“Corporate Real Estate Research – Authors, Outlets and Research Priorities”

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Declaration

I, Boitumelo C. Ramushu (884654), do hereby declare that the research work reported in this dissertation is my own, except where otherwise indicated and declared.

This report is unaided work and no information herein has been obtained while employed by, or working under the aegis of, any person or organization other the University.

This report, either in part or as a whole, has never been submitted for any other degree or diploma at any other institution.

28 February 2021

Boitumelo Ramushu (Signature) Date

Abstract

The purpose of this paper is to examine the existing literature pertaining to the ranking of authors, outlets, and research priorities, and the various available methodologies in literature that lend themselves useful to this ranking task, in order to catalogue a pecking order of corporate real estate research.

Using a four-pronged literature review process as part of the examination; *Identification, Screening, Eligibility* and *Included Papers (articles),* real estate research papers in a wide variety of internationally renowned research outlets, were selected for further analysis. The selected papers were examined using content analysis and summarized using narrative synthesis.

Despite the realization of how important corporate real estate is, as per the findings of Zeckhauser & Silverman (1983), there continues to be minimal coverage of corporate real estate research in mainstream journals. Only 7% of the 5 718 articles published in ten (10) journal outlets addressed issues relating to corporate real estate during the period 1990 – 2019.

In single-authored articles, *Barry P. Haynes* leads the ranks with 5 articles, whilst *Christopher Heywood* led the charge with 13 co-authored articles over the past 30-year period. In relation to institutions affiliated with single-authored articles, *Jones Lang LaSalle* and *Sprint Corporation* jointly lead the industry in CRE literature with 5 articles and the *National University of Singapore* leads the academic institutions with nine (9) articles associated with the university. In terms of affiliations to co-authored articles, *Delft University of Technology* in the Netherlands led the ranking with twenty-eight (28) articles linked to the university, and again, *Jones Lang LaSalle* (14) was ranked top in the co-authorship of CRE research in corporate institutions.

Lastly, twenty-one (21) countries were linked to 149 single-authored articles and Thirty-two (32) countries were affiliated to 358 co-authored articles. Forty-eight percent (48%) of single-authored articles came out of the *U.S.A.,* The *U.S.A.* also ranked top in terms of affiliated co-authored articles with 106 articles. There were nineteen (19) themes collectively identified during the period with three (3) main themes dominating article content during the 30-year period. The three themes encapsulated the gist of

discussions held under the review period. The "*Physical workplaces vs Traditional workspaces vs Virtual environment - New Ways of Working"* theme had the most number articles over the period (760 keywords), followed by the "*Asset Management Function"* (559 keywords), and lastly the "*Corporate functions, Strategies, Management, and Leadership Tools"* (405 keywords).

The current study summarizes key indicators that allow an evaluation of the state of the body of knowledge to academics looking to initiate or continue studies in corporate real estate management. It also provides guidance to industry on where to look for thought leadership in corporate real estate research.

Acknowledgements

I have always had a bit of doubt in my academic abilities and thought, although I knew I would amount to something, however, the journey to this point was slow and tedious. I am grateful to my saviour, Jesus Christ, whom I’ve been able to lean on. I don’t need to convince anyone as I have seen his intervention during this period. Over the past 7 years, this academic pursuit came with many hardships and sacrifices. I have lost so much although I have also gained much as well.

During this journey I had to deprive my family of much needed time and effort and redistributed it to my academic pursuits. When I began this journey, I merely had an honours degree in property valuation, and had been recently retrenched and working as a petrol attendant, but sure enough, 6 months therein, through the assistance of my current supervisor, Prof. Samuel Azasu, I managed to secure employment in property management. Although, I was in the property industry prior to this, however, I was very junior in my role. Fast-track seven (7) years on, I’ve advanced significantly in my career, and have never been more confident. The attainment of this qualification is merely the fulfilment and attestation of what I’ve been able to already use, in other words, I’ve been able to use all that was imparted in this degree already.

