval]

20 April 2021

Prof B Botha
Faculty: EBET

Dear Prof Botha

ECONOMIC RISK ASSESSMENT AND RISK MANAGEMENT MODEL FOR COMMERCIAL PROPERTY DEVELOPMENT AND INVESTMENT PROJECTS IN GHANA

PRP: Prof B Botha
PI: Mr RK Aisienoh

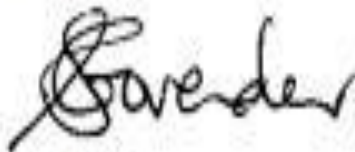
Your above-entitled application served at the Research Ethics Committee (Human) (24 February 2021) for approval. The study is classified as a medium risk study. The ethics clearance reference number is H20-ENG-CMA-007 and approval is subject to the following conditions:

1. The immediate completion and return of the attached acknowledgement to Imiaz.Khan@mandela.ac.za the date of receipt of such returned acknowledgement determining the final date of approval for the study where after data collection may commence.
2. Approval for data collection is for 1 calendar year from date of receipt of above mentioned acknowledgement.
3. The submission of an annual progress report by the PRP on the data collection activities of the study (form RECH-004 available on Research Ethics Committee (Human) portal) by 15 November this year for studies approved/extended in the period October of the previous year up to and including September of this year, or 15 November next year for studies approved/extended after September this year.
4. In the event of a requirement to extend the period of data collection (i.e. for a period in excess of 1 calendar year from date of approval), completion of an extension request is required (form RECH-005 available on Research Ethics Committee (Human) portal).
5. In the event of any changes made to the study (excluding extension of the study), RECH will have to approve such amendments and completion of an amendments form is required PRIOR to implementation (form RECH-006 available on Research Ethics Committee (Human) portal).
6. Immediate submission (and possible discontinuation of the study in the case of serious events) of the relevant report to RECH (form RECH-007 available on Research Ethics Committee (Human) portal) in the event of any unanticipated problems, serious incidents or adverse events observed during the course of the study.
7. Immediate submission of a Study Termination Report to RECH (form RECH-008 available on Research Ethics Committee (Human) portal) upon expected or unexpected closure/termination of study.
8. Immediate submission of a Study Exception Report of RECH (form RECH-009 available on Research Ethics Committee (Human) portal) in the event of any study deviations, violations and/or exceptions.
9. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Research Ethics Committee (Human).

Please quote the ethics clearance reference number in all correspondence and enquiries related to the study. For speedy processing of email queries (to be directed to imiaz.khan@mandela.ac.za), it is recommended that the ethics clearance reference number together with an indication of the query appear in the subject line of the email.

We wish you well with the study.

Yours sincerely



Dr S Govender
Chairperson: Research Ethics Committee (Human)

Cc: Department of Research Development
Faculty Manager: EBET

Appendix 1: Acknowledgement of conditions for ethical approval

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[Akella, Pavan Kumar. "At the Crossroads: Multidiscipline Integration and Coordination in an EPC Contract: A Resurgence of Challenges and Strategic Improvement Opportunities", University of Stavanger, Norway, 2012](#)
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[Vickerstaff, Rebecca. "IMPLEMENTATION OF TECHNOLOGY ENHANCED LEARNING PEDAGOGY AND IMPACT ON EMPLOYABILITY AND LEARNING WITHIN ENGINEERING EDUCATION FRAMEWORKS", Plymouth University, 2015](#)
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The research thesis entitled:

A RISK MANAGEMENT MODEL FOR COMMERCIAL PROPERTY DEVELOPMENT AND INVESTMENT IN GHANA

Submitted by

REXFORD KOFI ASIANOAH

(STUDENT NUMBER: s212469169)

For the degree of

DOCTOR OF PHILOSOPHY IN CONSTRUCTION MANAGEMENT

In the Faculty of

SCHOOL OF BUILT ENVIRONMENT, FACULTY OF ENGINEERING

NELSON MANDELA UNIVERSITY

Has been edited for language by


Ayodele Albert Asaju

B.A. (Hons) MBA Principal Partner.

Declaration by the language practitioner

I, Johan Emerson Grobler, hereby declare that I was tasked by Rexford K. Asianoah ("the candidate") to copyedit and proofread parts of his thesis, which is hereby submitted for the fulfilment of the requirements for the Doctor in Philosophy in Construction Management in the School of Built Environment, Faculty of Engineering, Built Environment & Technology, Nelson Mandela University.

The parts I edited were:

- the title page, declaration, abstract, dedication and acknowledgments;
- chapter one (Orientation and background of the research);
- the introductions and conclusions of chapters two to seven); and
- chapter eight (Summary, conclusions, contributions and recommendations).

I trust that the candidate has duly attended to all the notes, checklists, suggestions and recommendations made by me.

The candidate acknowledges that he remains wholly responsible for his work, including all errors, omissions, factual errors, cross-references, and for applying the university's house style and formatting.

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This is to certify that the statistical analysis of the data in this research project required by the student was done by me, using SPSS 28 and AMOS 28.

My function was not to be involved in the interpretation thereof – that should be the student's own work.

A handwritten signature in black ink, appearing to read 'C. Uys'.

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