ANALYSING THE IMPACT OF DIGITIZATION ON PROPERTY PRICING IN KENYA

BY

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UNITED STATES INTERNATIONAL UNIVERSITY AFRICA

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ANALYSING THE IMPLICATION DIGITIZATION WOULD HAVE ON PROPERTY PRICING IN KENYA

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A Project Report Submitted to the Chandaria School of Business in Partial Fulfillment of the Requirement for the Degree of Global Executive Masters in Business Administration (GEMBA)

UNITED STATES INTERNATIONAL UNIVERSITY

SPRING 2017
STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: _________________________  Date: __________________________

Dan G. Karua (ID 647794)

This project has been presented for examination with my approval as the appointed supervisor.

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Prof. Francis W. Wambalaba

Signed: _________________________  Date: __________________________

Dean, School of Business
ABSTRACT

The main purpose of this research is to analyse how digitization would affect Kenya’s property prices in different regions. In order to achieve the main goal, the following research questions were set; what are the factors that affect property pricing; what are the factors that affect digitization; and how and to what extent does digitization affect the Kenyan property prices.

The research used the explanatory research design. Quantitative Research will be used to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics. Attitudes, opinions, behaviors, and other defined variables will be quantified and generalized results from a larger sample population will be considered. Data will be represented in Tables and Figures. Data will be collected using structured questionnaires. SPSS will be used to aid in the data analysis.

Major findings on the research objectives indicate that factors influencing property prices cut across all markets. The same economic, physical and political considerations to be made are similar in most geographical jurisdictions. This points to the fact that similar practices exist and can be borrowed from one jurisdiction to another to enhance best practices in the real estate industry.

Further, digitization is seen to be an industry disruptor and can benefit various industries across the world opening up trade barriers. Developed countries are reaping the benefits of taking advantage of the digital space and advancements. Developing countries would be keen on having a substantial reliance to digitization if they are to be considered developed.

Digitization in the real estate industry is observed to impact the industry in a positive way in developed countries. Best practices can best be achieved through learning from jurisdictions that have championed this concept not only from a business perspective but also on sustainability of the industry. Constant advancements that can only be achieved
through digitization should be enough to build a case for any developing country to substantially invest in digitization.

On the conclusion, factors influencing property pricing can only be reinforced through proper regulation. Digitization is a sure win for any business that is looking to transcend the future. Once incorporated in real estate, digitization can standardize best practices across all spheres particularly pricing.

The government bodies need to be at the forefront in regulating property pricing. Without substantial investments in digitization, this cannot be achieved. Best practices and standardization of pricing cannot be achieved without reliance on digitization.
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<td>Statistical Package for the Social Sciences</td>
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<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<tr>
<td>M&amp;E</td>
<td>Machinery and Equipment</td>
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<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>CAK</td>
<td>Communications Authority of Kenya</td>
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<td>FSOB</td>
<td>For Sale by Owners</td>
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<td>MLS</td>
<td>Multiple Listing Site</td>
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<td>OEF</td>
<td>Oxford Economic Forecasting</td>
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<td>ROI</td>
<td>Return on Investment</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of The Study

The only thing constant is change, and that’s especially true in the world of technology Rudman, Hannah (2015) Emergence of digitization followed by proliferation of e-commerce has profound impact on the productivity and socio economic standard of the society. Evolution of technology and associated information and knowledge help establish a country’s production capacity and standard of living which are decisive to the economic growth of a nation.

Rapid advances in technology are poised to disrupt many of the sectors that anchor world economies. Today, digitization is all-pervasive, with technology integrated into our everyday lives. Digital innovation is changing economies and markets, reinventing the way business is done in all industries across the globe. The level of technology advancement organizations are facing today is akin to the industrial revolution of the early 1900s – and it’s accelerating our businesses and operating models (Deloitte, 2015). No industry is untouched. Some scholars surmise that the increased prevalence of ICTs in various industries has become disruptive to those industries, causing individuals and organizations working within them to either adapt accordingly or become obsolete as per Jones, S. and Benjamin, Z. (2013). Some have been impacted immediately, and others, such as real estate, are just now feeling the profound influence of the digital transformation that has been taking place over the past two decades. Digitization can therefore, in fact, be a dynamic catalyst to transform operating businesses and advance productivity all over the global marketplace.

Digitization is deployed more in developed countries as compared to developing countries. In this instance, real estate businesses in developed countries seem to be more pronounced and deployed as opposed to developing countries. This research therefore gives an analysis of the impact of such digitization in reference to the impact of housing prices.
The USA without a doubt is one of the largest economies in the world. To this, it is clear to note that digitization has since erupted in almost all sectors of her industry. Digitization of real estate in the USA has not been left unturned. The USA has various online real estate portals, with Zillow.com being the leading and well established property website in the country. However, competition is stiff in the technology industry. Recently opendoor.com a property site was launched in the USA. The cite goes the extra mile of valuing the property unseen. (Cobb J. 2016) The seller enters their address, validates his identity and thereafter confirms information that Opendoor has acquired from public records as regard the property. Opendoor sends out an offer, if the seller accepts, the offer, they are required to fill out some few forms. Thereafter they are given a move out date, and it is reported that the house is confirmed sold, with a shocking duration of 3 days to the maximum. Tan Su, (2016) states that DotLoop one of the major online portals acquired by Zillo.com offers a paperless real estate transaction. Paperless transactions are the definition of a successful digitized real estate in any country.

Canada just like the USA being a developed country has not been left behind. Canada has an online platform known as For Sale By Owners (FSBO). Here purchasers and vendors make real estate transactions without necessarily indulging estate agents. Canadians are of the opinion that this platform is a long-lasting creation providing an alternative to the Multi Listing System which is a creation of real estate agents containing unfriendly policies on the customers.

In Canada, it is widely accepted that the main customers of any online property platform are the estate agents themselves. Due to the centralize MLS system, other online platforms seem to be struggling. An example is Zoocasa that has been in existence for duration of time, but has since been sold off.

Though digitization of real estate is well within the Canadian jurisdiction, a proper look at its impact is that real estate agents are still the kingpins of real estate in Canada. The centralized, estate agent monopoly, MLS, though with its stringent rules, still records a good number of purchasers with a reported 200 million internet page views per annum.
Real Estate in the UK is not regulated unlike other developed countries, in fact, it is reported that anyone can become a real estate agent as they just learn on the job. Real estate agents are said to charge from 2% of the value of the property. The 2% seems to be a good bargain, but homeowners argue that all the agent does is taking pictures and post them online, then plays the waiting game. This they say can be done by anyone.

A recent entrant to the online property platform is Yopa, which seeks to replace real estate agents, by providing customers with the ability to view the property. That is that the homeowners, market the property themselves. The UK major platforms are purplebrick.com and easyproperty.com. These have been the major players in the online real estate business.

UK just like the US has embraced the paperless transaction in real estate. The most popular digital websites are Skyslope and dotloop which report that there is growth in paperless transactions. In fact, they both project an increase in paperless transactions in the coming years.

According to Deloitte’s Future of Productivity report productivity in India still isn’t growing as fast as it is in the U.S. and many other countries. Indian companies are therefore termed as unprepared for digital disruption. A Deloitte survey found only 13% of Indian businesses is highly prepared for new technologies whereas 87% of Indian businesses are not prepared for new technologies.

Lagging productivity isn’t the only challenge that Indian companies face. As technologies continue to advance and further embed themselves into all industries, they widen the gap between India and other countries that are better positioned to take advantage of them. Deloitte’s Age of Disruption research found that, overall, Indian companies are not prepared for the disruptive potential of new technologies, such as robotics, artificial intelligence, networks, advanced manufacturing and collaborative platforms. Only 13% of companies are highly prepared for these technologies, and yet 43% perceive themselves as
more prepared than they truly are – a false perception not only of their readiness but also of the impact these factors will have on their growth.

Clearly, it’s time to change the way Indian organizations do business. Previous studies have shown that despite a strong dollar, low interest rates and a stable investment environment, many of our businesses invest materially less in the R&D and machinery and equipment (M&E) – including information and communication technology (ICT) – that are vital to improving productivity. Our research suggests that a significant portion of Indian firms mistakenly believe they are making competitive levels of investment when they are not. And this is causing them to fall behind their peers.

Investing in productivity improvement and developing both an awareness of technology advances and the ability to respond to them will be the hallmarks of tomorrow’s leading companies. Investing in productivity improvement and developing both an awareness of technology advances and the ability to respond to them will be the hallmarks of tomorrow’s leading companies. It’s clear that digital innovation will affect all real estate asset classes as space users and advanced technologies continue to transform workplaces, shopping centers, distribution centers, homes and so on. Mobile employees and consumers will transform how they work, shop and live. As a result, their associated real estate requirements will change. Robotics and advanced manufacturing technologies suddenly question the viability and efficiency of factories across North America. The need to rethink traditional factory infrastructure, recognize decreased reliance on labour from emerging markets and identify potential re-shoring of workers certainly signal changes in job creation, design and overall operating models. Clearly, the real estate market is also facing seismic change.

Even though it has been reported that India is not ready for the digital disruption, it is important to note that online property portals are already active and running. An example is zameen.com. Some of the other platforms that operate across the globe for instance Amazon.com, has already set camp in India and it is reporting successful transactions.
Pakistan has advanced as well in the past 10 year on the technological front with a growth of property portals such as Lamudi and ApkarGhar. Notably is the use of social media platforms such as Facebook that is used by different businesses to advertise. The property portals go at length and upload the property listings for the estate agents and conduct client development trainings to educate the real estate professionals on the use of online tools to maximize on their sales leads.

China is one of the fastest growing economies worldwide and they too have not been left out in the digital boom. Online property portals such as Juwai have penetrated the real estate market. Juwai.com exists to empower their Chinese-speaking consumers with comprehensive property listings, market analysis, news features and property buying guides to assist them in making informed and educated decisions in buying overseas property. Juwai has assisted a number of Chinese property developers to acquire properties in Africa particularly in Kenya.

In the Middle East, Dubai-based property portal JustProperty.com recently launched two new bi-lingual portals in Bahrain and Jordan to deliver a more user-friendly and technologically advanced search experience for property seekers. JustProperty has achieved an impressive growth having made its entrance in Qatar and Saudi Arabia. The response from the communities in this region has been quite positive enabling them to expand into all the Middle Eastern markets.

Nigeria is one of the biggest economies in Africa having one of the largest populations in Africa. The need for digitalization of real estate in Nigeria cannot be emphasized and as such, the first online property portal has been put in place, the Lands.ng. The platform aims at redefining real estate digital disruption in West Africa. It is reported that it went live with an upload 1.4 million plots of land and more than 250 registered and certified agents. The website contains generally all the information on a particular piece of land and further claim that the information on the platform is secure.
Michael Ebia, co-founder and CEO of ADE Digital Media was quoted to say, that Lands.ng is offering a wholesome experience for land sellers, buyers and even investors, and is providing a greater chance of closing deals with reduced one-on-one customer contact. This means that Nigeria has kicked started its journey towards digital disruption of real estate. A key question therefore is what will be the implication of housing prices with introduction of lands.ng

There is not enough literature on Tanzania’s real estate business. In fact, digitization of real estate business in Tanzania remains as is, a work in progress. Tanzania is yet to roll out any digital real estate transactions, and if there’s any electronic commerce of real estate in Tanzania, the same can be said to be remotely done. Tanzania still employ the use of paper in real estate transactions and further the registration system also remains to involve a bulk of paperwork and stringent legal procedures. In fact, Kenya seems to have employed digitization of real estate business compared to Tanzania. Problems of governance, legal certainty and social inequality in the housing market also need to be assessed. The region ‘Sub-Saharan Africa’ represents all African countries located south of the Sahara. Thus, the region is defined by diverse geographical, socio-cultural and historical conditions. In consequence, the economic situations of Sub-Saharan African countries are situated at different stages of evolution and market maturity.

Economic parameters especially the real estate market maturity indicators cannot be generalized and adapted to any other African country without the necessary adjustments to the national and local conditions. But even domestic and foreign real estate investors which are specialized in emerging markets with a higher risk profile require the possibility to compare economic performance indicators. Benchmarking tools such as ‘Market Maturity’ could close the gap between investment opportunities and the small scale of real estate investment activity in Sub-Saharan Africa.

Kenya is a prime location for real estate investors, in part due to its fast-growing GDP, booming property market and secure financial returns. The country’s investment climate is the strongest in the region with foreign direct investment flowing in from markets
in line with its economic blueprint. Real estate is an information-based business therefore greatly impacted by information technology. The internet penetration rates especially in emerging markets such as Kenya is inevitably revolutionizing the way we think and operate in all aspects of life.

Real estate is one of the fastest growing areas of the Kenya, playing a major role in the growth of the country’s economy. This sector has seen an increase of investor input from various economy big wigs in the world such as China and other leading private investor companies tapping their way into real estate business in Kenya. Kenya had for the longest time, had the Nyayo Estate Housing Project as the major real estate development that has ever been envisioned in the country, and that it had for the longest time been the reference and definition of real estate in Kenya. One could therefore say that it paved way for real estate development in Kenya. (Makena J.S, 2012).