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List of Abbreviations

Abbreviation	Description
CRE	Corporate Real Estate
CREM	Corporate Real Estate Management
JRER	Journal of Real Estate Research
JREFE	Journal of Real Estate Finance and Economics
REE	Real Estate Economics
JUE	Journal of Urban Economics
LE	Land Economics
NRF	National Research Foundation
RE	Real Estate
SLR	Systematic Literature Review
U.S.	United States (of America)
CREO	Corporate Real Estate Officer

Chapter 1: Introduction

1.1 Background to the Study

Manning and Roulac (1999), defined corporate real estate (CRE) as industrial, office, and/or retail space (i.e. land, buildings, improvements, etc.) in use by businesses, where not only site selection, but also facility design and space utilization decisions, inevitably impact a company's business operations and future cash flow in numerous ways beyond any investment return received from the ownership of the real property. Ducoulombier (2007) also define it as location specific and heterogeneous real physical assets that are exchanged at high unit values.

Corporate real estate has traditionally been thought of as a tangible asset of a company with a book value often based on the market value of land and replacement cost of improvements (Park & Glascock, 2009). The CRE function in an organization is similar to other business functions, such as sales and marketing, finance, human resource, and management information system departments, with a primary purpose to support the organization's operation (Ali et al., 2008).

Carn, Black, and Rabianski (1999) argue that the function of CRE is to devise new strategies and blaze new pathways for more efficient and productive operations consistent with the goals and objectives of their core business. Its function is translated to various activities, such as leasing, property management, acquisitions, divestiture, and development (Veale, 1989).

Past research by Beauchamp, Hardin III, Liano & Yu (2008) indicated that the real estate discipline had made substantial progress in the previous 15 years in developing its own body of knowledge that drew upon, but was not solely a subset of, finance, economics, or urban planning. What is apparent, more notably, is that corporate real estate had also grown, and evolved to merit specific research as a separate real estate discipline (Hardin III et al, 2006), and this recognition had facilitated active research in its identity, contribution, performance and control.

In 1979, Brown had one of the first works on CRE published concerning the importance of corporate real estate, however most of the research publication was witnessed in the 1980s. According to Johnson & Keasler (1993), the hidden value of corporate real estate received widespread recognition upon the publication of a 1983 survey-based, seminal article written by Zeckhauser & Silverman (1983), which found that many corporations had no comprehensive inventory or centralized knowledge of their real estate holdings or values.

There's been several works undertaken to evaluate individual research output, research direction, and significant research outlets within the real estate discipline (Hardin III et al, 2006); their insights are useful in evaluating the "productive worth" (Clauretie & Daneshvary, 1993), of contributing authors, research outlets and the research agenda in the corporate real estate discipline.

An analysis of rankings over time can reveal trends in the significance of authors and journals within a field that otherwise can be overlooked (Redman, et al., 1999), therefore an academic discipline requires a set of core theories, methodologies, and research outlets (Hardin III et al., 2007).

The ranking of journals is also valuable because, (1) authors are interested in outlets for their work; (2) editors want information about their selection process; (3) important journals are revealed for guidance for librarians and university faculties; (4) graduate students are interested in where the important literature is, and (5) rankings are useful in the tenure and promotion process (Redman, et al., 1999). Therefore, the ranking exercise provides signposts for an interested audience to access thought leadership. Ranking also provides a glimpse into the maturity of a field in order to assess milestones and contributions of the discipline.

1.2 Significance of the Study

Corporate real estate (CRE) is not a new concept; it represents a nation's economic and social development. Corporate real estate is the second highest cost for operating businesses (Hassanain, et.al, 2018), after staff costs. The optimization of CRE is a challenge faced by many organizations because of its influence on the organisation's profitability (Louko, 2004). However, when executives analyse operational and financial performance, some balance sheet items, such as corporate real estate holdings, are not considered essential to generate sales and earnings (Demirer, et al.

2018), as they believe CRE would impede financial performance due to agency problems and capital expenditure.

Given the large investment corporate real estate is, it is important to understand how decisions related to corporate real estate, affects credit quality, tax considerations and firm value, since CRE can serve as collateral in the obtaining of financial instruments to fund new projects or investments. Park & Glascock (2010) highlighted that in ratio analyses conducted in firm valuations, underestimating the value of CRE could greatly impact critical ratios, such as the return on assets and the market-to-book value, which in turn may lead to the firm's undervaluation.

Sustainable properties, can therefore, create the best usability for the core business over time and meet the demands of the owners, property managers and society (Boge & Salaj, 2017). Critical decisions made at the very beginning of an organization's capital development projects, such as CRE, have major consequences on the overall success of the organization (Hassanain *et al.,* 2018).

One of the benefits of owning corporate real estate is that '[c]orporations can get an immediate capital injection without additional external financing to support growth or to better the firms' capital structure…, thus it is crucial to have a solid property strategy that supports the overall business goal before structuring large-scale disposals (Louko, 2004).

