The Commercial Real Estate Analysis in Master Plan Implementation for the City of Kigali

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Abstract: Kigali, the capital of Rwanda with currently more than 1.3 Million inhabitants is among the most active and advancing Cities of Africa which aims at developing as a competitive, clean, attractive, safe and clean core in the East African region. Projections indicate that the Kigali's population will double in ten years. Kigali, as most cities in the modern world, is attracting ever more people in search of job opportunities, self-improvement and a better future. The building sector is among others emerging in Kigali, after the city completed its detailed master plan in 2013. This study specifically focuses on the analysis of the existing retail commercial and office space in period from 2013-2018 in line of implementing the City of Kigali master. The objectives of this study were; (1) to assess the existing commercial retail space in the City of Kigali, (2) to identify challenges faced by developers and renters in commercial real estate industry and (3) to assess current interventions by City of Kigali and government in commercial real. Data were collected using questionnaires, observations and documentation analysis. They were qualitatively and quantitatively analyzed basing on researcher's objectives. Primary and secondary data were collected for the analysis. Sampling practices were used to select the respondents from the study population. The research design was drowned; primary and secondary data were gathered for this research. After carrying out this research, it was revealed that commercial real estate property investments in Kigali originate from short term bank loans with high interest rates and the increased number of retail commercial and office spaces in the last five years in Kigali has not brought rental prices down as expected. The high cost of rent for retail commercial and office space and the limited number of quality space have led many corporate organizations, and individual businesses in Kigali to converting some residential houses into offices at negotiable prices. The research recommends the GoR and CoK, to improve in provision of the adequate infrastructure and facilities, streamlining laws and regulations related to construction, urban planning and doing business in favor of building developers, the key role players in the implementation of the KCMP. On reduction of big amount invested in construction which leads to the high rent rates, this research recommends the use of local construction materials, long term loans with low interest rates and establishment of effective strategies to ensure availability of sufficient land for commercial building development. Though, the research highly recommends other researchers who will get interested in this area of study to focus on two key things (1) An analysis to determine the most effective strategies to ensure availability of sufficient land for commercial building development in the City of Kigali; (2) the impacts of adoption of local construction materials in Building industry in Rwanda.

Keywords: Building, Challenges, Commercial Real Estate, Master Plan

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I. INTRODUCTION

As per Geltner and Miller, 2007 and Lasalle, Jones Lang, 2011 described how nowadays, the real estate market attracted more interest from investors seeking opportunities that offer risk and profitability between the riskier and less risky investment parts.

The real estate sector has gone from being perceived as a simple provider of space to a tactical resource resulting from increased international competition and information technology; it accounted for about 10 to 30% of the total assets of large European and US companies over the period 1993 until 2001.

The lucrative real estate market deals with an extensive range of investment stuffs, ranging from smaller shopping centers to large commercial complexes. The retail real estate market also includes different types of retail centers, ranging from smaller neighborhood shopping centers to larger shopping centers. Regardless of which shopping center the investor is interested in, the basis of the profitability of all commercial real estate investments are its tenants and therefore the buying power that they are able to attract.

Hence, investing in the retail business requires a broad knowledge base that involves knowledge of the regional economy and all the locational factors that affect the property as well as the specific characteristics of the retail business. Consequently, many aspects need to be taken into account when investing in retail properties, particularly with regard to the difference between the retail real estate market and the other investment segments. . However, investment problems have arisen due to the growing allocation to real estate in investment portfolios, as there appears to be a growing demand for a more strategic and detailed analysis of real estate when making real estate investments. Investment decisions state that there is an imbalance between the company's real estate strategy and its corporate strategy, which results in a weakening of real estate decisions.

According to Kigali City Master Plan 2013, the business plan for the year 2040 aims to create 11.5 million m² of commercial space for 1.6 million jobs in the service sector. It also aims to create a hierarchy of shopping centers in Kigali to bring jobs closer to homes that are: the CBD and the city center.