With the growing number of real estate projects in the country, one therefore expects that the industry has gone digital, however this is not the case as majority of these real estate investors and companies are yet to embrace digitalization. Digitalization is an anchor of any business in the current ICT world, the lack of digitization seems to be a major setback and challenge in the industry. According to Bower and Christensen (1995), “One of the most consistent patterns in business is the failure of leading companies to stay at the top of their industries when technologies or markets change.” Real estate in this case is a leading industry in Kenya and ought to embrace digitization.

If we look at the developed and compare it to developing countries, the challenge facing the real estate industry stems from the fact that buildings in are fixed and difficult to quickly or cost-effectively change in order to embrace technological advancements. A Harvard Business Review article noted that “the more difficult the barrier, or the more barriers a disrupter faces, the more likely it is that customers will remain with incumbents. This is the case for developing countries.
As such, developing countries are not motivated to change and will instead simply remain with the status quo. The problem with this decision is that these countries will face tremendous global competition, cost disadvantages and, most importantly, productivity challenges. The real estate industry has traditionally lagged behind other sectors, largely due to the nature of our buildings and infrastructure.

Properties that are held by individuals, investors or owners remain unchanged for decades, with leases that extend from 5 to 20 years. As a result, with insufficient capital funds for improvements, some real estate market participants aren’t prepared for, and have been slow to react to technological transformation. When we consider Africa, due to globalization the number of foreign investments is constantly increasing. Therefore, international real estate markets, especially emerging markets, are currently in a phase of change and constant growth. Real estate investors treat the region of Sub-Saharan Africa with restraint, since the investment risks are perceived to be remarkably high. In the course of financial crisis and real estate market turbulences foreign investors’ requirements concerning the economic terms and conditions of real estate markets have increased. However, the systemic risks, which clearly seem to prevent the majority of foreign investors as well as some domestic investors to invest in Sub-Saharan Africa’s markets, could be compensated by asset diversification possibilities, high-yield potentials and high capital value performance.

1.2 Statement of the Problem

With the internet penetration in Kenya standing at over 70% of the population, we stand in a day and age where access to information from all jurisdictions is readily available just by the click of a button. In a report released recently by the Communications Authority of Kenya, mobile penetration as of April 2016 had hit 88% penetration of the total population. This is indeed a great opportunity across all industries in Kenya pillared primarily by the dire need for access to information.

It is clear that digitization has taken over all the industries in the economy. Any industry that refuses to embrace technology is faced with many challenges when it has to interact with the other sectors. Real estate, as will be discussed in Chapter Two is a different
industry and digitization though playing a large role, cannot exhaustively disrupt its transactions.

There is very little information on digitization of real estate in Kenya? What is the impact of digitisation to housing prices in Kenya? Currently, we have only one website that deals with property transactions. Though the buyer and the seller have to meet to for site visits and paperwork, we can argue that somehow, we are embracing digitization of real estate. Our Land registration system is yet to go electronic, unlike developed countries, as such stakeholders are still struggling with the amount of paperwork and procedures they have to bear while undertaking a real estate transaction. More so, the amounts of money that is used to bribe lands officials as well as land brokers clearly indicate that the employment of electronic system in the real estate sector is long overdue

1.3 Purpose of the Study
The purpose is to analyze the implications digitization would pose in the pricing of real estate.

1.4 Research Questions
1.4.1 What are the factors that affect the property prices in Kenya?
1.4.2 What are the factors that affect digitization in Kenya?
1.4.3 What are the implications of digitization on property pricing in Kenya?

1.5 Significance of the Study
The following would be the beneficiaries of this study in the pursuant respect;

1.5.1 Investors
Real estate being marked as one of the most secure investments one could make, there is a huge demand for it. In this regard, the study shall be able to fill information gaps that would inform a wise investment for anyone wishing to get into real estate investments. Digitization would be the most efficient and convenient way of accessing this information;
ranging from price, location, property type as well as ability to obtain analytics reports that can only be best accessed and manipulated once the information is digitized.

1.5.2 Policy Makers

This study will be able to inform policy that would guide the exploitation of the digital space for the benefit of the entire nation in regards to property identification, acquisition and disposal on both the demand and supply fronts.

1.5.3. Researchers

Research creates knowledge. Researchers would benefit from the studies made as well as information collected in advancing their knowledge and understanding of the subject. This will help reinforce other studies to form a better foundation of information and analysis.

1.5.4. Real Estate Businesses

Being the integral part of any business, information helps businesses scale to frontiers beyond. The information in this research will contain data and analytics from both the demand and supply fronts that will inform business strategy formulation as well as the pecuniary potential in taking advantage of the gaps.

1.6 Scope of the Study

The scope of this study is 300 real estate agents in Nairobi involved in the selling and letting of residential, commercial, mixed-use and retail properties will be considered as the respondents. This is on the basis that these two categories of real estate professionals are involved in the marketing of these properties in order to reach buyers as well as tenants. There is possibly over 2000 property agents country-wide however many are either informal, being that they have no registered businesses or office situ. The respondents considered are those with registered entities as well as have an online presence through their own websites.

The population preference is based on the select’s familiarity with real estate transactions, potential awareness of the various marketing channels available both offline and offline with an idea of the merits and demerits of both channels. Need for digitization as well
as technological innovations. The location is poised on the factual data as expounded previously of the internet penetration in Kenya being proliferated in Nairobi consisting of over 80% of the entire internet population in Kenya. The study will be conducted over a period of 6 months to conclusively reinforce my hypothesis. Assumptions are self-evident truths. The participants will be assumed to be highly qualified in the study and that they will answer truthfully and accurately to the interview questions based on their personal experience to the best of their individual abilities. Limitations here cover things over which I may have no control. Evident limitations are potential weaknesses of a study. Researcher biases and perceptual misrepresentations are potential limitations in a qualitative study; in a quantitative study, a limitation may be the capability of an instrument to accurately record data.

1.7 Terminologies

1.7.1 Digitization

Digitization is the representation of an object, image, sound document or signal by generating a series of numbers that describe a discrete set of its points or samples. The representation is generated and interpretable through a computer. Digitizing simply means the conversion of analog source material into a numerical format; the decimal or any other number system can be used instead. Ananny, Mike, and Daniel (2011).

1.7.2 Digital Disruption

Digital disruption is the change that occurs when new digital technologies and business models affect the value proposition of existing goods and services. The change has a relatively negative and positive effect depending on a business’s digitization position. Margaret Rouse, (2014).

1.8 Chapter Summary

To recap on this chapter, the background of the study is key in helping analyse the gaps that exist; specifically, unsanitized practices in the real estate industry on property pricing as well as fraudulence rampant with key stakeholders. The main focus was on the factors around the implications of digitization in real estate addressed in the main research
questions guiding our study: Factors affecting property pricing, factors affecting digitization and the implications of digitization of real estate on property pricing in Kenya.

Chapter Two will cover the literature review of the study. The source of the literature is mostly from related journal, articles, textbooks and the internet. Chapter Three will cover the research design and methodology used to carry out the explanatory research. This chapter will describe and justify the research methodology to be used for the research. The fourth chapter will include, in sufficient detail, the research findings and data analyses, and will describe the systematic and careful application of the research methods. The fifth and final chapter will discuss the findings and expound on their importance, meaning, and significance. Conclusions as well as recommendations will be captured herein.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of real estate literature based on the following research questions; initially what are the factors that could influence property pricing? Secondly, what are the factors that could influence the digitization of real estate? Finally, what would be the implication on property pricing with digitization.

2.2 Factors Influencing Pricing of Real Estate

The real estate prices in Kenya have doubled, even tripled in the past few years. According to Omboi and Kigige, (2011) the theory of price asserts that the market price reflects interaction between two opposing considerations. On one side are demand considerations based on marginal utility, while on the other side are supply considerations based on marginal cost. An equilibrium price is supposed to be at once equal to marginal utility from the buyer's side and marginal cost from the seller's side (Woodhams, 2012). Considering other factors remaining constant, most people are viewed to take rational decisions by ensuring that they maximize their own utilities.

There are various factors that influence property prices in real estate business, these are; political economical, physical and social. However, before employing these factors, one needs to consider and compare listings, these are old and active listings. Old listings to mean, those properties that have been sold, and active to mean those are currently in the market. There is also the issue of expired listings that which was advertised, but was never sold. Real estate generally, is a negotiating business. The purchaser has the purchase price in mind but generally knows that he has the right to negotiate for a purchase price that suits him or closest at best to his/her budget.

According to Sharpe (1999), real estate pricing deals with the valuation of real estate and all the standard methods of determining the price of fixed assets apply. Prices are limited by various factors such as the incomes of potential buyers, the cost and the ability to
construct new property to increase supply and demand for rental units. It is therefore important to note that real estate pricing deals with the valuation of real estate and all the standard methods of determining the price of fixed assets apply. In analysis of the price, emulates from the concept of consumer surplus. Woodhams (2012)

2.2.1 Economic Factors

Economic factors are the considerations in regards to how consumer’s disposable income and other financial sources tend to impact their buying activities. Economic factors form the basis for demand and in turn instruct the seller’s side on trends and patterns that impact the product type. We shall examine these factors and illustrate their impact on the real estate market in Kenya.

2.2.1.1 Supply and Demand

Demand for housing units in Kenya continues to outstrip the supply according to Woodhams, (2012). The real estate business is therefore said to be booming owing to the albeit slow growth of mortgage financing as well as the increased investor input in real estate. Real estate, just like any business is affected by the principle of supply and demand. Kenya has in the recent past experienced a recent increase in property and financial literacy among her citizens; this has thus increased the demand for housing and real property investment.

The law of demand states that the quantity demanded and the price of a commodity are inversely related, other things constant. It states that demand decreases with increase in price vice versa. The law of supply states that, all other factors constant, as the price of a good or services increases, the quantity of goods or services that suppliers offer will increase and vice versa. (Peter Bhopal, 2013.)

Kian Moini, co-founder of Lamudi, observes that oversupply often creates lower prices for housing. With many houses to choose from, maybe because of an excess of new home inventories, a 'buyer's market' can ensue. What has been observed in Kenya is that there is an oversupply of high end residential, commercial, retail and mixed use properties.
These properties either take a much longer time to get off the market at times forcing the vendors to lower their prices. On the flipside, a much lower supply of affordable properties for the middle and lower class citizens with a deficit of 90% per annum. This has indeed caused an exorbitant price increase especially in popular cities such as Nairobi and Mombasa.

Essays UK, (2013) outline that in Real Estate, supply and demand continually interact in the market to create and maintain price levels. Fundamentally, when supply goes up, prices drop as more sellers compete for buyers, when demand increases, prices increase as more buyers compete for the product. When both supply and demand increase, Real Estate prices tend to remain stable. Although no one can accurately predict changes in real estate values, understanding what causes prices to go up and down can be helpful to the real estate practitioner.

The level of activity in a Real Estate market is influenced by the changes in the economic and demographic factors that underlie demand and supply. Market analysis is basically an examination of these factors to forecast the impact of their changes on the price and the quantity outcomes in the market. When the level of demand increases, and this increase is accompanied by a relative smaller change in supply either and increase or a decrease, the analyst can forecast an increase in price as well as an increase in the number of units offered for sale.

2.2.1.2 Income

Income plays a significant role in real estate pricing as it reflects the purchasing power of potential the purchasers. An example is that a proposed single-family subdivision with homes priced from $300,000 to $350,000 will not be viable if the prevalent purchaser in the area has a gross income level in the $30,000 to $50,000 per year range (Pembina Institute 2013). A study carried out in the UK on real estate prices, indicated that income is the primary affecting factor for analyzing the real estate price. (Nellis and Longbottom, 1981)
A further study carried out in Canada Fortura and Kushner, (2003) illustrated that the nearer one is located to the city, the higher his/her salary therefore, houses close to the cities in Canada were much expensive compared to those further from the city. This is the general trend in all markets indicative that the effect cuts across different countries and markets across the world.

Kenya is not an exception to this phenomenon areas, believed to house the bourgeoisies in the country tend to have houses prices higher than in other parts of the city and the country at large. An example is that you could have a one bedrooomed house in Lavington renting out at KES. 30,000 or thereabouts, while a one bedroomed house in Umoja rents out as a little as from KES. 8000 and further, you could have the same one bedroomed house renting out for KES. 5000 or less in other parts of the country. Generally, the dynamics for income in relation to house prices are the same and cut across the globe.

In this essence, Naug and Jacobsen, (2005) formulated a hypothesis that a 1% increase in average wage results in a 1.75% increase in house price growth. It is from this hypothesis that Miller and Peng, (2016) utilized the data from 1990 to 2002 within 277 cities in America to estimate the fluctuation of housing prices. The result showed that the average income and the anticipative housing price are main reasons for housing price fluctuation according to Liang J., (2014).

### 2.2.1.3 Interest Rates

Banks play a significant role in real estate business. They are majorly the financiers of both the investors and the purchasers. Therefore, for development of the real estate business, interest rates need to be reasonable in that they accommodate both the debtors as well as the banks themselves. High interest rates are detrimental to investment in real estate. The increase in the lending rates by commercial banks causes a slow-down in the market as it affects both. This therefore pushes the prices of the property down as there is less demand for the property.
In 2004, an analysis was carried out on the house prices in the United Kingdom via the OEF economic model. The UK has enjoyed a relatively stable house price since 1980, because it benefited from the system of the interest rates. As it stands, the UK has enjoyed interest rates below 5% for years now with an all-time bank rate record low of 0.25% in 2016.