More narrowly, most restaurant firms, manufacturing, transport and/or logistical corporations, etc. by their operational nature, own and operate a large amount of corporate real estate (CRE), even though real estate is not their primary business activity (Demirer *et al.,* 2018), however, firms of different sizes have their sales and profitability linked to their CRE portfolio. Therefore, the expansion of companies' real estate portfolios has also increased the managerial interest in the subject. The growing number and the geographical spread of CRE alongside the expansive size and complexities of such ownership, required the establishment of CRE departments within organizations, as it is with marketing, finance and human resources.

In citing Gale and Case (1989), Ali, McGreal, Adair and Webb (2007), highlight that Corporate Real Estate Management (CREM) contributions to the firm are translated through various activities, including property acquisition and development, property management, financial analysis and miscellaneous activities such as leasing, development packaging, and brokerage. Hence, it is apparent that CREM involves broader aspects of real estate management ranging from routine day-to-day property management to higher-level activities of long-term CRE strategic planning and asset management.

In earlier years, corporate real estate was simply viewed as a necessary sunk-cost, beneficial only for the provision of working space, and nothing more; although garnering recognition in its investigation more recently, CRE was previously viewed as an obligatory burden.

A study examining research productivity and output in the corporate real estate discipline is thus justified to assess the research authors and journals that provide influential contributions to foundational theories and practical research techniques and framework, which may in turn be implementable by corporate officers. The lack of adequate information on corporate real property assets, makes appropriate decision making, quite difficult and is unappreciated by senior management (Manning & Roulac, 1999).

An assessment of the state of research in corporate real estate could be beneficial on a number of levels:

i. It could provide key insights in the gaps of knowledge compared to other real estate sub-fields, that would steer the direction of future studies
ii. It could direct new researchers to key authors and outlets of credible and reliable corporate real estate research
iii. It would also encourage active research scholars to investigate research themes within corporate real estate that would be highlighted in the review
iv. It would facilitate dialogue between corporate executives and the academy on research priorities

1.3 Problem Statement and research questions

Corporate real estate (CRE) forms an important part of corporate wealth worldwide. The study by Zeckhauser & Silverman (1983) asserts that CRE forms about 25% of corporate wealth. With this background, any studies that seeks to understand the nature and role of CRE and qualifications of CRE managers is very important.

The lack of consensus about what the firm's real estate strategy is, may lead an organization to pursue real estate operations and transactions not aligned with corporate business objectives and outside the corporate strategic context, leading corporate executives to ill-informed decision-making. Naturally, 'as with any area of specialization, laying a foundation that substantiates the discipline as a viable area of emphasis is needed' (Johnson & Keasler, 1993) in corporate real estate research.

Therefore, the importance of studying contributors to this research discipline cannot be overemphasised. Even though different types of publications to evaluate real estate research, productivity of members of the academy, outlets, institutions, and research priorities, none of these works focused on CRE specifically.

Consequently, this report addresses the following research questions:

1) Who are the leading contributors to corporate real estate research?
2) Which topics take priority in corporate real estate research?
3) Which research outlets publish corporate real estate research the most?

1.4 Aim and Objectives

The purpose of this study was to characterise and evaluate the state of corporate real estate research. It seeks to provide corporate real estate researchers with an understanding of the contours of the area as well as some of the discussions and debates that have characterized the field since its inception. In order to achieve this aim, the report seeks to

- Identify the leading contributors to the field
- Characterize the research priorities of academics in the area as well as

- Identify the most important platforms for the dissemination of corporate real estate research

1.5 Limitations

1. This report has the following limitations: the research relies on both Content Analysis and the Narrative Synthesis approach to investigate the issues outlined above. These two methods have a few weaknesses: These include the following: Content Analysis is a time-consuming exercise and requires large volumes of literature for more meaningful insights to be arrived at. Over 5 000 articles were used in this study from 10 journals that publish both real estate and finance journals. This study was undertaken by one author and therefore a second screening may have been a necessary exercise to ensure validity.
2. Content Analysis is also susceptible to individual interpretations, which implies that too much liberal classifications in terms of the themes derived under research priorities by the current author could be interpreted differently by another researcher.
3. Narrative Analysis on its own may not necessarily be relevant for the purpose of the current study. It is useful for comparative analysis, but according to Phoenix, Smith and Sparkes (201), it is not suitable for large samples. As a result, there may be over-simplified findings to the current results.