The leading objective of this study is to carry out an analysis of the existing commercial retail space as a necessary tool in implementing the City of Kigali master in the last five years 2013 - 2018.

To attain to this objective, the study used the following specific objectives:

- To assess the existing commercial retail space in the City of Kigali;
- To identify challenges faced by developers and renters in commercial real estate industry,
- To assess current interventions by City of Kigali and government in commercial real estate in line of implementing the master plan of Kigali

II. LITERATURE REVIEW

As per John M. Clapp and Stephen D. Messner presented a somewhat different method for market analysis than Geltner and Miller's abovementioned structural market analysis. In Clapp and Messner's market analysis, the focus is on using scenario analysis to address the risk factors present in the incoming data from the market analysis, focusing more on analysis of competition and demand factors that translate into "demand groups" that will or will likely use the investor-rated property. A detailed market analysis must always be performed before any financial analysis. Many real estate investors do not recognize the importance of market analysis. Whether they lack the skills and knowledge to carry out market analysis or simply do not understand the benefits that come with it, market analysis is an undervalued asset of real estate investing. In reality, market analysis is the most important element in the valuation of a real estate investment. The market analysis is the basis for each calculation and decision that follows. It is therefore essential to study well and understand the market to make good decisions. The market analysis should examine the zoning and building rules, as well as the timeline, costs and attitude of the local planning board. These three factors alone can determine whether a real estate investment is financially feasible or not. A thorough market analysis is not only necessary to understand the prospects of a real estate investment, but also for the creation of a real estate proforma. Proforma forecasts are simply a best estimate of future performance. However, in order to make an informed estimate, the investor needs a lot of basic information about the market. All this information comes from the market analysis.

Economic development in Rwanda has been very encouraging in the past few years. While here is no proper record available, the land price in Kigali in general, and in the CBD areas in particular have been increasing since the last few years. As the property market in Kigali is still young, it is relatively difficult to track the real demand and supply situation in the City. At present however, as the City is attracting foreign investment to come to Kigali, the demand of commercial land is high. There is a shortage of office space and hotel rooms to meet the needs of the growth in economy and tourism. Fueled by this economic growth and a number of new multinational investments in Kigali, large scale commercial development are taking place in the CBD and besides, many other government (RURA, Ministries,..) and private organization (banks, insurance campanies,…) have acquired land and are preparing to develop their own offices. The total land area taken up by these developments is about 26.5 ha assuming an average plot ratio of 1.7 to 2.0, the total existing commercial quantum in the CBD is estimated to be around 520,000 sqm. Based on the above information, the total GFA of prime existing and potential commercial spaces in the CBD to date are about 720,000 m2 and the total land take-up of the same is about 38.5ha.

III. METHODS

This study intended to explore the need for commercial real estate study demand analysis in the City of Kigali which was not available while it is to serve the most important tool to guide the investors/developer. Grinnell & Williams (1990), state that a population can be defined as the totality of persons or objects that are concerned. According to William & Trochim, (2006), Sampling is the process of choosing units (people, structures, organizations,..) from a population of concern so that by studying the sample we may properly simplify our results back to the population from which they were chosen. Grinnell and Williams (1990) asserted that Sampling is a process of selecting people to be included in the research study. The immediate purpose of sample is to upturn the ability of generating the outcome of the population and to ensure that the sample includes all units of interest to the study. A sample according to Kenneth (1982), is a subset or a proportion of total population. The sample must always be viewed as an approximation of the whole, rather than as a whole in itself. Due to the limited resources in terms of money and time, and needs for precisions of results; it was not possible to study the whole population. William (1987), if sample is selected properly; the information collected about the sample can represent the entire population. He continues to state that, samples are selected and studied because of the following reasons: First, it saves time, money and labor. Collecting data from samples require fewer researchers or research assistants than from the population. When the fewer researcher assistants are needed, the investigator chooses the best qualified; when many are needed, quality is sacrificed for quantity. Secondly, large studies have more managerial requirements. Studies of samples have more adaptability than studies of population. Thirdly, another possible advantage of the sample over the population survey is that the sample may achieve a greater response rate and greater cooperation in general from respondents and thus may be more accurate. In simple terms, sampling is the process of selecting a sub group of the population to represent the entire population.