The banking industry in Kenya has dedicated itself into mortgage financing with some banks offering even up to 105% financing to the purchasers. Such an example is the Kenya Commercial Bank (KCB). KCB has put up a mortgage center where purchasers receive legal advice as well as the 100% mortgage financing. Further interest 60% of the pension fund is going towards the property market.

Hassanali, (2014) observes otherwise. It states that rising bank rates does not impact buying of land, town houses and apartments much since Kenya is a cash buyers’ market. Ms. Sakina Hassanali of Hass Consult states that “Only one per cent of houses are bought through mortgages.” Indeed, anecdotal on the basis that bank rates in actual fact affect property uptake globally. The fact that data on this is not captured well digitally, the research may be drawn to deduce skewed facts.

2.2.2 Physical

Physical factors mean dynamics surrounding the physical environmental of the property. What is the perception of the consumer as regards that area? Does the area cater for the specific need of the consumer? In this regard, the consumer will consider social amenities as well as facilities that will be able to address his daily needs as well as conveniences.

2.2.2.1 Location

A possible modifier of supply and demand theory in real estate has to do with the location of real estate. If real estate agents understand one thing about housing prices, it's that location usually has its own effect on them (Peter and Bhorpal, 2013). An old-time cliché in the real estate industry is that there are three important value determinants. These are “location, location, and location.” Obviously, this is a redundant statement, but it does
illustrate the importance of location in the real estate industry. Essentially duplicate houses can have vastly different prices if located in different neighborhoods Influences on Real Estate Value.

You could have a fantastic newly built home up for sale and if it's in an undesirable location it might not sell well. Conversely, a tiny "fixer-upper" studio in a hot location could sell extremely well and very quickly. In other cases, a location is so popular that builders can't keep up with demand and sellers command top dollar. Loose lending policies can also create seller's markets, with buyers chasing after increasingly higher-priced available housing.

2.2.3 Political factors/ Government incentives

Waki, (2008) discusses the amount of damage to properties in political violence-stricken locations. Properties were destroyed as well as Kenyan citizens displaced. The areas that faced the highest level of violence and destruction still hold biases against acquisition of property there especially if the buyer’s ethnicity is not the major ethnic community. Not only has this affected the property value in those areas to the locals but also international investors globally.

Policies formulated by the government ensure growth of real estate therefore ensuring a fair housing price in the country. Various views oppose this argument and argue that housing pricing are independent of any government policies. This research is of the view, that indeed politics, though not a major player in pricing of property, but it plays some role in the sector. For example, during election periods there are heightened fears of property destruction, especially in the Kenyan perspective after the 2007/2008 post -election violence (Centum, 2014). Prices therefore go down during this period as there lack the demand of the property. Government incentives also impact pricing of the houses, in Kenya; we had the President signing the Banking (Amendment) Bill (2016) into Law in a bid to curb the high interest rates charged by banks. However, as discussed above, low interest rates increase demand therefore property prices increase.
2.3 Digitization of Real Estate

According to Jones and Benjamin, (2013) the real estate industry, like many, is one based on a competitive consumer culture in which professionals vie for the business and, ultimately, the loyalty of customers. In this case, those customers are purchasing what, for most, is a significant investment, requiring them to navigate various legal and regulatory processes that might be impossible without the assistance of a knowledgeable, seasoned agent. It is the presence of agency that renders real estate unique from retail and other industries where goods and services trade hands. A question that arises therefore is real estate ready for the digital disruption?

In concurrence to the above sentiments, Carsten and Patrick, (2015) state that digitization in real estate sounds like a contradiction in terms. Real estate is the quintessence of the analog world, consisting as it does of stone, wood, concrete and other tangible materials or what you would call brick and mortar. It embodies the real world, not the virtual world. They further observe that real estate possess factors that can benefit from digitization, these are; it is a representation of a valuable investment and involves complex processes. It is therefore important that information is digitalized to ease the process of land transaction as well as give buyers options with a click of a button.

With the need of digitization or lack of it thereof in the real estate sector, a question that arises is there a place, if any, for estate agents in the current ICT age. According to Michael McCullough (2015) the disruptive power of the Internet has already gutted (or transformed, depending on your perspective) dozens of industries: travel agencies, stock brokerages, the recording industry, bookstores, classified ads. It has allowed consumers, for little or no fee, to cut out the middleman. Why should real estate sales be any different?

2.3.1 Attributes of Digitization

According to Angela Courtney (2012) the extent of a country’s digitization can be measured across six key attributes. These are the key components of the digitization score for any company measuring their digitization rate. The attributes will guide us in understanding the impact as well as modalities akin to digitization as a beneficial business concept.
2.3.1.1 Ubiquity

This is the extent to which consumers and enterprises have universal access to digital services and applications. Using the funnel approach, developed countries such as Japan for instance are in the forefront of ubiquity in regards to their pioneered technological innovations. Africa is limited by a lower penetration rate compared to other continents. Kenya however is at the top in terms of the internet penetration rate on both mobile and desktop.

With the internet penetration in Kenya standing at over 80% of the population, we stand in a day and age where access to information from all jurisdictions is readily available just by the click of a button. Mobile penetration as of April 2016 had hit 88% penetration of the total population (CAK). This is indeed a great opportunity across all industries in Kenya pillared primarily by the dire need for access to information as well as a strong mobile penetration rate across the country.

2.3.1.2 Affordability

The extent to which digital services are priced in a range that makes them available to as many people as possible. Affordability is calculated by the relative costs of all underlying infrastructures. In this context fixed, mobile and broadband service charges are considered together with connection fees. Each of the components (fixed, mobile and broadband) is given equal weight to account for the sample heterogeneity and the varying adoption in different socio economic conditions (Sabbagh et al., 2012)

Tim D, et al (2005) states that Infrastructure reliability depends on the quality of the services provided. Initially two different metrics were utilized - faults per line and investment per telecom subscriber - as quality proxies. However, during the statistical validation of the index, the first component had to be eliminated mainly because of the lack of adequate observations. Therefore, this component is comprised of investment per telecom subscriber (in all types of networks). This metric is sensitive to front-loaded investment projects that materialize later in time; therefore, it might exhibit higher values before societies actually receive the implied benefit.
2.3.1.3 Usability and Skill

The ease of use of digital services and the ability of local ecosystems to boost adoption of these services. Here we consider the internet retail as a percentage of the total retail, E-government Web measure index, percentage of individuals using the Internet, data as a percentage of wireless average revenue per user, domains by country per 100 inhabitants, IP addresses per 100 inhabitants, Social network unique visitors per month and the Average SMS usage per customer. With these parameters, we’re able to identify countries that have a high or low usability that can draw inferences as to the barriers or favorable conditions for the low and high usability respectively.

Digitization often lowers entry barriers, causing long-established boundaries between sectors to tumble. At the same time, the “plug and play” nature of digital assets causes value chains to disaggregate, creating openings for focused, fast-moving competitors. New market entrants often scale up rapidly at lower cost than legacy players can, and returns may grow rapidly as more customers join the network. (Martin & Wilmott, 2014)

2.3.2 Are Real Estate Agents Becoming Obsolete?

Real estate agents play a significant role in any property transaction. Real estate agents are professionals who sell and let properties on behalf of the principal owner on a variable pay. The variable pay is on sales commissions that are equivalent to 3% of the selling price an equivalent rental amount equated to the payment period whether a month or less. However, with digital disruption ongoing in all sectors of the economy, stakeholders in the real estate business seem to be divided as to the need of estate agents during a property transaction. A close look of ICT and Real estate provides three scenarios to the situation. The first scenario being the disintermediation of real estate agents, i.e. they lose their jobs to due to digitalization of real estate. The second being whether agents become dominate over digitization by taking advantage of the uniqueness of their sector. Finally, would digitization increasing their sales thereby increasing their brand visibility and consequently leads that are able to be converted into sales revenues and ROI.
2.3.2.1 Disintermediation of Real Estate Agents

It is a well-known fact that ICT has and still has economic impacts in all industries, real estate included. Disintermediation in real estate means that the buyer and the seller deal with each other without an intermediary, the estate agent as this proves to be cheaper to both of them. Michael D. Myers and Kevin Crowston (2004) predict that the widespread adoption of electronic commerce will lead to the disappearance of all human agents who act “merely” as match-makers – helping buyers find sellers and vice versa, in this case the real estate agents. This therefore means that owners can save up to 3% of their selling price which would otherwise be paid to an estate agent for their services. A common practice in Kenya is that a property owner willing to sell their property will have a fixed selling price and will want the exact amount from the estate agent. The seller then advises the estate agent that he can mark up the price and keep the amount over and above the seller’s price. This then causes the property price to increase unfavourably lumping the estate agent’s cost to the purchaser.

Online property platforms (cybermediaries) like Zillow Trulia and Kenya’s Jumia House seem to be at the lead based on their inventory as well a number of leads generated from site views. Almost every potential purchaser has access to internet, this means that before the purchaser contacts an estate agent, if at all he will, they have already done their research and know exactly what they want, and this therefore causes a diminishing value for estate agents as per Halim Henry Chiedu (2010).

Further Steve Sawyer et al (2010) observes that the cybermediaries provide an increased number of options as opposed to estate agents. They further observe that it is easier and fast to use cybermediaries rather than estate agent as property is organized according to one’s requirements, say prices and locations as well as photographs of the said property, all at a click of a button.

2.3.2.2 Dominance of Real Estate Agents Over ICT

Those that believe in the relevance of real estate agents, argue that real estate includes huge investments and sometimes impacts the whole family and cannot be equated to the taxi-
Uber disruption Craig, L (2016). He illustrates that a taxi ride is a huge decision to undertake, and any negative consequences cannot be equated to a consequence of lack of employing the services of a real estate. Of course, successes in developed markets that have pioneered digitization in real estate as mentioned before would rebut this allegation.

S. Jones and Z. Benjamin (2013) refers to Crowston and Wigand (1998), to note that real estate agents, unlike the retail sector, face unique challenges as providers of a service that is nonetheless secondary to the consumer. They are “pure market intermediaries – connecting buyers and sellers but rarely buying or selling themselves” (p.287). It is not in dispute that purchasers access the cybermediaries, but observation has it, that after the purchaser has undertaken their research via the online platforms the next person to contact is an estate agent. Towards this end, it is accepted that real estate is unlike any sector and purchasers highly value the authenticity of the real estate, especially, when they are regulated. It is common knowledge that while the Internet offers a wealth of information and access to marketing, it’s also a haven for misrepresentations and hucksters. Sharon, D (2016)

Craig, L (2016) summarizes by being skeptical on whether the human element of buying and selling homes will ever be replaced with an algorithm. Property transactions are complex and markets are efficient. The lack of real disruption to the Real Estate industry is a very good hint that Real Estate agents add significant value to the marketplace.

2.3.2.3 Estate Agents Employment of ICT

Satyavir Singh (2013) opined that despite digitization being an effective medium towards marketing real property, it alone cannot help sell conversions. “Unlike other sectors, customers cannot alter their choice after consumption. He therefore states that online marketing and promotion by estate agents must be embraced to meet the purchaser’s needs. This would mean that eventually a buyer has to visit the physical premises to indeed identify if it is real and all features seen on a digital platform are in fact actual. The visit can still be argued as negligible as the buyer will save time in visiting properties that may not be fully appealing to them.
Real estate agents have not been left behind in adopting the use of ICT in their field. Most of them have adopted ICT as a tool of advertising. Most of them are the major subscribers of the online platforms, advertising their listings. In Netherlands, according to Cherotich, L (2012) there is one major website (www.funda.nl) where all properties in the countries are listed, and this was instituted by the estate agents themselves.

In general, most of the developed countries have a Multi Listing Bureau (MLB), this is a list containing all property listings in different regions of the country provided by the different estate agents. Previously, these lists were contained in a book, but with digitization, these lists are made online. The listing is regulated by a legal framework as well as professional code of conduct, whereby all estate agents must adhere to. In the US for example there is a corporation agreement where an agent can list property listed by the other, and further sell it, provided they share the commission.

Michael D. Myers and Kevin Crowston (2004) illustrate that in New Zealand, the national website developed by the Real Estate Institute of New Zealand (REINZ) – www.realenz.co.nz – allows a buyer to compare listings across multiple real estate agents. But the only way to get a listing on the website is to list with an agent and the only way to buy a listed property is to deal with the agent.

It is therefore clear to note that real estate agents have embraced technology and are further using it to their advantage. The increased listings and increased number of viewership in their platforms will greatly increase their capital. It is also proper to note that the online platforms will not, if at all, render the estate agents obsolete in fact these platforms are increasing their capital.

Much cannot be said about the Kenya’s real estate agents in relation to ICT. As of today, Kenya has no MLB for all estate agents in the country, they all work independently. For the online platform, we have Jumia House (www.house.jumia.co.ke) as one and the major property website serving the country therefore estate agents, still have relevance in the property market.
The issue of misrepresentation and increased conmen in real estate industry in Kenya is quite active. There are never ending cases of double allocation as well as fraudulent or fake title documents and this chaos sends the purchasers to settle for real estate agents, especially lawyers. What is arguable is that Kenya is not your ideal market that is ready for the full impact of the disruption. As with other developing countries, digitization is yet to fully settle in smaller industries such as retail.