1.6 Assumptions

The following assumptions have been made in this study:

- CRE research is identifiable from a defined list of journals, mostly in real estate and related journals.
- CRE research outlets are published mostly in English speaking journals.
- Replicating some of the methods used in previous studies will yield equally valid results.

Chapter 2: Literature Review

2.1. Introduction

The purpose of this chapter is to review the body of knowledge with respect to the topic to substantiate the problem statement articulated in the previous chapter. It will also provide context as well as delineate the boundaries for the discussion. The chapter is structured as follows: some of the key players behind the evolution of real estate as a discipline will be discussed, followed by a review of the outlets, individual and institutional contributors to real estate research as well as the priorities that have shaped research efforts in the last decades. The importance of doing this provides evidence to support the claim that similar analyses have not been done for corporate real estate, a sub-field of the real estate body of knowledge that is undergoing an evolution of its own. The argument to be made in this report is that an evaluation of the outlets, contributors and research priorities in corporate real estate management would give a good indication of its relative maturity as a sub-field and indirectly provide an assessment of its contribution to the growth and development of real estate as a body of knowledge.

Real estate as a discipline has over the past three decades undergone major developments in its own identity, its research outlets, and its research agenda. During these periods, a major professional association (American Real Estate Society – ARES) was now firmly established and begun an era of defining the real estate profession and its trajectory. The associations' cited objectives include encouragement of research and promotion of education in real estate, the improvement of communication and exchange of information in real estate, and allied matters among college/university faculty and practicing professionals, and facilitating the association of academic, practicing professional, and research persons in real estate (*American Real Estate Society, 2019).*

Other international and regional real estate societies were later formed to serve a similar role as the ARES. The ARES then went on to establish two impactful real estate journals, *Journal of Real Estate Research* and the *Journal of Real Estate Finance and Economics.* During these periods, the two journals have been ranked within the top five most influential real estate outlets.

Again, this era also saw a name change of a highly esteemed real estate journal; a journal that ranks chief amongst all real estate outlets based on the reviewed literature during this period, The *American Real Estate and Urban Economics Association* (AREUEA) *journal,* was renamed as *Real Estate Economics*. AREUEA was established in 1964 at the meeting of the *Allied Social Science Association* in Chicago, for the purpose of advancing the scope of knowledge and facilitating the exchange of information among academics, professionals and governmental personnel who were and are primarily concerned with urban economics and real estate issues (*American Real Estate and Urban Economics Association, 2019).* AREUEA is one of the oldest and most influential real estate association in the United States (U.S.).

The *American Real Estate Society (ARES)* and the *American Real Estate and Urban Economics Association (AREUEA)* are arguably the driving force behind the growth in real estate research over the past three decades. By all accounts, it is evident that the real estate field has undergone rapid expansion and its evolution necessitated that a catalogue of its authors, outlets and research priorities be documented. However, in addition to ARES and AREUEA, further contributions to real estate research development in the past two decades are attributed to other international societies who had been established and had been instrumental in expanding our understanding of real estate in the different regions of the world. The African Real Estate Society (AfRES), European Real Estate Society (ERES), Asian Real Estate Society (ARES), Latin-American Real Estate Society (LARES), and Pacific Rim Real Estate Society (PRRES), are organisations whose researchers and journals, have also contributed to increasing real estate's body of knowledge. The international perspective of the importance of real estate concepts was first introduced by Rabianski and Black (1999) who focused attention on real estate academics and practitioners outside the USA and Canada (Schulte, 2003).

Real estate is multidisciplinary field with ties to finance and economics, although it was never recognized solely outside these two major academic fields until recently. Authors publishing real estate research were more heavily slanted toward finance journals than general economics journals. The relationship between real estate and finance journals is closer than that between real estate and economics journals. This close relationship is, to some extent, a reflection of the ties rooted in the popular practice of housing real estate faculty within finance departments (Dombrow & Turnbull, 2004).

To this end, two important questions are addressed by the literature review on real estate: what factors have driven changes in real estate as a discipline over the past three decades and, secondly, has the discipline earned its own research identity separate from finance and economics, or has it rather become more deeply rooted within these two fields?

These two questions not only assist in shaping the discussions of the literature review on real estate, but when slightly modified, these two questions form a broad base for the questions to be raised about the Corporate Real Estate (CRE) discipline. The unanswered question is whether CRE has also undergone a similar process of evolution, as a subfield of the mainstream real estate discipline? The literature explored seems to indicate that CRE may be operating behind the shadows of the broader real estate discipline, and a discussion needs to occur in terms of whether the corporate real estate discipline has matured enough to warrant its own evaluation using the same framework that has been applied to the mother discipline.