According to Cochran (1977), Sampling is the process which includes taking a part of the study population, making observation of these representative groups and then oversimplifying the findings to the bigger population. To determine the ideal sample size for a population, Simple Random sampling was used to get 10% of the n^1 (real estate developers) where in 500 commercial real estate developers in the City of Kigali (RDB, 2018) 50 respodents have been selected following their districts.

Table: 1. Sample of 10% of Commercial real estate developers

District	Developers	Sample
Nyarugenge	140	14
Kicukiro	60	6
Gasabo	300	30
City of Kigali	500	50

Cochran's formula has been used to select the population n^2 (Commercial real estate tenants) which is as follow:

n^2= N/ (1+ (N*e2)) Where n=number of samples, N=total population, e= error

N= 134,618 commercial real estate tenants (RDB, 2018). E=margin error of 0.04%. According to Cochran (1977), 90% confidence interval is more reliable.

Sample size (n^2) =134,618/ (1+134,618*0.042) = 64 people

Basing on the formula above the researcher will consider 64 respondents.

Each building consent authority and financial institution funding commercial real estate development in Rwanda was distributed with one questionnaire whereby: Six respondents were taken from building consent authorities (n^3), six respondents selected from the housing financing institutions (n^4).

As it is see above, during sampling activity, people were grouped into different groups according their roles and responsibilities in the commercial real estate sector.

$n = n^1 + n^2 + n^3 + n^4$

Though, the table below

Table: 2. Population and sample size distribution

Occupations	Number of respondents	Percentage
Commercial Real estate developers (2013 – 2018)	50	39.68
Commercial Real Estate tenants	64	50.79
Representatives of Building Consent Authorities	6	4.76
Financial Institutions-Banks	6	4.76
Total	126	100

Source: Researcher, 2019

IV. RESULTS AND DISCUSSIONS

The population of Kigali city has grown drastically since the independence of Rwanda in 1962. This has risen from 6,000 residents in 1962 to 1.3 million residents by 2013 (City of Kigali, 2013). Beyond the natural population growth, such rapid increase of the population was fueled by rural-urban migration. With Kigali being the principal administrative and commercial urban centre, it has constantly remained the focus for both businesses and employment seekers. Therefore, it accumulates 67 per cent of the country's urban population. Apart from this, boundaries of Kigali have been repetitively expanded under a series of administrative reforms, which also contributed to the population upsurge.

4.1. Demographic Characteristics of the respondents

A total of 126 respondents were sampled out to represent the total population. Sample selected combined both male and female from whom 51.6 % were male and 48.1 % were female; the respondents fall in the age group between 21-30 (12.7%), 31-40 (25%), 41-50 (32.5%),51-60 (19.8%),61 and above (9.5%) confirming that, the population in the use of commercial real estate in the City of Kigali consists of mature labor force and forward-thinking people to positively contribute to this research.; 50 % of respondents are married and 29.4% are single which indicates that the respondents under this research are mature and stable people; the fact that 9.5% have primary level education, 19% have secondary school, 21.4% have vocational education while 48.4% have university degree and 1.6% have never been to school or did not want to mention, shows the people in the use commercial real estate are literate; 50.79 % of the respondents are the tenants renting the commercial space in the commercial buildings, 39.68 % of respondents are developers/investors in commercial real estate,4.76 % of the respondents are public servants dealing with construction, investment and representatives of professional associations while 4.76 % of them are the representatives of the financial institutions that finance building construction and businesses operating the completed commercial buildings.