2.3.3 Paperless Transactions and Electronic Registration systems

Digitization in real estate could also mean paperless transactions and a well organized online registration system. (Sebastian and Koetter 2011) observe that most of the industrial countries have installed cadaster and land registration systems. These systems usually differ from country to country and have a long history of establishment. Even in high developed countries regulatory mechanisms, which are supposed to build trust and reliability, fail or cannot cover all contingencies as the credit crisis has shown. When it comes to emerging economies and developing countries situation looks even worse. Even basic conditions usually do not exist.

Kenya’s information and registration of land and real property is quite wanting. The situation at Ardhi House is characterized by chaos and confusion which have been brought about by the high corruption levels experienced at Ardhi House the Ministry of Lands to help curb these aspects, is in the processing of digitization land information in Kenya. This will therefore result to efficacy and transparency in the property industry. In the United Kingdom, for instance, when one wants to do a search for a title, it only takes them five minutes from the comfort of their home. Contrary, in Kenya, it takes more than a week — or two, or even a month — and it becomes inefficient because constructions are held up when one is trying to authenticate the deed. (Sam Manjau of Abec Real Estate, 2014)

A growing number real estate Companies in Kenya currently provide digital information as well as pictorial information of the property they are selling/leasing. They provide the infrastructures, amenities inter alia neighboring the property. They further
provide quarterly reports on factors affecting pricing of property at that time, Hass Consult and Cytonn Investments are examples of such real estate agents providing quarterly reports.

A major drawback however is information on the exhaustive purchase price. Purchaser’s especially first time purchasers are unaware that they will need to dig deep into their pockets and part with some extra amounts paid towards the National and County Governments. Landlords are major players in the property industry. Majority of landlords are apprehensive to provide the renting price of their houses as they only advertise the vacancy of the houses and not the rent. One has to call to obtain the rent price. More so, it is rare to find landlords that have websites or any information of some kind relating to their property.
2.4 Digitization of Real Estate Information vis a vis Property Prices

The above section has illustrated the role of real estate agents under the digitized real estate system as well as online provision of information regarding the property. This research therefore analyses the effects if any on property pricing in Kenya, as regards digitization of real estate specifically. As discussed above, estate agents in any property transaction have long been vital in any real estate transaction in their purview meaning the transition to digitization in the industry will take a number of years to fully take root. With that in mind, what would then happen to property pricing if the industry fully embraces ICT?

2.4.1 Digitization Registration System vis a vis Property Prices

Most developed countries are embracing digitized registration systems. This can be interpreted to mean, paperless transactions. Morgan (2016) states that the benefits of digitization of the real estate industry are that, digitization reduces long hours spent on contract preparation and administration and therefore saving costs of paper and other associated costs thereto. Over and above that, digitization would save costs on sourcing, identifying and viewing the properties by an interested buyer, more so any buyer who is interested in property within a different geographical jurisdiction.

Jacobs, S (2012) reports that July 25, 2000 saw the first paperless real estate transaction take place in Broward County, Florida. That transaction involved the purchase and financing of a home and took less than five minutes to record. Confirmed documents bearing all necessary recording data were immediately returned to the settlement agent via e-mail. Images of the recorded documents were immediately available on the county’s Web site. Further, in Virginia, the land registration system has been embraced and documents are verified and electronically returned to the parties within one to two days.

With this in mind, it is clear to note that the prices of the property would decrease as the time wasted queuing at the various land departments is basically extinguished. The famous saying, goes time is money, and where time is saved, clearly money is saved. In the US, the National Association of Realtors encourages and has been using digital signatures for some time now. They have their own ways of ensuring the authenticity of the signatures as
well as details of both parties. Harvey S (2012) observes that E-SIGN was enacted in 2000 and provides that a contract or signature “may not be denied legal effect, validity, or enforceability solely because it is in electronic form.” This landmark legislation opened the door for secure, authentic, legible and instantaneous signing of legally binding real estate contracts.

Kenya is yet to adopt electronic signatures and paperless transaction. We still have stringent laws that do not allow ICT to flourish. A proper land transaction takes a period of 3 months or more. There are various procedures that have been put up by the land laws and to this it is prudent to note that, Kenya will not be embracing ICT in the near future. The implication of house prices therefore Vis a Vis digitization of information is that such digitization would lower the total costs in acquiring property tied to the total house price from a buyer’s financial perspective.

**2.4.2 Property Prices vis a vis ICT; The Case of Real Estate Agents**

As discussed above, we cannot separate real estate and the key players, the real estate agent in any real estate transaction. It has been observed that they are the much-needed intermediary in any property transaction Lunde., J and Whitehead C (2016). So, what is the effect of digitization of real estate (having in mind estate agents) on property prices? An element that arises is that estate agents are the key players in formulating and applying electronic commerce in the industry.

Majority of the developed countries have a multi listing bureau MLB as discussed above, where prices are completely regulated by the agents themselves. For example, in Canada a real estate agent, will be struck off from the listing if he/she lists their property with a lower selling price. Michael McClaughen This in turn has raised house prices and the purchasers are opting out on the use of the listing, and therefore using the online property platform. Soo T (2005) states that, if real estate agents continue to exploit the purchasers through their MLB, they will soon be replaced by the online platforms.
Kenya’s real estate deficiency cannot be overemphasized. Each estate agent charges whatever price they deem fit. The agents are not regulated as to how they should sell their property. So generally, the pricing of houses in Kenya is basically affected by the previously discussed factors affecting pricing of a property. As for digitization of real estate Vis a Vis house prices in Kenya, this research opines that the prices would fall. The competition among themselves would be advantageous to the purchaser save for where an agent lowers the price for his or her listing and is struck out. If the government can regulate the said listing, then Kenya’s property prices would be friendlier to the purchaser.

More so, if they are more online property platforms entrants in the Kenyan market, the property prices would thus decrease as the agent only comes in after negotiations have been done between the buyer and the seller and at times not at all. The agent comes in to just give his professional opinion, and the costs for various site visits by the estate agents are done away with. This will then address the issue of affordable housing that had plagued our country for a good number of years.

According to a report done by National Cooperative Housing Union (2016), it was opined that economic policies if implemented to the letter and are free from minimum consequences of corruption and political interference can transform a country to a state of economic vibrancy; wide spread sound infrastructure and responsible political governance. Vision 2030 is founded on three pillars; economic pillar, social pillar and political pillar. In its Social pillar, the Government is to plan for adequate and affordable housing for its citizens.

The blueprint guides policy implementers and stakeholders to aim at producing houses to all income earners at the rate of 150,000 units annually. True to this policy, the country has currently increased its annual production to between 40,000 and 50,000 units annually according to the Ministry of Housing. However, it is important to note that this annual production of the housing units is a global national figure. If one is to go into detail and survey the number of low cost housing for the low-income earners, one may notice that
the figures are extremely low and perhaps it is precise to say affordable housing is not affordable to all.

One major impediment of infrastructure development in Kenya, ironically it is the law itself. In the yesteryears, none of the local authorities would approve drawings that did not comply with the good old Building Code of 1969. With the enactment of National Building Authority Act and subsequent establishment of the National Construction Authority, the landscape of building development is set to change positively. This new law allows a developer to construct green buildings with unconventional materials like Structured Insulated Panels (SIP) and interlocking bricks. The doors are now opened to more variety of construction materials at very fair prices. These fair prices of materials, should lead to affordable housing.

The law has given the construction industry a further major boost by the creation of the National Land Commission from the amalgamation of all previous land laws to only three Acts; the National Land Commission Act, the Land Registration Act and the Land Act. The mandate of the National Land Commission is drawn from the Constitution of Kenya 2010, the National Land Policy of 2009, National Land Commission Act, 2012, the Land Act 2012 and the Land Registration Act of 2012. Pursuant to Article 67(2) of the Constitution, the functions of the Commission shall be: to manage public land on behalf of the national and county governments; to recommend a national land policy to the national government; to advise the national government on a comprehensive program for the registration of title in land throughout Kenya; to conduct research related to land and the use of natural resources, and make recommendations to appropriate authorities; to initiate investigations, on its own initiative or on a complaint, into present or historical land injustices, and recommend appropriate redress; to encourage the application of traditional dispute resolution mechanisms in land conflicts; to assess tax on land and premiums on immovable property in any area designated by law; and to monitor and have oversight responsibilities over land use planning throughout the country.
Under the National Land Commission Act, the Commission shall on behalf of, and with the consent of, the national and county governments, alienate public land, monitor the registration of all rights and interests in land; ensure that public land and land under the management of designated state agencies are sustainably managed for their intended purpose and for future generations; develop and maintain an effective land information management system at national and county levels; manage and administer all unregistered trust land and unregistered community land on behalf of the county government; and develop and encourage alternative dispute resolution mechanisms in land dispute handling and management. The Commission shall ensure that all unregistered land is registered within ten years from the commencement of this Act. The parliament may however, after taking into consideration the progress of registration, extend the period set by the Commission under subsection. Within five years of the commencement of the NLC Act, the Commission, on its own motion or upon a complaint by the national or county government, a community or an individual review or grant disposition of public land to establish their propriety or legality. The Commission shall in consultation and corporation with the national and county governments, establish county land management boards for the purposes of managing public land.

Under the Land Act 2012 The Commission shall; implement settlement programs on behalf of national and county governments as outlined in section 134 of the Land Act. Administer the Land Settlement Fund in accordance with section 135 of Land Act, manage the Land Compensation Fund, identify ecologically sensitive areas that are within public land and demarcate and take any other justified action on those areas and act to prevent environmental degradation and climate change in accordance with the Land Act, reserve public land for the establishment of approved settlement programs, and where public land is not available, purchase private land subject to the Public Procurement and Disposal Act, 2005 or any other law as provided for in section 134 (5) of the Land Act.

The NLC shall further set aside land for investment purposes in accordance with section 12(3) of the Land Act; approve compulsory acquisitions, wayleaves, easements and analogous rights, ensure that the investments, in land benefit local communities and their
economies; make regulations prescribing the criteria for allocation of public land, such regulations to prescribe forms of ownership and access to land under all tenure systems. The procedure and manner of setting aside land for investment should respect mechanisms of benefit sharing with local communities. The commission shall also undertake an inventory of all land based natural resources upon coming into force of the Land Act as stipulated in section 15(3) of the LA.

The Land Registration Act, 2012 was instituted to constitute registration units in consultation with national and county governments, determine the form of a land register that shall be maintained, in each registration unit, appoint a date for geo–referencing plans to be kept in a land registry and the office or authority responsible for the survey of land shall submit to the Commission a copy of the cadastral maps for depositing, as well as prescribe (through regulations) guidelines that the registrar shall follow before question has been obtained by fraud. Finally, it shall advice the cabinet secretary in making regulations, rules or prescribing any matters required under this Act and such regulations or rules shall be tabled before Parliament.

If one is to track backwards the history of affordable housing in Kenya, it would be strongly inclined to technology as the most outstanding key factor in response to addressing affordable housing. For digitization to flourish, transparency ought to be maintained. To attract more investors in the real property business, stakeholders ought to maintain transparency. Transparency in general increases the chances of completing a deal. The basis for a high transparency in the real estate market is founded in structured market data. Trends can only be identified if data have been collected systematically over a long period as detailed as possible. Transparency will enhance the whole real estate transaction process. Primarily in saving time and that means in saving money.

Kenya is a developing country facing various hurdles and challenges faced by other developing countries. Such an example is illustrated above by the lack of an efficient electrical land registration system as well as lack of the unified Multi Listing Bureau for different regions in the country as well as online property platforms.
Despite the above, ICT is a rapid growing sector that cuts across all industries in the world. To this, digitization of real estate will be of great importance in real estate, as it would allow purchasers to view more properties at a click of the button and maybe, just maybe, if they are comfortable enough with the online view, they can go ahead with the transaction. The major drawback to digitization of real estate is the need for electronically registration system; this is just but a dream, for now. If at all the Ministry of Lands, as it says, is in the process of digitizing land information in the country, this will play a significant role by reducing the costs incidental to the lack of online data. As such, prices on property as this regard will fall.

2.5 Chapter Summary

This chapter reviewed literature to form the basis of the research. The issues captured in the research questions adequately illustrate the factors that factually influence property prices, the concept of digitization as an independent concept and how it can influence property pricing holistically to reinforce the already existing factors into best practices for the industry.

Economic factors of supply and demand, income, interest rates, physical location, political and government incentives are evidently variables that influence pricing across all markets. Digitization with its attributes can clearly be seen as disruptive to a traditional market that has been rigid to the global dynamisms especially in developing countries such as Kenya. The benefits however cut across all stakeholders or players in the industry.

The subsequent chapter shall cover the research design and methodology to be used to carry out the explanatory research.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This research aimed to analyze how digitization would affect Kenya’s property prices in different regions. This chapter has covered the research design and methodology to be used to carry out the explanatory research. The chapter describes and justifies the research methodology to be used for the research outlining the research design and methodology that was used to carry out the research. It presents the research design to the study population, the population and sample design - broken down specifically into the population, sample design, sampling frame, sampling technique and sample size-, the data collection methods, research procedures inclusive of the data validity and reliability and finally the data analysis methods. The results and findings of the data were then collected, packaged and analyzed.

3.2 Research Design

Research design refers to a way the study is designed, that the method used to carry out the design (Mugenda and Mugenda, 2003). Redman et al. (1923), define research as a systematized effort to gain new knowledge. It is also considered as a movement, movement from the known to the unknown.