2.2. Outlets for real estate research

The issue of quality and ranking is of continued interest to real estate academics because of the many decisions that are based on research productivity. Quality of real estate journals is also of interest to industry practitioners in identifying the sources of new knowledge in the field (Redman, Manakyan &Tanner, 1998). The period 1990 – 2000 saw a rise in the number of outlets for real estate research, and a keen interest by both the academy and into ranking studies of real estate research.

Ranking studies are not only important in highlighting impactful authors and their affiliated institutions, but they also underscore the contributing academic journals that publish these important research projects. As an author of real estate research, being able to submit your work in reputable academic journals is a source for the evaluation of academic tenure, promotion and remuneration. For early-tenured researchers they provide direction to a collection of seasoned authors and their research works. Other objectives associated with ranking include determining the quality of university programs, providing information to potential graduate students, and judging the stature of the authors themselves (Clauretie & Daneshvary, 1993).

Redman, Manakyan & Tanner (1999) further argue that the ranking of journals is worthwhile because authors are interested in quality outlets for their work, editors provide information about the selectivity of the publication process, and librarians, faculty as well as graduate students use it as guidance on where important literature can be found. In addition, analysis of rankings over time can reveal trends in the significance of journals within a field that would otherwise be overlooked. Holsapple *et al.,* (1994), also argue that other important pragmatic motives for ranking studies include:

- the training of doctoral and post-doctoral students with respect to publishing outlets
- reading lists necessary to stay abreast of current research,
- moving toward a consensus on the "top" journals,
- establishing tiers of journals for use in related research topics,
- informing college deans and administrators of the diversity of forums for publishing discipline-specific articles, and
- assisting researchers in targeting manuscripts to the appropriate forums

Ranking is therefore an important exercise to be carried out by academics in an established field in order to provide a signpost of thought-leadership of a discipline. As alluded to in the introduction, the finance discipline has largely been the "*big-brother*" to the real estate discipline, more so than the economics discipline. Because traditionally, real estate departments in many universities were housed under the finance department, it generally was a necessary practice to understand the perception and attitudes of the finance faculty towards the relative strength and quality of real estate journals. Webb & Albert (1995) cited that journal quality helps all departmental faculty to decide critical matters such as tenure, promotion, evaluation for salary adjustments, and other resource allocations (travel funds, research funds, release time, grants, etc.), including those in real estate departments.

However, once a discipline evolves and becomes widely recognized and entrenched within the academic community, it is necessary to identify and catalogue the academic journals that have published research in that discipline so as to understand the direction of the journal, its influential authors exercising thought-leadership, and the maturity of discussions held on the field. These factors enable both seasoned and early researchers to chart out the significance and importance of the discipline from inception to date. The seminal works by Nielson & Wilson (1978), and Smith & Greenwade (1987) are the earliest recorded works on ranking (Redman, Manakyan &Tanner, 1998).

During the 1990s several authors undertook such ranking studies in management information systems (Holsapple, Johnson, Manakyan & Tanner, 1994), in corporate real estate (Manning & Roulac, 1999), and in real estate as a whole (Smith & Greenwade, 1987; Clauretie & Daneshvary, 1993; Webb & Albert, 1995; Diaz, Black & Rabianski, 1996; Redman, Manakyan & Tanner, 1998, 1999).

Studies of real estate journal rankings quickly get outdated either because the population of journals are changing, or data and/or methodology problems (Diaz *et al.,* 1996, necessitating periodic updates (Redman, Manakyan &Tanner, 1998).

When analysing the earlier works of various authors on the ranking of real estate journals, it is apparent that much of the work done initially was more subjective rather than objective. Surveys were largely the instrument of choice in understanding the perceptions and preferences of outlets publishing real estate research. The more recent studies include newer journals, which were previously not included in earlier studies, but most of them are also a product of survey methodology and are heavily dependent on the subjective opinions of faculty administrators, industry professionals, and real estate research authors; although they provide great insights, they are thus susceptible to the general weaknesses of other rankings.