4.2 Analysis of existing real estate situation in Kigali

More than 68% of the commercial real estate owners have confirmed their building to value more than three billions of Rwandan Francs (FRW) and no one has a commercial building worthy 500 million Rwandan Francs (FRW). Among the 50 respondents, property owners, 16% indicated that their property investments originated from savings (personal or company investment) and 72 % bank loans, while government subsidies and capital venture each rates 6%. Financial institutions have been actively involved in financing commercial real estates in Kigali, the share of bank loan to total commercial real estate investment across all 50 that featured in this research ranged between 68% and 100%, but the average stood at 72%. The findings from the study depict that the occupancy rate ranged between 28.7 % and 62.8% in 2013 with an average occupancy rate of 59.7%, while in 2018 the range was between 32.1% and 64.5%, with 65.3% on average. The occupancy rate in commercial real estate slightly increased in the last five years from 59.7 % in 2013 to 65.3% in 2018. This increase can mainly be attributed to the increased number of new businesses during the period. The findings further showed that occupancy rate of a building varies with the location of the building vis a vis other services and facilities. Even though an increased amount of commercial and office space in Kigali, renting prices remain high for tenants, the average rent raised from 11,732 Frw in 2013 to 20,784 Frw in 2018. The most challenge that has the commercial real estate in Kigali is Space users with 53.97% while availability of data ranks the last with 16.67%. Every real estate transaction in Kigali even for a minor unit of property occurs with transaction charges.

Bank loans are the most commonly used source of funding for businesses among which the building of commercial real estate is. All the respondents (100%) in this research said that they applied for bank loans before or during the construction of their buildings. Some of the respondents said they started with their own savings, others by government subsidies in terms of land, venture capital and then after went to banks for loans to complete their buildings of for finishes. From the analysis, majority (65.87%) reported that, the main factor that affects defaults of loan recovery is Inadequate loan sizes with questionable characters, 58.73% reported high interest rates that make it hard for some to pay, 48.41% of the respondents reported poor appraisal, 29.37% said lack of monitoring by bank staff, 8.73% cited poor planning by the borrowers of what and how they will use the loan, and some others have also reported lending to serial loan defaulters , lack of commitment by the borrow and lack of commitment by the borrower to pay the loan, lack of collateral for the bank. These causes make many borrowers not to pay their loans hence leading to increased levels of non-performing loans. All respondents (100%) have confirmed the location of the building as the first and main criteria of preference followed by the Building Accessibility with 95.31% while Lease terms and conditions rank with 81.25%, Building characteristics 68.75%, Building features 57.81 , Ad-on facts 37.5% and Fit-out with 26.56%. The commercial real estate tenants in Kigali face various many challenges, high space prices amounts 90.63% followed by while space scarcity seconds with 73.44%. The table below illustrates the responses from 64 respondents, commercial real estate's tenants.

4.3. Data Analysis for the Study Objectives

a. Assessment of the existing commercial retail space in the City of Kigali

According to the respondents, commercial real estate developers alarm as supply for rental space tops demand, some developers highlight Kigali to have an oversupply of commercial, retail and office space and these developers now fear possible losses and difficulties in loan repayment. The Ministry of Infrastructure, Rwanda Housing Authority and City of Kigali are the key government institutions that are driving the supply of commercial retail space by the implementation of the Kigali City Master Plan. In fact, the aforementioned institutions say that the quality of the buildings is expected to generate fresh demand and developers must survive the intervening period between the launch and the growth of a dynamic market. According to respondents, some buildings charge very high rents and have not been occupied for a year or two. Some commercial activities are still being conducted in residential houses because many of the commercial buildings go for as much as FRW 23, 000 (almost $25) per square meter. Though, many developers are under pressure to pay back bank loans, so they want to get their money back as soon as possible.