The research design employed here is the explanatory design which is the higher form of the descriptive design. Explanatory research focuses on why questions. For example, it is one thing to describe the property pricing as well as digitization levels in a country, and one thing to examine trends over time or to compare the data in different countries. It is quite a different thing to develop explanations about why the comparative trends in different countries vary. The way in which researchers develop research designs is fundamentally affected by whether the research question is descriptive or explanatory. It affects what information is collected. For example, if we want to explain why some countries have experienced property price variances and others have not yet actualized this we need to have hunches about why this is so. We may have many possibly incompatible hunches and will need to collect information that enables us to see which hunches work best empirically.
Answering the `why' questions involves developing causal explanations. Causal explanations argue that phenomenon Y (e.g. property prices) is affected by factor X (digitization).

With this definition, a clear justification for the employed explanatory design holds. I have addressed, as discussed in chapter two, the factors that affect the property prices, digitization as well as why digitization would impact property prices from a global perspective, to regional and on the national scope therefore answering the question why.

3.3 Population and Sampling Design
3.3.1 Population

According to (“Explorable.com”, 2014), a research portal that was designed to obtain information on calculation of outlier data a research population is generally a large collection of individuals or objects that is the main focus of a scientific query. It is for the benefit of the population that researches are done. However, due to the large sizes of populations, researchers often cannot test every individual in the population because it is too expensive and time-consuming. This is the reason why researchers rely on sampling techniques.

A research population is also known as a well-defined collection of individuals or objects known to have similar characteristics. All individuals or objects within a certain population usually have a common, binding characteristic or trait. In this regard for our research purposes, the binding trait for the desired population is the fact that the entire population consists of professionals in the real estate business dealing with property transactions.

Population is therefore a well-defined set of people, services, elements, and events, groups of things or households that are being investigated. The population of interest in this study is obtained from the list of estate agents who have been transacting in real estate across Kenya. The number obtained was 300 with an estimated existence of about 1000 listed professionals who have an online presence whether on their own websites or other vertical (Property24) and horizontal (OLX) classified listing portals.
3.3.2 Sampling Design

3.3.2.1 Sampling Frame

The sampling frame was derived from registered estate agents in Nairobi. These were professionals with practices based in Nairobi for ease of access as well as guided by the fact that Nairobi had the highest internet searches, over 70%, for properties compared to other cities within Kenya. Appendix. 1.4, contains the population list of estate agents.

3.3.2.2 Sampling Technique

Probability sampling technique to ensure equity was used. According to Kulshreshtha (2013) probability sampling method is any method of sampling that utilizes some form of random selection. In order to have a random selection method, one must set up some process or procedure that assures that the different units in my population have equal probabilities of being chosen. Probability sampling assures us that the sample is representative and we can estimate the errors for the sampling. Specifically, the research has conducted the randomness technique under probability sampling to ensure equal chance of engagement was offered to each respondent.

In the case that the element could not be selected again after being selected once, then the sample was to be obtained through a random sampling without replacement. It would not have been interesting for us to ask twice the same person. So once an element of the population was chosen it was undesirable to choose it again.

3.3.2.3 Sampling Size

Rosie Cornish, (2012) stated that one crucial aspect of study design is deciding how big your sample should be. If you increase your sample size you increase the precision of your estimates, which means that, for any given estimate / size of effect, the greater the sample size the more “statistically significant” the result will be. In other words, if an investigation is too small then it will not detect results that are in fact important. Conversely, if a very large sample is used, even tiny deviations from the null hypothesis will be statistically significant, even if these are not, in fact, practically important.
The sample size will therefore be a selection from the population in consideration of the total population size, margin of error being the extent of the confidence interval of the results. Other factors to consider are the confidence level being the level at which the resultant mean will go beyond or below the confidence interval and the Standard deviation which is the variance expected out of the questionnaires, before the research questions are administered.

Mugenda and Mugenda, (2003) indicated that a sample size of 30 and above of the population is sufficient sample size for a study. It is not that 30 in a sample group should be enough for just any study. The rationale behind this is that one needs at least 30 before one can reasonably expect an analysis based upon the normal distribution to be valid. 30 then represents a threshold above which the sample size is no longer considered inadequate. The threshold works more as a general guideline however it does not factor in any level of confidence or margin of error and accuracies especially when the population size is infinite.

To simplify the process of determining the sample size for a finite population, Krejcie & Morgan, (1970), came up with a table using sample size formula for finite population. A finite population is one that is known and in this case, we worked with 305 (Appendix 1.4). A sample size of 56 was selected by using Table 3.1 below which extrapolates the formula used by Krejcie & Morgan, (1970), with a 90% minimum confidence level and a maximum margin of error of 10%. A draw was made to choose 56 of them randomly, so that they all had the same possibility of belonging to the sample (Paula Lagares Barreiro, 2014).
In this regard, a sample size of 56 out of the collected 305 was considered to be adequate enough and therefore representative dependent on the similar traits akin to the respondents’ nature of business. The convenience of the sample size applies here whereby the population as discussed above contains respondents with similar traits which, for all intents and purposes of this study, mainly are real estate agents with an online presence. The sample size is therefore representative to derive and back my study without any inadequacies.

### 3.4 Data Collection Methods

Secondary data will be collected for the purpose of this study from sampled firms’ performance, journals, magazines, books and archived records in support of the primary data. Primary data will be collected from the respondents via questionnaires. Questionnaires are forms which are completed and returned by respondents. An inexpensive method that is useful where literacy rates are high and respondents are co-operative. The questionnaires to be used will contain questions only related to the research objectives (Appendix 1.1). The choice of method is influenced by the data collection strategy, the type of variable, the accuracy required, the collection point and the skill of the enumerator. Links between a variable, its source and practical methods for its collection can help in choosing appropriate methods.
3.5 Research Procedures

This involved a questionnaire that was able to collect data from the respondents mentioned in the sample frame. The turgidity of the questionnaire was tested with about five respondents. Once the questionnaire was good for use with no changes from the testing, it was disseminated electronically upon prior communication and confirmation by the selected respondents.

The accuracy of data collected is largely dependent on the instruments of data collection in terms of validity and reliability. Validity as noted by Robinson (2002) is the degree to which result obtained from the analysis of the data actually represents the phenomenon under study. Reliability refers to a measure of degree to which research instruments yield consistent results.

3.6 Data Analysis Methods

The data was edited for completeness, consistency and accuracy ready for analysis. The data collected was coded, tabulated then statistical inferences according to the responses received was drawn. The analysis was done using linear regression model in order to calculate the relationship and strength between sales of real estate and the use of online portals through digitization.

The model treated property prices as the dependent variable while digitization as independent variable. The tools were selected for their clarity, preciseness and ease of understanding and interpretation. Statistical Package for Social Sciences (SPSS) was used to aid in the analysis.

3.7 Chapter Summary

This chapter has described and justified the research methodology to be used for the research. The chapter outlines the research design and methodology that was used to carry out the research. It presents the research design to the study population, the population and sample design - broken down specifically into the population, sample design, sampling
frame, sampling technique and sample size, the data collection methods, research procedures, data analysis methods and finally the data validity and reliability.

Once the data was collected, the next chapter (Chapter 4) represents the analysis of the study findings. This chapter includes the research findings and data analyses, and describes the systematic and careful application of the research methods. The subsequent chapter 5 discusses the findings and analysis made in the previous chapter whereby conclusions and recommendations have been sufficiently provided.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

This chapter describes the analysis of data followed by a discussion of the research findings. The findings relate to the research questions that guided the study. Covered in this chapter is the general information derived from analysis of each variable through descriptive statistics, an analysis of the results in reference to the three research objectives and finally the chapter summary. Data was analyzed to identify, describe and explore the impact digitization would have on property pricing with a key focus on the Kenyan real estate market. The presentation of this data will be based on tables and graphs to clearly indicate the position of each respondent and draw inferences from the frequency of similar responses for each question.

4.2 General Information

Fifty-six respondents were targeted. Seventy questionnaires were distributed to achieve the target. Of the 70 questionnaires 65 were returned; of the 65, 59 were usable. The missing 5 questionnaires were not returned and it became impossible to raise the respondents on any communication channel. The 6 unusable questionnaires from the 65 returned had missing data in a number of questions having been left blank. To maintain consistency, the research only used the questionnaires that had been fully answered which met the required inclusion criteria. From the 59, the target of 56 respondents as per the sample size was achieved. This represented 18% of the expected population.

The datasets were collected based on the 3 research objectives intended to describe variables of the sample and to assess any influence on the research findings. The datasets on the first part consisted of factors influencing the property prices in Kenya broken down into economic, physical and government factors. The second part based on the second research objective contained datasets based on digitization specifically its attributes and any potential conflicts of interest between the concept and the estate agents. The third and final part presents the main objective on the influence digitization potentially has on property prices in Kenya.
The questionnaire had a total of 37 questions split between the 3 research objectives. In order to make it easier for the respondents to answer each question without giving any ambiguous long answers, each question was close-ended with 5 possible responses to maintain consistency and deductible inferences based on the frequency of similar responses across all the respondents. Considering the information being sought was not quantitative but categorical, the questions were set in a manner easy to lead the respondent in the researcher’s line of thought in furtherance of the research objectives. The respondents simply had to pick one response per question without the possibility of having two responses on the same question. The responses had to either be in strong agreement to the statements posed as questions to basic agreement, or basic disagreement to strong disagreement. The 5th option catered for the possibility that the respondents may not have understood the question or know the facts surrounding the question giving them the possibility of answering N/A (not applicable) as opposed to leaving the responses blank.

The most effective way to achieve this was to ask the respondents to give a rating of each statement question by responding to a scale of 1-5 where 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree, and 5=N/A. Noteworthy is the fact that from all the responses obtained from the 56 respondents, none gave a rating of 5 indicative of the fact that they understood each question and gave their own independent answers based on their knowledge and experience in the real estate industry. Below is a depiction of the responses given per question to give an overview of the rating score respondents with the industry experience and knowledge. Considering none of the respondents gave a N/A response, it became immaterial to reflect this in the tabulations.

The tabulation of the responses captured has been presented as per the 3 main objectives of the research. Each response will be presented in graphs in the preceding sub-sections correspondent to the research objectives. The mean rating column on all three tables indicates the average rating between 1 and 4 commensurate to the rating parameters mentioned in the previous paragraph. The mean rating was rounded off to the nearest integer whereby any rating + 0.5 and below was rounded off to the lower rating and any rating +0.6 and above was rounded off to the higher rating signifying that the response rating leaned more towards strongly agree (4), agree (3), disagree (2) or strongly disagree (1).
4.3 Factors Affecting Property Pricing

Before diving into the specific factors in the questionnaire, it was imperative to understand the respondents’ perspectives on the market environment initially in guiding the research from their expert opinions. Three questions were asked on the existence of regulations on pricing, whether the market was considered a free market with a ‘Willing seller, willing buyer’ climate and the effect of arbitrary pricing based on the market environment and how disruptive it is.

Fig. 1.1: Regulation of Property Prices

In the initial question the research wanted to find out if property prices were regulated in Kenya. The responses had 52 (93%) out of the 56 eliciting strong disagreements that property pricing is indeed regulated with 4 (7%) respondents also disagreeing but not strongly. All respondents agreed with this statement indicative that property prices are indeed not regulated. Other studies agree with this finding as well.
Respondents in the second question were asked what the real estate market environment was like. Reports have called the Kenyan market a free but thriving market with low barriers to entry. Of the 56, 49 respondents (88%) strongly agreed with 7 (12%) agreeing indicative that the market is indeed a ‘free market’.

In the third question, 51 (91%) respondents strongly agreed and 5 (7%) simply agreed with the statement that an arbitrary surge in pricing of property in a particular location will cause a disruption in the market and cause a surge in prices of properties within that area.
The results show that the pricing follows a trend as opposed to actual value of the properties. Recent studies have shown that the converse is rarely the case where a seller can decide to lower the prices and end up disrupting the property market in that area.

4.3.1 Economic Factors

4.3.1.1 Supply and Demand

![Pie Chart: Strongly Agree, Agree, Disagree, Strongly Disagree]

**Fig. 1.4: Demand and Supply Affects Property Prices**

The fourth question addressed economic factors of demand and supply with 52 (93%) strongly agreeing and 4 (7%) agreeing that indeed these factors influence property pricing. Other reports obtained from secondary sources reinforce these results as discussed in the literature review chapter.
The 7th and 8th question in regards to the economic factors of supply and demand, 45 (80%) respondents strongly agreed with 11 (20%) agreeing that when there is a higher supply than demand of properties the prices will tend to drop and conversely when there’s a lower supply than the demand then the prices tend to increase. Other studies have reinforced this statement as true.

Fig. 1.5: Oversupply of Property with Low Demand Decreases Prices

Fig. 1.6: Undersupply of Property with High Demand Increases Prices
4.3.1.2 Income

The fifth question on income had results of 42 respondents strongly agreeing to the statement with 14 also agreeing. As captured in our literature review from secondary sources, the statement is indeed true furthered by the results illustrated in Fig. 1.7 above.