The literature in finance, accounting and other areas of business research includes objective citation analysis of publication patterns and rankings of journals (Redman, Manakyan &Tanner, 1999), which was lacking in real estate ranking studies. The study by Redman *et al. (*1999) was amongst the first studies within real estate to provide a more objective analysis in the ranking of real estate journals. Their normalized citation process was adapted from similar studies by Alexander & Mabry (1994), Beattie & Ryan, (1991) and Holsapple *et al.*, (1993), where the journals used as their sample was adjusted for the length of publication and for the number of articles published to eliminate biases created by longevity and size of publication.

The journals they chose were *Journal of Real Estate Research, Appraisal Journal, Journal of Real Estate Finance and Economics,* and *Real Estate Economics.* By using the reference lists for all the journals, and examining them for the period 1990-1995, they established about 13 332 article citations. They found that the *Real Estate Economics* was the most cited journal among real estate publications for both adjusted and unadjusted citations, followed by *Journal of Real Estate Finance and Economics* and then the *Journal of Real Estate Research.* The methodological contribution of this study is evident in both their ranking of journals and their analysis of results which is far more objective than earlier studies.

In the growth stages of the real estate research evolution, other journals whose core focus was not necessarily real estate but generally tended to include specific real estate topics were commonly included in research samples. Diaz, Black and Rabianski (1996) included the *Journal of Housing Economics (JUE), Journal of Regional Science (JRS); Journal of Urban Economics (JUE); Land Economics (LE);* and *Regional Science and Urban Economics (RSUE)* in their sample because these five journals published a wider range of topics but also frequently published a significant amount of real estate research. They also included the *Journal of Real Estate Finance and Economics (JREFE), Journal of Real Estate Research (JRER)* and *Real Estate Economics (REE).* Collectively, these eight journals came to be known as the "*Academic Group", selected* through a survey by Diaz *et al.* (1996), where real estate scholars who were the most highly rated by tenured faculty were surveyed.

The progressive evolution of real estate as a stand-alone discipline is well documented in literature. Real estate was gradually developing its own set of journals that primarily and specifically discussed real estate interests without much deviation.

The *Real Estate Economics* journal formerly known as AREUEA journal, was first published in 1973 (*American Real Estate and Urban Economics Association, 2019),* followed by *Journal of Real Estate Research* established in 1986, then the *Journal of Real Estate Finance and Economics* in 1988 (*American Real Estate Society, 2019).* Over the past three decades, these three top-tier journals have come to be recognized as the "core" of real estate journals. Studies over the analysis period listed these three journals as *premier* journals, with an esteemed reputation amongst many in the academic community (Clauretie & Daneshvary, 1993; Webb & Albert, 1995; Diaz *et* *al.*, 1996; Redman *et al.*, 1998, 1999; Ong *et al.*, 2001; Gibler & Ziobrowski, 2002; Hardin III, Liano Chan, 2006; Gibler & Zhou, 2010; Worzala & Tu, 2010; Manning & Harrison, 2011; and Beard & Allen, 2019), however, the *Journal of Property Investment and Finance* seems to be the leading journal for publishing international real estate research along with the *Journal of Property Research* (Newell, Acheampong & Juchau, 2002).

The maturity of discussions during the period 2000 – 2010 evolved to include nuances on cross-continental publishing, and the growth of top real estate authors and universities outside of the U.S. (Ooi, Ong & Wong, 2001). Ong *et al.* (2001) observed that *"Home-Bias",* which is defined as the tendency to publish in the country of origin, was quite prevalent in both the U.S. and the U.K., two of the major English-speaking countries with a large real estate research presence globally. Additionally, the increased globalization of real estate markets and the creation of major international bodies (International Real Estate Societies – IRES) also aroused interest in real estate research (Newell, Acheampong & Juchau, 2002). This interest aptly described and expounded upon in the study by Worzala & Tu (2010) highlights the increased proliferation of real estate organizations as well as the growth in real estate research and education, which has led to a corresponding growth in real estate publication outlets across the globe. This created the need to value the research output of those faculty from an international perspective. This view is supported by Newell *et al.* (2002) study where there is a variation in which outlet tops the chart from an international perspective.

Despite the debate on which outlet is more superior than others, it is clear from literature that the real estate discipline has made substantial progress in developing its own body of knowledge (Beauchamp, Hardin, Hill, and Liano, 2008). This view is firmly held in the study Manning & Harrison (2011), where they argue that real estate has indeed evolved into unique discipline, separate and distinct from its finance and economics-based origins. These authors point out real estate's own literature and journals, with more real estate faculty work separate from finance academics because of changes in college and departmental policies. In addition real estate journals have continued to evolve along both quality and quantity dimensions (e.g. sponsorship, target audiences, and journal content), so much so that the discussions now held in real estate articles also provide direction and guidelines to inexperienced researchers on how to internalize and structure their real estate manuscripts for submission to reputable real estate journals so that these junior researchers are able to make "*strong incremental contributions"* to the body of knowledge (Azasu & Simons, 2018).