b. Challenges faced by developers and renters in commercial real estate industry

According to all respondents, the sources of start-up financing of commercial real estate are Bank loan with minimal personal or group capital investment depending on the historical financial situation of the developers. To get a loan for commercial building financing is not easy given that, only few banks can finance big projects and in short term with many charges (additional fees outside the interest), the interest rates are higher and calculated in USD. The increased number of commercial and office spaces however has not brought rental prices in Kigali down as expected, most of the commercial real estate have been built using money from loans with high interest rates. "Even if the City provides an increase of one hundred commercial houses to the market, renting prices will not go down," said one of the commercial real estate developer in Kigali adding that it all comes down to the investment cost; most developers are using borrowed money, and the money is not cheap. Most of the respondents said unless the market gets subsidies, or if the city decides it will not tax commercial construction for some time, there is a need for affordable financing, the banks want their money in not more than 10 years and the grace period are shorter (less than 24 months). The demand for the ground floor for businesses is high, which has driven up costs for these spaces, yet most commercial tenants target this space.

c. Assessment of current interventions by City of Kigali and government in addressing the issue of low occupancy levels.

In line of easing doing business in Rwanda and implementing the Kigali master plan, the government of Rwanda and the City of Kigali have significantly reformed the building sector: Undeveloped government land have been sold to the potential investors through projects' competition to be developed as per the city master plan in order to avail enough commercial space The building permitting processes have also been streamlined by digitization, merging of services and reducing service cost. Respondents said that the high cost of rent and the limited number of quality space was among the factors that forced many corporate organizations, and individual businesses in Kigali to convert residential houses into offices, The City of Kigali has closed more than 8000 businesses that were operating in the noncommercial building to shift to the newly complete commercial building.

V. CONCLUSION

This study aimed at carrying out an analysis of the existing commercial retail space as a necessary tool in implementing the Master Plan of the City of Kigali, the capital city of Rwanda with a structured sample size of 126 respondents. The study investigated the existing commercial retail space in the City of Kigali, identified the challenges that the developers of commercial real estates in Kigali face as well those faced by their clients (commercial real estate occupants) and examined the intervention of the government of Rwanda and City of Kigali in the development and use of commercial retail buildings in Kigali. The research questions were answered by that the study findings showed that the challenges facing commercial real estate industry have been increasing and the increased number of retail commercial and office spaces in the last five years in Kigali has not brought rental prices down as many tenants were expecting due to

that building developers hold short term loans with high interest rates. Questionnaires, observations and consultation of previous writings were the main used research techniques and GIS was used to interpret the spatial data of the CoK and based on the results, we have identified what to be improved in commercial real estate industry in the implementation of the Master plan of the City of Kigali. The suggested improvements are lowering the rent prices to attract more occupants with commercial businesses, government incentives in the commercial real estate development, cooperation of local and international financial institutions to finance in the industry. To address the challenges faced by developers and renters, we also suggested the provision of building amenities and adequate infrastructures to ease the building accessibility and sensitize both renters and their clients the use of high rise buildings.

VI. RECOMMENDATION

The research recommended the daily intervention of the Government of Rwanda and the City of Kigali in the retail commercial and offices provision in line of implementing the City of Kigali master plan, easing doing business, job creation and raising the Growth Domestic Product of the Rwandan citizens. The following are also the key advocated actions which may result to low investment in better quality commercial real estate constructions and that will lower rent prices:

- Provision of the adequate infrastructure and facilities,
- Long-term Funding and Housing Finance,
- Encouragement of longer term savings,
- Local production of key building materials,
- Ensuring the availability of sufficient land for commercial building.