Fig. 1.7: Income Affects Property Prices

4.3.1.3 Interest Rates

51 (93%) respondents strongly agreed and 5 (7%) agreed that interest rates from banks influence property pricing. Other studies are also of the same view on the basis that high interest rates make the overall price of properties bought through bank financing higher than their actual value. At the point of selling, the buyer who acquired the property through this mode will be inclined increase the price based on property appreciation on the base price factoring in the bank’s interest rates.
Here, the question addressed the issue of high interest rates as well deterring buyers from accessing loan facilities from banks forcing the market towards a cash-buyers’ market environment. All the respondents were in agreement with the statement where 52 (93%) strongly agreed and 4 (7%) basically agreed. The inference to the truth of the statement is solid on the premise that high interest rates as previously discussed increase the cost of acquiring a property and the overall property price. The more expensive a property is, the more it locks out potential buyers with a lower budget.
The converse also holds based on the subsequent question regarding high interest rates from banks. 52 (93%) strongly agreed and 4 (7%) basically agreed, that indeed low interest rates will open up the market and encourage buyers to buy since the properties will become more affordable.

![Pie chart showing responses to the question regarding low interest rates and property sales.](image)

**Fig. 1.10: Low Interest Rates Increase Property Sales**

The final question on the economic factors probed on the market environment where we wanted to find out if indeed the Kenyan real estate market is a ‘cash-buyers’ market due to high interest rates. Other research findings as discussed in the literature review point to the fact that this is true. The results were indicative of this statement with 24 (43%) respondents strongly agreed and 32 (57%) agreed as well. The disparity between the two ratings skewed towards a basic agreement could be inferred that there is not a lot of knowledge in the market environment as to where buyers access money from, however the indication still points to the fact that all the respondents agreed to the statement.
4.3.2 Physical

4.3.2.1 Location

Fig. 1.12: Location Affects Property Pricing.

Fifty-one (93%) respondents strongly agreed with the other 5 (7%) agreeing as well, that location influences the property prices.
Fig. 1.13: Living in Urban Areas Is More Expensive Than in Rural Areas

This can also be inferred from the urban and rural disparities mentioned in Fig. 1.13 above where all the 56 (100%) respondents strongly agreed on the physical factor of location that the standard of living in the urban areas such as Nairobi compared to rural areas such as Murang’a is much higher.

Fig. 1.14: Property Costs More in Urban Than in Rural Areas

Therefore, the property prices tend to be higher in urban than in rural areas as illustrated in Fig 1.14 above. Various studies as discussed in the literature review propone to this fact.
4.3.3 Political Factors

On the last question in this section, the respondents elicited a strong agreement on the political/government factor of property having a lower demand during election periods with uncertainty of the political environment. This was greatly witnessed in the 2007/2008 Kenya general elections that really injured the real estate market. 49 (87%) respondents were in strong agreement with the remaining 7 (13%) agreeing as well as illustrated in Fig 1.15 above.

4.4 Digitization of Real Estate

In reference to this section the respondents were, through the first question, probed into their idea of what benefit would digitization have on the real estate market. Fig. 1.16 illustrates the responses given on the overall issue of digitization having a positive impact on the Kenyan property market. The responses were unanimous.
Fig. 1.16: Digitization Impacts the Property Market in A Positive Way

Fifty-one respondents (93%) strongly agreed with 5 (7%) agreeing that indeed digitization in real estate will impact the real estate industry in a positive way. The results point to the fact that digitization is quite welcomed in the industry.

4.4.1 Attributes of Digitization

Different questions were asked around the attributes of digitization based on the secondary findings. This was aimed at reinforcing or disproving known theories across different markets and how applicable they would be in Kenya. Each finding was discussed at length in the subsequent chapter.

4.4.1.1 Ubiquity

As previously discussed, ubiquity is the extent to which consumers and enterprises have universal access to digital services and applications. This then means the respondents needed to give their perspective on theories surrounding this.
Figure 1.17 illustrates the responses given on ubiquity specifically the notion that digitization would create more business opportunities for the real estate agents. 52 (93%) respondents strongly agreed with 4 (7%) agreeing to this statement.

Figure 1.18 shows the rating given on the question regarding digitization bringing more business to sellers in resonance to the previous question on more business opportunities. All the respondents had a unanimous strong agreement to this statement. The
results show that the real estate agents have seen the benefit of digitization creating more business for them in turn more sales revenues.

Pursuant to the previous statement, the respondents were asked whether digitization would connect them with other parts of the world. All 56 (100%) respondents strongly agreed to this statement. This points to the fact that the respondents have witnessed or have been privy to interactions with other countries whether on business or social scenarios pointing to the potential of such connects.

![](image19.png)

**Fig. 1.19: Digitization Connects the Entire World**

![Digitization Connects The Entire World](image19.png)

**Fig. 1.20: Digitization Builds Investor & Consumer Confidence**

![](image20.png)
Thirty-five (64%) respondents strongly agreed with 19 (34%) who agreed that consumer confidence has increased due to digitization of real estate in that the consumers are now able to access verified information easily and conveniently. Only 1 (2%) respondent disagreed though not strongly however the average rating of 3.5 strongly points to the fact that the general sentiments are in agreement to this fact. The outlier in this statement can be inferred to issues of fraud that digitization has been rife with. This was addressed in the 3rd research question in this chapter as well as chapter 5.

In this regard, the respondents were then asked if there then was a need for reliance on digitization to maximize on sales opportunities. 36 (64%) respondents strongly agreed and 17 (31%) agreed whereas 3 (5%) disagreed though not to a strong extent. The inference is towards an agreement to this statement. On the respondents who disagreed inferences can be drawn to their lack of confidence in digitization deterred by factors such as fraudulence. This was discussed in the preceding chapter.

![Fig. 1.21: Need for Reliance on Digital Content to Maximize on Sales Opportunities](image)

4.4.1.2 Affordability

Studies have shown that historically, digitization was a novel concept only for developed countries making it expensive and only affordable to big companies with a digitization budget. Over the decades, digitization has cut across all the countries in the world
with easy access even on mobile. Studies have further shown that digitization is becoming more and more affordable to the commonest of citizens.

Further, compared to offline marketing channels such as newspapers, bill-boards, radio and television, studies have shown that the amount of money one would pay to advertise on this channels is quite high. The duration of one’s advertisements on this channels is also limited. On the other hand, what one would pay to feature an ad on a digital platform would be quite low comparatively or even free. The figure below illustrates the responses on affordability.

![Fig. 1.22: Digital Content Cheaper & Greener Than Print](image)

51 (93%) of the respondents strongly agreed with 5 (7%) agreeing to this fact. The results are in full support of the statement.

### 4.4.1.3 Usability & Skill
50 (92%) respondents elicited a strong agreement with the remaining 6 (8%) agreeing that digitization increases visibility for their properties as opposed to offline channels such as print. The fact is that through the internet a wider population is reached not only locally but globally by the click of a button and the space to advertise on a digital platform is unlimited making it more usable. Print is limited to only a certain number of words as well as images. This can further be related to the previous statement on the affordability of advertising properties through online compared to offline illustrative that online digital platforms are limitless whereas offline channels are quite limiting and expensive.
Still on usability and skill, the respondents were asked to give their rating on the statement that business analysis is more convenient on digital content than on print. All the 56 (100%) respondents strongly agreed. Estate agents as well as real estate developers are always keen on data especially on market trends. The difficulty in accessing data from offline channels and manipulating it is quite an involving process. Digital content can be easily manipulated to give accurate figures and variables that are comparable for many years. Having their properties listed on a digital platform enables them to use tools that easily generate data and reports, dubbed analytics, that can influence their business growth through using this data that can be automated as discussed in our literature review.
4.4.2 Can Digitization Make Agents Obsolete?

Fig. 1.25: Estate Agents Become Obsolete from Digitization

The respondents, were asked if they fear that digitization would make them obsolete. 47 (84%) respondents strongly disagreed and 9 (16%) disagreed with an average rating of 1.2 indicative that real estate agents do not feel threatened by digitization losing them business from the principle seller but will be a conduit for them to increase their business volumes as illustrated in Fig. 1.17 and 1.18.

4.4.3 Paperless Transactions and Electronic Registration systems

As discussed in chapter 2 of this research, digitization in real estate could also mean paperless transactions and a well-organized online registration system. This is geared towards building trust and reliability. To this effect, the respondents were asked to give a rating on the statement that digitization reduces fraud. Fig. 1.26 illustrates the responses given.
Ten (18%) respondents strongly agreed and 12 (21%) also agreeing. 25 (45%) respondents disagreed and 9 (16%) strongly disagreeing. Inference can be made to the notion that in as much as there is a belief in the possibility of minimizing fraud through digitization, the fact that it is yet to be achieved shows a lack of confidence in the estate agents in it accomplishment.

4.5 Digitization vs Property Prices

In this section, the research looked to probe the respondents on the relationship between property pricing and digitization and the impact therein. The first question addressed the issue of an increase in the number of fraudsters in the digital platforms and had 34 (60%) respondents strongly agree with 16 (29%) agreeing. The remaining 6 (11%) disagreed. Further studies and findings indicate however that the fraudsters are rampant in free listing platforms that have no quality checks for the listings uploaded thus deterring consumers. Platforms on the other hand that charge a certain fee and have internal checks indicated a low fraud risk.
Arbitrary pricing by any seller has been seen in various studies to be disruptive. This, as discussed in the literature review on this research, furthers the point that digitization can decrease the instances of arbitrary pricing through consumers accessing information on affordable properties within the same location thus forcing the arbitrary seller to lower their prices to market rates. As depicted in Fig. 1.28, 20 (36%) respondents strongly agreed with the remaining 36 (64%) agreeing that indeed digitization would help curb agents from marking up the property prices to get a bigger commission or bonus since the prices are comparable and the sellers may lower their prices or opt to do their own sales and marketing thus cutting out the real estate agents.
As illustrated in Fig. 1.29 the third statement had 35 (63%) respondents strongly agree and 21 (37%) agree to the notion that costs for a property buyer are minimized when the property information is visible on an online platform. The buyer will not have to spend copious amounts of time and money searching from one location to another manually but now rely on the convenience and zero costs in browsing for property options online. This then cuts down on the total expenditure of buying a property.

![Digitization Saves Buyers Money](image)

**Fig. 1.29: Digitization Saves Buyers Money**

Fig. 1.30 was indicative of a strong agreement by the respondents on the fact that investors from different geographical locations worldwide can easily access information on Kenyan property and thus build their confidence in investing here.
This would in turn play a huge impact on the demand and supply side that would affect the pricing. 48 (86%) respondents strongly agreed with the remaining 8 (14%) agreeing. This can be addressed in line with the question as to whether digitization will attract foreign direct investments (FDIs) to Kenya. Similar ratings were observed as per Fig. 1.31 in that FDIs will directly increase Kenya’s GDP as previously discussed.
All respondents were in strong agreement that all the properties in the market should be listed on an online platform for ease of planning purposes by relevant government bodies as per the question on digitization aiding market research and government planning. This is in line with the question on the perennial issue plaguing Kenya on the deficit of affordable homes.

![Bar Chart](image)

**Fig. 1.32: Digitization Aids Market Research & Government Planning**

All the 56 (100%) respondents strongly agreed that indeed digitization will enable the relevant government bodies collect data easily to inform their next steps in addressing the issue. This is illustrated in Fig. 1.33 and Fig 1.34 with 42 (75%) respondent strongly agreeing and 14 (25%) agreeing. This has been discussed in more detail in our literature review.
The question in regards to the government investing in ICT in Kenya had a strong disagreeing by 20 (36%) respondents strongly disagreeing with 36 (64%) disagreeing that indeed the government is not investing enough. Most of the respondents were not in strong disagreement and could be assumed that they are conscious of the steps, albeit not substantial enough, the government has been making. However, the ratings point to the fact that the respondents disagree that the government is doing enough.

Fig. 1.34: Sufficient Investments by Government in ICT
All respondents in the final two questions in this section showed a strong agreement on the fact that digitization will improve best practices in the industry through amalgamated information from different jurisdictions especially developed countries and improve professional standards in the industry.

Fig. 1.35: Digitization Fosters Global Best Practices

Fig. 1.36 illustrates 51 (91%) respondents who strongly agreed and 4 (7%) who agreed.
4.6 Chapter Summary

In this chapter, data analysis methods, study results and a discussion of the findings have been presented. Findings from this study have been found to be consistent with the findings of several related studies on the knowledge on factors affecting property pricing as well as digitization and its impact in the real estate industry in Kenya, borrowing from developed counties. Data findings were described as correlations to the study variables and presented as tabulations and graphs. In this chapter, the implications of the findings for the impact digitization has in the real estate industry in Kenya have been discussed.

The primary findings were collected from professionals in the real estate industry through their expert opinions on all the questions posed in the questionnaire. The data was then put to the test through our secondary data we collected in our literature review. This was addressed in the next chapter to draw and define inferences in support or against theory and practice. The findings were discussed at length and give their justifications for the reliance on the primary data above the secondary sources.
CHAPTER FIVE

5.0 DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter concludes the research. A summary of the study is presented with the findings and inferences being interpreted. This research was conducted with the main purpose of analyzing the impact digitization would have on the real estate industry in the immediate context of Kenya in regards to property pricing. The research leans on the underlying presumption that digitization will lower property prices if holistically embraced. The conclusions may have a scope limited to the context and characteristics of Kenya. However, the research has made great efforts to align the context in comparison to other markets to give relevance in yielding correct assumptions applicable in various jurisdictions. Recommendations for further research will conclude this chapter in line with the gaps that exist.