The top-ranked real estate journals are now the main source of citations for real estate research published both in real estate and finance journals (Hardin, Liano, and Chan, 2006). Over the analysis period, real estate journals are now viewed favourably by the finance faculty. Five journals particularly are seen to be equal to or better than the *Financial Management,* the *Journal of Financial Research* and the *Financial Review*. These five real estate journals are *Real Estate Economics, Journal of Urban Economics, Land Economics, Journal of Real Estate Finance and Economics,* and *Journal of Real Estate Research.* These results indicate that real estate has, indeed, become a generally accepted and respected area within the broader finance discipline (Webb & Albert, 1995). The temporal analysis conducted by Redman *et al.* (1999) also revealed that over the period 1990 – 1995, a shift in citations away from traditional economics and practitioner-oriented journals to real estate academic journals.

Amongst many studies, *Real Estate Economics* is seen to be the most important outlet for promotion and tenure, whilst the *Appraisal Journal* was the most important for professional applicability (Diaz *et al.,* 1996), over 20 years later, after the publishing of the article by Diaz *et al.* (1996), these findings still seem to hold true. The *Journal of Real Estate Finance and Economics* is perceived to provide a fair, and efficient publication process (Gibler & Ziobrowski, 2002); its reviewers are highly regarded. An interesting development however is that the *Journal of Real Estate Finance and Economics* has moved steadily from being a new journal in the field to being one of the more frequently cited journals (Redman *et al.,* 1999). It broke into the top twenty most cited journals in 1991, only three years after its inaugural issue. It raised to 5^{th} rank during 1992 – 1996, then 3^{rd} in rankings by 1997, then 2^{nd} in rank from 1998 – 2001 (Dombrow & Turnbull, 2004).

In closing, literature has clearly labelled *Real Estate Economics, Journal of Real Estate Finance and Economics,* and *Journal of Real Estate Research* as the "core" real estate journals revered within the real estate research community and are considered premier research outlets for the discipline, ranked first, second, and third respectively.

3. Authors/Institutions

The interest in ranking studies is not limited to journal outlets; it is useful too with research authors and their affiliated institutions. Various academic disciplines engage in the ranking of departments and/or publishers in their field (Clauretie & Daneshvary, 1993). This ranking exercise is generally driven by the curiosity of both individuals and institutions about the published research in real estate (Sa-Aadu & Shilling, 1988). There are number of ways to perform ranking analyses on authorship. The *"productive worth"* of an author is one method (Clauretie & Daneshvary, 1993), where the number of times an author is cited by others is considered. The number of appearances by an author can also be employed, where the consideration is the number of times that an author appears in a particular journal… and this method generally indicates to some extent the number of research projects a researcher is involved (Dombrow & Turnbull, 2002). There is also the measure based on the total number of papers authored by a researcher, or the total number of published pages, which is generally normalized and adjusted for the number of co-authors.

More scientific methods include threshold analysis (Hardin III, Liano & Chan, 2006), logit modelling (Allen & Dare, 2009), as well as regression analyses (Chan, Hardin III & Liano, 2010). Studies on the ranking of authors have generally been performed either on an adjusted basis, or on an unadjusted basis, or both. The unadjusted number of articles is the number of appearances by authors without taking co-authorship into consideration, whilst the adjusted basis is the number of articles calculated by equally dividing one article among all co-authors and their affiliated institutions; that is, each author of a two-author article is attributed to 1/2 article, each author of a three-author article is given 1/3 article.

Co-authorship refers to efforts by researchers to collaborate on a specific research work. This process would include two or more researchers who are generally familiar with one another, and possess expertise on content knowledge, methodology, technique, etc. These researchers would then be comfortable in cooperating temporarily on a certain research project over a specified time period until the paper has been submitted for publication. Co-authorship also entails either the alphabetic or non-alphabetic ordering of author names. Allen & Dare (2009) note that non-alphabetic ordering generally sends a clear signal of relative contributions by co-authors, although alphabetic ordering sends a mixed signal that “earlier” listed author(s) might actually have contributed more to the article. Research on author ordering and co-authorship is one area of investigation that has garnered much interest, reflecting the fact that the real estate discipline has also seen an increase in the team approach to research (Chan, Hardin III, & Liano, 2010).