VII. SUGGESTIONS FOR FURTHER RESEARCH

Due to the shortage of time, financial means and scope of the study, this study explored the component of Commercial Real Estate Analysis in Master Plan Implementation for the City of Kigali and tackled more on the relationship between the space supply and demand, among the most concern components of challenges of the commercial real estate industry. Though, the researcher recommended other researchers who will get interested in this area of study to focus on the following:

- An analysis to determine the most effective strategies to ensure availability of sufficient land for commercial building development in the City of Kigali,
- The impacts of adoption of local construction materials in Building industry in Rwanda

REFERENCES

1. Anna-Liisa Lindholm and Kari I. Leväinen. (2006). A framework for identifying and measuring value added by corporate real estate. Journal of Corporate Real Estate, 8(1), 38-46.
2. City of Kigali. (2011). Population of the City of Kigali Retrieved 30 January 2019, from http://www.kigalicity.gov.rw/spip.php?article9. Kigali.
3. City of Kigali. (2013). Kigali City Master Plan Retrieved 12 June 2018, 2014. Kigali: http://www.masterplan2013.kigalicity.gov.rw/Downloads/.
4. Geltner and Miller. (2007). Commercial Real Estate Analysis And Investments. USA. John M. Clapp, Stephen D. Messner. (2008). Real Estate Market Analysis: Methods and Applications. University of Connecticut. Zaiton Ali, Stanley McGreal, Alastair Adair, James Webb. (2008). Corporate Real Estate Strategy: A Conceptual Overview. Journal of Real Estate Literature, 1-22.
5. Abdul Rashid Abdul Aziz, Ho Shiew Yi and Mastura Jaafar, Competitive resources of private housing developers: the Malaysian perspective, Journal of Engineering, Design and Technology, 4, 1, (71), (2006).
6. AIREA, The Appraisal of Real Estate, 1st ed, Chicago API (NSW) (2013),
7. API, NSW Babcock, Australian Property Directions Survey, May, F (1932),
8. Audrey, G.(1987). Significant Influence. Canada: Canadian University Press
9. Australia Colliers International (2013), Australian and New Zealand Research and Forecast, Second half 2013, Colliers International,Australia First National Real Estate (2012), 2013 Property Market Outlook, First National Real Estate, Australia Gallimore, P, Hansz J. A and Gray, A (2000),
10. BALINDA R., 2010, Initiation to scientific research, ULK Christensen, H.(1991). Data collection and analysis. U.S.A.University of Chicago Press
11. City of Kigali. (2002). Kigali Economic Development Strategy (pp. 95). Kigali.
12. City of Kigali. (2011a). About Kigali Retrieved 30 November 2018, 2016, from http://www.kigalicity.gov.rw/spip.php?article109
13. City of Kigali. (2011b). Colonial History of Kigali Retrieved 15 August 2018, 2015, from http://www.kigalicity.gov.rw/spip.php?article4
14. City of Kigali. (2011c). Population of the City of Kigali Retrieved 30 January 2019, 2016, from http://www.kigalicity.gov.rw/spip.php?article9
15. City of Kigali. (2013) Kigali City Master Plan Retrieved 12 June 2018, 2014, from http://www.masterplan2013.kigalicity.gov.rw/Downloads/
16. Gallimore, P and McAllister, Decision making in small property companies, Journal of Property Investment and Finance, 18:6, pp. 602 – 612 P (2005), Expert judgement in the process of commercial property market forecasting,
17. Graeme Newell, The inflation-hedging characteristics of Australian commercial property:
18. Gwilliam, K. M. (2002). Cities on the move. A World Bank urban planning strategy review.
19. Hagood, J. & Price.(1952): Data Visualization. USA: Alabama Press
20. Hornsby, H.(1990) Research methodology. USA: The University of Chicago Press
21. Iles, R. (2005). Public transport in developing countries. NL: Emerald Group Publishing Ltd.
22. Isaac K, T. (1993). A multidimensional methodology for evaluating public transportation services. Transportation Research Part A: Policy and Practice, 27(5), 395-405. doi: 10.1016/0965-8564(93)90035-j
23. James Kent on American land use in "Commentaries on American Law 438" published in 1830
24. Journal of Property Research, 21, pp. 337 – 360 Hepen, A and Vatansever M (2011),
25. Kam, B. H. (1991). Transport planning for third world cities : by Harry T. Dimitriou and assisted by George A. Banjo Routledge, London, UK, 1990, pp 432. Utilities Policy, 1(5), 440-441
26. Kenneth, D. (1982). Methods of social research, Macmillan, New York
27. Kittelson, Associates, Texas Transportation Institute, & Transport Consulting Limited. (1999) Transit Capacity and Quality of Service Manual. Washington, D.C.: Transportation Research Board of the National Academies.
28. Kittelson, Associates, Transportation Research Board, Transit Cooperative Research Program,
29. Federal Transit Administration, & Transit Development Corporation. (2003). A guidebook for developing a transit performance-measurement system. Washington, D.C.: Transportation Research Board of the National Academies.
30. Kothari, C.R. (2004) Research Methodology: Methods and Techniques, Jaipur