5.2 Summary of the Study

The main purpose of this research was to analyse how digitization would affect Kenya’s property prices in different regions. In order to achieve the main goal, research questions were set to streamline the research into coherent facts and data from which inferences and interpretations were drawn. Three research questions were set around property pricing and the factors that influence it, digitization with its attributes and viability, and finally the incorporation of digitization in the Kenyan real estate industry with a key focus on its impact in the pricing of property. To achieve this purpose, it became imperative to analyse some prerequisites. Understanding what digitization means and how the concept relates to property pricing as expounded in the literature review for purposes of this research.

In relation to the efforts made in the explanations given it became important to first understand the nature of digitization literacy as well as the factors that influence property pricing. To explore and investigate the potential digitization would have on property pricing in the real estate industry, it became important to construct parallels and synergies between the two variables. The variables encompassed the technological advancements that would enhance the fostering of a conducive environment that would impact the industry in a
most positive way with a key focus on standardization of best practices across the board with a key focus on sanitizing property pricing that has become an untethered issue. At the point the prerequisites were identified and achieved, the research then found impetus to proceed.

The research instrument employed was a questionnaire which was developed and sent to the respondents who have been professionals in the real estate industry, hence considered experts in the industry. The respondents were asked to rate each question based on their levels of agreement or disagreement with the statements put forth ranging from ‘not applicable’ with a 5 rating, ‘strongly agree’ with a 4 rating, ‘agree’ with a 3 rating, ‘disagree’ with a 2 rating and ‘strongly disagree’ with a 1 rating. This data was then collected and tabulated to draw inferences on the findings that would support the objectives of this research.

The major findings from the data collected leaned quite strongly towards the secondary data collected from the literature review. Being a unique industry on its own, real estate practices seem to borrow quite a bit from different jurisdictions with similarities across different aspects. As discussed in the literature review in line with the collected data, similarity on influential factors within the industry on pricing as well as digitization cut across different countries, with developed countries being the forerunners of practices that are replicable across the globe. The similarity on variables is quite uncanny and the prospective growth in this industry looks very promising when best practices are adhered to.

5.3 Discussion

5.3.1 Factors Influencing Pricing of Real Estate

The research questions set on this objective had the main purpose of comparing the expert opinions of the respondents in response to the statements furthered by scholars and other experts in the real estate industry. The comparison was premised on the primary data collected vis à vis the secondary data collected in the literature review. In the first research objective on property pricing and factors influencing this, it was the general view that prices in Kenya have consistently grown out of control.
According to Messah and Kigige (2011) the theory of price asserts that the market price reflects interaction between two opposing considerations. On one side are demand considerations based on marginal utility, while on the other side are supply considerations based on marginal cost. An equilibrium price is supposed to be at once equal to marginal utility from the buyer's side and marginal cost from the seller's side (Woodhams, B, 2012). Considering other factors remaining constant, most people are viewed to take rational decisions by ensuring that they maximize their own utilities.

There were various factors that influence property prices in real estate business ranging from economic to physical as well as political factors. According to Sharpe, (1999) real estate pricing deals with the valuation of real estate and all the standard methods of determining the price of fixed assets apply. Prices are limited by various factors such as the incomes of potential buyers, the cost and the ability to construct new property to increase supply and demand for rental units. It is therefore important to note that real estate pricing deals with the valuation of real estate and all the standard methods of determining the price of fixed assets apply. In analysis of the price, emulates from the concept of consumer surplus. Woodhams, (2012)

Economic factors are the considerations in regards to how consumer’s disposable income and other financial sources tend to impact their buying activities which form the basis for demand and in turn instruct the seller’s side on trends and patterns that impact the product type. From the findings, the respondents showed a strong agreement level that indeed this is a key factor in property pricing in Kenya. Demand for housing units in Kenya continues to outstrip the supply according to Woodhams, (2012). The real estate business is therefore said to be booming owing to the albeit slow growth of mortgage financing as well as the increased investor input in real estate. Real estate, just like any business is affected by the principle of supply and demand. Kenya has in the recent past experienced a recent increase in property and financial literacy among her citizens; this has thus increased the demand for housing and real property investment. The law of demand states that the quantity demanded and the price of a commodity are inversely related, other things constant. It states that demand decreases with increase in price and vice versa.
The law of supply states that, all other factors constant, as the price of a good or services increases, the quantity of goods or services that suppliers offer will increase and vice versa. (Peter and Bhorpal, 2013) The level of activity in a Real Estate market is influenced by the changes in the economic and demographic factors that underlie demand and supply. Market analysis is basically an examination of these factors to forecast the impact of their changes on the price and the quantity outcomes in the market. When the level of demand increases, and this increase is accompanied by a relative smaller change in supply either and increase or a decrease, the analyst can forecast an increase in price as well as an increase in the number of units offered for sale.

Again, following the responses from the data collected, it is inferred that Income plays a significant role in real estate pricing as it reflects the purchasing power of potential the purchasers. An example is that a proposed single-family subdivision with homes priced from $300,000 to $350,000 will not be viable if the prevalent purchaser in the area has a gross income level in the $30,000 to $50,000 per year range (Pembina Institute, 2013). A study carried out in the UK on real estate prices, indicated that income is the primary affecting factor for analyzing the real estate price (Nellis and Longbottom (1981).

With a strong backing from the respondents in understanding the dynamics, banks play a significant role in real estate business. They are majorly the financiers of both the investors and the purchasers. Therefore, for development of the real estate business, interest rates need to be reasonable in that they accommodate both the debtors as well as the banks themselves. High interest rates are detrimental to investment in real estate. The increase in the lending rates by commercial banks causes a slow-down in the market as it affects both. This therefore pushes the prices of the property down as there is less demand for the property (Konstantinos 2016).

The banking industry in Kenya has dedicated itself into mortgage financing with some banks offering even up to 105% financing to the purchasers, such example is the Kenya Commercial Bank (KCB). KCB has put up a mortgage center where purchasers receive legal advice as well as the 100% mortgage financing. Further interest 60% of the pension fund is going towards the property market (Mwithiga, 2010). For the hypothesis to hold true, more
than just lowering interest rates should be done to sensitize the consumers on the pros of mortgage financing to increase property sales.

Physical factors mean dynamics surrounding the physical environmental of the property. What is the perception of the consumer as regards that area? Does the area cater for the specific need of the consumer? In this regard, the consumer will consider social amenities as well as facilities that will be able to address his daily needs as well as conveniences.

A possible modifier of supply and demand theory in real estate has to do with the location of real estate. If real estate agents understand one thing about housing prices, it’s that location usually has its own effect on them. Peter and Bhorpal (2013). From the findings, the respondents indeed do agree strongly that this is the case. An old-time cliché in the real estate industry is that there are three important value determinants. These are “location, location, and location.” Obviously, this is a redundant statement, but it does illustrate the importance of location in the real estate industry. Essentially duplicate houses can have vastly different prices if located in different neighborhoods Influences on Real Estate Value.

The primary data collected indicated that this is indeed a factor in property pricing. This research is of the view, that indeed politics, though not a major player in pricing of property, but it plays some role in the sector. For example, during election periods there are heightened fears of property destruction, especially in the Kenyan perspective after the 2007/2008 post-election violence (Centum investment report 2014) Prices therefore go down during this period as there lack the demand of the property. Government incentives also impact pricing of the houses, in Kenya; we had the President signing the Banking (Amendment) Bill 2016 into Law in a bid to curb the high interest rates charged by banks. However, as discussed above, low interest rates increase demand therefore increase property prices.

5.3.2 Digitization of Real Estate

The second part of the research carried out addressed digitization as a whole and its overall impact on the industry given from views by the professionals in real estate. According to S. Jones and Z. Benjamin, (2013) the real estate industry, like many, is one
based on a competitive consumer culture in which professionals vie for the business and, ultimately, the loyalty of customers. In this case, those customers are purchasing what, for most, is a significant investment, requiring them to navigate various legal and regulatory processes that might be impossible without the assistance of a knowledgeable, seasoned agent. It is the presence of agency that renders real estate unique from retail and other industries where goods and services trade hands. A question that arises therefore is real estate ready for the digital disruption?

In concurrence to the above sentiments, Carsten and Patrick, (2015) state that digitization in real estate sounds like a contradiction in terms. Real estate is the quintessence of the analog world, consisting as it does of stone, wood, concrete and other tangible materials or what you would call brick and mortar. It embodies the real world, not the virtual world. They further observe that real estate possess factors that can benefit from digitization, these are; it is a representation of a valuable investment and involves complex processes. It is therefore important that information is digitalized to ease the process of land transaction as well as give buyers options with a click of a button.

With the need of digitization or lack of it thereof in the real estate sector, a question that arises is there a place, if any, for estate agents in the current ICT age. According to Michael McCullough (2015) the disruptive power of the Internet has already gutted (or transformed, depending on your perspective) dozens of industries: travel agencies, stock brokerages, the recording industry, bookstores, classified ads. It has allowed consumers, for little or no fee, to cut out the middleman. Why should real estate sales be any different?

The inference drawn from the research questions asked is that a huge majority of the real estate agents do not feel threatened by the advancement of technology that they first feared would take over their businesses. Real estate agents play a significant role in any property transaction. However, with digital disruption ongoing in all sectors of the economy, stakeholders in the real estate business seem to be divided as to the need of estate agents during a property transaction. A close look of ICT and Real estate provides three scenarios to the situation.
The question raised here wanted to find out the level of confidence in a minimizing fraud via digitization. Further studies and findings indicate however that the fraudsters are rampant in free listing platforms that have no quality checks for the listings uploaded thus deterring consumers. Platforms on the other hand that charge a certain fee and have internal checks indicated a low fraud risk.

When it comes to emerging economies and developing countries situation looks even worse. Even basic conditions usually do not exist. Kenya’s information and registration of land and real property is quite wanting. The situation at Ardhí House is characterized by chaos and confusion which have been brought about by the high corruption levels experienced at Ardhí House the Ministry of Lands to help curb these aspects, is in the processing of digitization land information in Kenya. This will therefore result to efficacy and transparency in the property industry. In the United Kingdom, for instance, when one wants to do a search for a title, it only takes them five minutes from the comfort of their home. Contrary, in Kenya, it takes more than a week — or two, or even a month — and it becomes inefficient because constructions are held up when one is trying to authenticate the deed. (Sam Manjau of Abec Real Estate)

A growing number real estate Companies in Kenya currently provide digital information as well as pictorial information of the property they are selling/leasing. They provide the infrastructures, amenities inter alia neighboring the property. They further provide quarterly reports on factors affecting pricing of property at that time, Hass Consult and Cytonn Investments are examples of such real estate agents providing quarterly reports. A major drawback however is information on the exhaustive purchase price. Purchaser’s especially first time purchasers are unaware that they will need to dig deep into their pockets and part with some extra amounts paid towards the National and County Governments. Landlords are major players in the property industry. Majority of landlords are apprehensive to provide the renting price of their houses as they only advertise the vacancy of the houses and not the rent. One has to call to obtain the rent price. More so, it is rare to find landlords that have websites or any information of some kind relating to their property

5.3.3 Digitization of Real Estate Information vis a vis Property Prices
The data collected from the responses in this section as per Table 1.4, it is inferred that real estate stakeholders can see the benefit of digitization. Most developed countries are embracing digitized registration systems. This can be interpreted to mean, paperless transactions. Morgan, (2016) states that the benefits of digitization of the real estate industry is that, digitization reduces long hours spent on contract preparation and administration and therefore saving costs of paper and other associated costs thereto. Jacobs S., (2012) reports that July 25, 2000 saw the first paperless real estate transaction take place in Broward County, Florida. That transaction involved the purchase and financing of a home and took less than five minutes to record. Confirmed documents bearing all necessary recording data were immediately returned to the settlement agent via e-mail. Images of the recorded documents were immediately available on the county’s Web site. Further, in Virginia, the land registration system has been embraced and documents are verified and electronically returned to the parties within one to two days.

With this in mind, it is clear to note that the prices of the property would decrease as the time wasted queuing at the various land departments is basically extinguished. The famous saying, goes time is money, and where time is saved, clearly money is saved. In the US, the National Association of Realtors encourages and has been using digital signatures for some time now. They have their own ways of ensuring the authenticity of the signatures as well as details of both parties.

Harvey S., (2012) observes that e-Sign was enacted in 2000 and provides that a contract or signature “may not be denied legal effect, validity, or enforceability solely because it is in electronic form.” This landmark legislation opened the door for secure, authentic, legible and instantaneous signing of legally binding real estate contracts. Kenya is yet to adopt electronic signatures and paperless transaction. We still have stringent laws that do not allow ICT to flourish. A proper land transaction takes a period of 3 months or more. There are various procedures that have been put up by the land laws and to this it is prudent to note that, Kenya will not be embracing ICT in the near future. The implication of house prices therefore Vis a Vis digitization of information is that such digitization would lower the house prices.
Kenya’s real estate deficiency cannot be overemphasized. Each estate agent charges whatever price they deem fit. The agents are not regulated as to how they should sell their property. So generally, the pricing of houses in Kenya is basically affected by the previously discussed factors affecting pricing of a property. As for digitization of real estate Vis a Vis house prices in Kenya, this research opines that the prices would fall. The competition among themselves would be advantageous to the purchaser save for where an agent lowers the price for his or her listing and is struck out. If the government can regulate the said listing, then Kenya’s property prices would be friendlier to the purchaser.

More so, if they are more online property platforms entrants in the Kenyan market, the property prices would thus decrease as the agent only comes in after negotiations have been done between the buyer and the seller. The agent comes in to just give his professional opinion, and the costs for various site visits by the estate agents are done away with. This will then address the issue of affordable housing that had plagued our country for a good number of years. According to a report done by National Cooperative Housing Union (2016), it was opined that economic policies if implemented to the letter and are free from minimum consequences of corruption and political interference can transform a country to a state of economic vibrancy; wide spread sound infrastructure and responsible political governance. Vision 2030 is founded on three pillars; economic pillar, social pillar and political pillar. In its Social pillar, the Government is to plan for adequate and affordable housing for its citizens.

The blueprint guides policy implementers and stakeholders to aim at producing houses to all income earners at the rate of 150,000 units annually. True to this policy, the country has currently increased its annual production to between 40,000 and 50,000 units annually according to the Ministry of Housing. However, it is important to note that this annual production of the housing units is a global national figure. If one is to go into detail and survey the number of low cost housing for the low-income earners, one may notice that the figures are extremely low and perhaps it is precise to say affordable housing is not affordable to all. One major impediment of infrastructure development in Kenya, ironically it is the law itself. In the yesteryears, none of the local authorities would approve drawings that did not comply with the good old Building Code of 1969. With the enactment of National
Building Authority Act and subsequent establishment of the National Construction Authority, the landscape of building development is set to change positively. This new law will allow a developer to construct green buildings with unconventional materials like Structured Insulated Panels (SIP) and interlocking bricks. The doors are now opened to more variety of construction materials at very fair prices. These fair prices of materials, should lead to affordable housing.

The law has given the construction industry a further major boost by amalgamating all previous land laws to only three Acts. Namely, the National Land Commission Act, the Land Registration Act and the Land Act. If one is to track backwards the history of affordable housing in Kenya, it would be strongly inclined to technology as the most outstanding key factor in response to addressing affordable housing.

5.4 Conclusion

In conclusion, the factors affecting property pricing as identified from secondary data collected was in line with the findings from the respondents signifying similar practices from developed countries as well as developing countries. The parameters around these factors can only be weighed on a world scale that is currently tipping on developed countries that have incorporated best practices in ensuring these factors work towards the betterment of their real estate industries. Developing countries have a good footing to simply borrow from the successes.

Digitization as well despite being somewhat a novelty in developing countries such as Kenya still has to match up to developed countries’ standards for it to be effective. Stakeholders must be at the forefront of ensuring this happens. The impact would be of great benefit to the players in the industry.

What can be deduced is the fact that digitization can indeed influence property prices if employed in the real estate industry in Kenya. This will help fill the gaps not only on unfair property pricing but also identify other gaps that digitization can help curb. If indeed we are to reap such benefits, it is paramount that digitization is pursued at the forefront of any industry that needs to be sustainable for generations to come.
5.5 Recommendations

The research has addressed the gaps in the Kenyan real estate industry on property pricing with a primary recommendation on the incorporation of digitization to standardize the pricing practices. The following are recommendations for improvement specific to the research objectives as well as recommendations for further studies. This is intended to inform policy as well as further improvement of the research.

5.5.1 Recommendations for Improvement

5.5.1.1 Factors Affecting Property Pricing

The main factors have been discussed shedding light on the key areas stakeholders should focus on. The recommendation is for policy makers to take lead and be at the forefront of championing best practices in the real estate industry. Regulation of pricing needs to be enforced by institutionalization of laws governing the real estate practice.

5.5.1.2 Digitization of Real Estate

As observed in developed countries, the incorporation of digitization has championed the real estate industry and improved best practices. The relevant government bodies in Kenya need to be at the forefront of championing the incorporation of digitization in the industry through sufficient investments in the ICT sector. This should impact all industries and the benefits would be insurmountable to all stakeholders.

5.5.1.3 Digitization and How It Would Influence Property Prices

Professionals in the real estate industry need to be exposed to the benefits of digitization not only for their business growth but also in ensuring consumers have a good experience in acquiring property. The relevant government bodies and authorities need to foster initiatives to achieve the full incorporation of digitization in the real estate industry through educative programs and mandatory accreditations for the professionals. This will build and foster best practices and synergies that can be leveraged from developed forerunner countries and minimize trade barriers.

5.5.2 Recommendations for Further Studies
There are a number of additional areas for further studies highlighted by the undertaken research. These include the further investigation of the current digitization level in the country as well as its annual growth rate. How spatial is the digitization level across all regions in the country and what would be the overall impact across every relevant industry in a bid to boost our GDP and grow our economy. Should digital skills be mandatorily incorporated into academic curricula from an early age? This would help advance literacy levels in the subject and nurture a generation that would be able to champion, now and in the future, the advancement of digitization across the country.
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Appendix 1.1: DATA COLLECTION INSTRUMENT

QUESTIONNAIRE

Part A: General Information

The following questions guide in investigating the implications digitization has on the property pricing in Kenya. The analysis relies on the consideration that information that is easily accessible is the most important prerequisite for property acquisition. Lack of information decreases the action frequency in terms of selling and buying property premised on supply and demand.

In developed countries such as USA, UK and Canada, digitized information is quite vast and available to all citizens looking to own property. With such systems working quite well in these countries through digitization not only of the property details and description but also electronic registries that have regulated price controls in these markets. This has also curbed instances of fraud and unfair property acquisitions and transfers.

As a professional in the Kenyan real estate industry, I would appreciate your feedback and expert opinions on the pursuant questions in order to analyze the impact of digitization and how it can impact the vibrant and lucrative real estate industry in Kenya.

Your participation is voluntary and will be kept anonymous.
### Part B: Factors Affecting Property Pricing (please circle where appropriate)

On a scale of 1-5 where 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree, and 5=N/A for Not Applicable, rate the following statements:

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<tr>
<td>1.1</td>
<td>To what extent do you agree that property pricing is regulated in Kenya?</td>
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<td>1.2</td>
<td>The Kenyan property market is driven by ‘willing seller &amp; willing buyer environment</td>
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<td>1.3</td>
<td>The Kenyan property market is driven by an environment where the seller can put a much higher price than the actual property value thus disrupting the property values in that particular area</td>
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<td>1.4</td>
<td>Demand and Supply as economic factors affect property prices</td>
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<td>1.5</td>
<td>Income as an economic factor affects property prices</td>
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<td>1.6</td>
<td>Interest Rates as an economic factor affect property prices</td>
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<td>1.7</td>
<td>When there is an oversupply of property the prices will decrease</td>
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<td>1.8</td>
<td>If the demand is higher than the supply then the property prices will increase</td>
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<td>1.9</td>
<td>The standard of life in urban areas such as Nairobi is more expensive than rural areas such as Murang’a</td>
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<td>1.10</td>
<td>High interest rates from banks are a deterrent to property buyers and decrease the property sales for sellers</td>
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<td>1.11</td>
<td>Low interest rates will increase the demand for property thus increase the property prices</td>
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<td>1.12</td>
<td>High interest rates from banks have forced the Kenyan property market to become a cash-buyers’ market</td>
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<td>1.13</td>
<td>Location is a key factor affecting property pricing.</td>
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<td>1.14</td>
<td>Property costs more in urban areas as opposed to rural areas</td>
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<td>1.15</td>
<td>Low property sales are experienced during general elections periods due to the uncertainty of the political environment</td>
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### Part C: Digitization of Property Information (please circle where appropriate)

On a scale of 1-5 where: 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree, and 5=N/A for Not Applicable, rate the following statements:

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<td>2.1</td>
<td>Digitization or the incorporation of ICT in real estate processes and transactions will disrupt the property market in a positive way</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.2</td>
<td>The country has witnessed great innovations that have impacted and created vast business opportunities through digitization</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.3</td>
<td>Internet penetration in the last 10 years has enabled sellers to meet buyers conveniently from various parts of the world and country</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.4</td>
<td>Access to digitized information has brought about consumer confidence in the real estate industry</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.5</td>
<td>Property agents will become obsolete due to digitization</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.6</td>
<td>Digitization can increase business volumes for sellers</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.7</td>
<td>Digitization enables a much higher brand visibility compared to offline marketing channels such as print</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.8</td>
<td>Digitization of the land registries will decrease instances of fraud</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.9</td>
<td>It is substantially cheaper to advertise property on an online channel as opposed to an offline channel</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.10</td>
<td>Having information on an online platform enables real estate professionals collect and analyse data fast and easily to influence their</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>business growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.11 Does your business rely heavily on the online presence to maximize on sales?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.12 Does your business rely heavily on offline channels to maximize on sales?</td>
<td></td>
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</tr>
</tbody>
</table>

X
**Part D: Conceptual Synergy between Digitization and Real Estate**

On a scale of 1-5 where 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree, and 5=N/A for Not Applicable, rate the following statements:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Digitization has seen an increase in fraudsters especially on property rentals</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.2</td>
<td>Real estate agents escalate property prices to get a higher commission. Digitization helps buyers compare prices easily and get the most affordable deal possible as direct owners can now advertise on a digital space. Digitization can thus lower ‘escalated’ prices</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.3</td>
<td>Digitization has helped buyers save costs on property searches such as transport to many properties that are becoming more accessible on digital platforms saving the buyer time as well</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Digitization promotes transparency and access to vast information from different geographical locations attracting more investors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>All property in Kenya should be listed in a digital platform for ease of market research as well as government planning</td>
<td></td>
<td></td>
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<tr>
<td>3.6</td>
<td>Is the Kenyan government investing enough in ICT to impact the real estate industry?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.7</td>
<td>Digitization has caused an increase in Foreign Direct Investments (FDIs) since foreign investors are able to access digital information from anywhere in the world</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>Digitization will help relevant government bodies address the perennial issue of lack of affordable homes by making it easier to collect data.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.9</td>
<td>Digitization will help foster innovation in the industry through borrowing innovative ideas and best industry practices from developed countries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>Access to digitized information in the industry can help influence the standard of education in the related fields and in turn increase the caliber of professionals in the industry continuously</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Informed Consent

I confirm that I have read the above information. The nature and demands the project have been explained to me. I have also been informed of any benefits to me from participation. I knowingly assume the risks involved and understand that I may withdraw my consent and discontinue participation at any time.

Respondent’s signature: ____________________  Date ____________________

Researcher’s signature: ____________________  Date ____________________

Permission to undertake this study has been obtained from the United States International University and the information will be used for academic purposes with the aspiration that it will eventually be used to inform policies in Kenya. If you wish to access the research you may do so by emailing me in August 2017. If you have any further questions or inquiries please email me on dgkarua@gmail.com.

Thank you for participating!
## Appendix 1.2 – SCHEDULE

<table>
<thead>
<tr>
<th>Task</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Understanding Assignment</td>
<td>5/23/2016</td>
</tr>
<tr>
<td>2 Selecting focus topic</td>
<td>5/25/2016</td>
</tr>
<tr>
<td>3 Explore research questions</td>
<td>5/30/2016</td>
</tr>
<tr>
<td>4 Designing research strategy</td>
<td>6/5/2016</td>
</tr>
<tr>
<td>5 Finding sources for my topic</td>
<td>6/8/2016</td>
</tr>
<tr>
<td>6 Read, note and compare sources</td>
<td>6/22/2016</td>
</tr>
<tr>
<td>7 Submit Concept Note</td>
<td>7/8/2016</td>
</tr>
<tr>
<td>8 Writing first draft</td>
<td>7/9/2016</td>
</tr>
<tr>
<td>9 Evaluating 1st draft</td>
<td>7/16/2016</td>
</tr>
<tr>
<td>10 Revise and rewrite</td>
<td>7/23/2016</td>
</tr>
<tr>
<td>19 Submit Chapters 1 - 3</td>
<td>8/11/2016</td>
</tr>
<tr>
<td>20 Fieldwork and draft development</td>
<td>8/15/2016</td>
</tr>
<tr>
<td>21 Put paper in final form</td>
<td>2/15/2017</td>
</tr>
<tr>
<td>22 Submit for initial feedback</td>
<td>2/28/2017</td>
</tr>
<tr>
<td>23 Revise and rewrite</td>
<td>2/28/2017</td>
</tr>
<tr>
<td>24 Submit for grading</td>
<td>2/28/2017</td>
</tr>
</tbody>
</table>
## Appendix 1.3 – BUDGET

<table>
<thead>
<tr>
<th>Budget items</th>
<th>Number of items</th>
<th>Cost per item</th>
<th>Total cash cost</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone Airtime</td>
<td>5</td>
<td>$1,000.00</td>
<td>$5,000.00</td>
<td>To be used for communication with respondents on phone as well as supplement internet communication expenses</td>
</tr>
<tr>
<td>Transportation Cost</td>
<td>1</td>
<td>$20,000.00</td>
<td>$20,000.00</td>
<td>For any meetings at the behest of the respondents despite the fact that the data collection tool will be filled in electronically by the respondents. Meetings may be to further clarify the questionnaire or required tasks.</td>
</tr>
<tr>
<td>Research Assistants</td>
<td>2</td>
<td>$20,000.00</td>
<td>$40,000.00</td>
<td>For assistance with data collection, analysis and compilation</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td></td>
<td></td>
<td><strong>$65,000.00</strong></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 1.4 – POPULATION DATA

https://docs.google.com/spreadsheets/d/1vB-Djd8ZNC5uo-hYnA95M1KtpxGGxaCtg_8VjcV0ZsQ/edit?usp=sharing