31. Mavoa, S., Witten, K., McCreanor, T., & O'Sullivan, D. (2012). GIS based destination accessibility via public transit and walking in Auckland, New Zealand. Journal of Transport Geography, 20(1), 15-22.
32. McGraw-Hill, The Valuation of Real Estate, , New York Barnham, C (2008),
33. Mediate, (2010). Methodology for Describing the Accessibility of Transport in Europe, United Kingdom, London MININFRA. (2015). Rwanda Urban Planning Policy.
34. Ministry of Finance and Economic Planning,(2008-2012). Ubudehe program and implementation strategy, Rwanda, Kigali. 1984-1995, Journal of Property Finance, 7, 1, (6), (1996).
35. Moser & Kalton, G. (1971). Survey methods in social investigation. London: Heinemann Educational.
36. Mugenda, A.G, (1999), Research Methodology: Quanitiative and Qualitative Approaches: African Centre of Technology Studies, Nairobi
37. Nduwayezu, G., 2015. Modeling Urban Growth in Kigali City Rwanda Modeling Urban Growth in Kigali City Rwanda. Univesity of Twente.
38. NISR, 2012a. 2012 Population and Housing Census, Kigali: National Institute of Statistics of Rwanda.
39. NISR, 2016a. Labour Force Survey 2016, Kigali: National Institute of Statistics of Rwanda.
40. NISR, 2016b. Rwanda Integrated Household Living Conditions Survey (EICV) 2013/2014, Kigali: National Institute of Statistics of Rwanda Sarah del Tufo (2002). "WHAT is evaluation?" Evaluation Trust. The Evaluation Trust.
41. Peter F. Colwell, Henry J. Munneke and Joseph W. Trefzger, Chicago's Office Market: Price Indices, Location and Time, Real Estate Economics, 26, 1, (83), (1998). Crossref References American Institute of Real Estate Appraisers (1951),
42. TRB. (2000). Highway Capacity Manual (4th ed.). Washington, D.C: Transportation Research Board of National Academies.
43. Qualis? From Theory to Practice, Qualitative Market Research: An International Journal, 11:4, pp. 414 – 424 Bonbright, C (1937),
44. Euijune Kim and Wankyu Yang, Profitability of Office Rental Market in Seoul: An Application of Simultaneous Structural Equations, Real Estate Economics, 34, 1, (157-171), (2006).
45. The Valuation of Property, Vol 1, McGraw-Hill, C and Tsolacos, New York Brooks, S (2010),
46. Cambridge Press, Real Estate Modelling and Forecasting, UK Colliers International (2012), 2013 Property Outlook, Colliers International,
47. Vuchic, V. R. (2002). Urban Public Transportation Systems. University of Pennyslyvania. Philadelphia, PA,USA.
48. Vuchic, V. R. (2005). Urban Transit: Operations, Planning, and Economics: John Wiley & Sons, Inc.
49. Wiley Online Library
50. William, G. (1987). Nine Lives. U.K: Bloomsbury Publishing.
51. William, G. C. (1977). Mathematics Genealogy Project. USA: Harvard University
52. Yin, Y. (1989). Research Methodology. London: Aurum Press Limit

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