Outside of individual contributions, literature has underlined the need to also highlight the academic institutions to whom contributing authors are affiliated. Highlighting these institutions provide newly minted real estate scholars and faculty job seekers with a list of institutions that are active in real estate research. Additionally, institutional attribution provides one measure of institutional visibility in the real estate research community, and also provides some indication of an institution's support for research, and therefore is one measure of its contribution to real estate research (Dombrow & Turnbull, 2000).

Past studies have generally used the core journals of real estate as a basis of their measurement. Single-journal studies of contributing authorship in the field of real estate include three prior studies by Sa-Aadu and Shilling (1988), Allen and Kau (1991), and Dombrow and Turnbull (2000). Sa-Aadu and Shilling report on the ranking of contributing authors and institutions to *Real Estate Economics* (formerly the Journal of the American Real Estate and Urban Economics Association) for articles published from 1973 to 1987. For this 15-year-period, *Real Estate Economics* (REE) published 350 articles contributed by 583 authors affiliated with 181 institutions. Findings from the study indicate that 108 authors had published more than once in the journal and of these authors the most frequent contributors were *Patrick Hendershott, Kenneth Rosen, Peter Colwell, Chapman Findlay*, and *C.F. Sirmans*, whereas the top institutional affiliations were the *University of Illinois, University of Georgia, University of British Columbia, and Ohio State University.*

Allen and Kau (1991) studied the contributing authors and institutions for 666 articles published in the *Journal of Urban Economics* (JUE) during the years 1974 to 1989. Allen and Kau report that these articles were written by 564 different authors who were employed by 236 separate institutions. The authors with the most appearances include *J. Vernon Henderson, Jan Brueckner, John McDonald, Michelle White, Peter*

Linneman, Arthur Sullivan, and *William Wheaton*. The most frequent contributing institutions were the *University of Pennsylvania, Princeton University, Massachusetts Institute of Technology, University of Illinois,* and *Harvard University.*

Dombrow and Turnbull (2000) identify the individuals and institutions contributing research published in the *Journal of Real Estate Finance and Economics* (JREFE) during its first 12 years from 1988 to 1999, based on an analysis of 378 articles. The most frequent contributors were *Peter Colwell, Paul Asabere, Geoffrey Turnbull, John Glascock, Jianping Mei, Kelley Pace,* and *C.F. Sirmans*, whereas the top institutional contributors are the *University of Connecticut, Louisiana State University, University of Illinois, Federal Reserve, Pennsylvania State University,* and *Temple University.*

Although past studies were insightful in revealing the impactful authors and the institutions involved in real estate research, much of these research works tended to focus predominantly on the U.S. These research projects reflect what was accurately described by Ooi, Ong & Wang (2001) as "*Home Bias*". Their study revealed that the home bias was much higher in U.S. journals than in U.K. journals, while U.K. journals covering work emanating not only from the U.S.A/Canada, but also from Australia, New Zealand and Asia. In addition, their study also highlighted the Universities of Reading, Ulster and *Glasgow* as well placed among European universities, while the *National University of Singapore* ranked well in Asia. On a non-adjusted basis, *Alastair Adair* was the leading European author, and *Elaine Worzala* was the leading American author. On an adjusted basis, *James Berry* was the leading European author, and *Patric Hendershott* was the leading American author. *Graeme Newell* of the *University of Western Sydney* was the top contributor from Australia/New Zealand, while *Seow-Eng Ong* and *Kim Hiang Liow* from the *National University of Singapore* were the topmost contributors from Asia.

Citing Chung and Kolbe (1991), Diaz *et al.* (1996) argue based on Lokta's Law that scientific productivity is dominated by a few "superstars", much like other fields of human endeavour; worded differently, research productivity generally is restricted to a small number of researchers who frequently publish impactful work, which explains why the same group of names top every chart for different disciplines.

Overall, when considering the literature explored, the top five authors in the U.S. that are frequently mentioned and in no particular order are: **C.F. Sirmans** (Sa-Aadu &

Shilling, 1988; Dombrow & Turnbull, 2002; Hardin III, Liano & Chan, 2006; Urbancic, 2007; Jin & Yu, 2011; Saginor, 2015, 2016, 2017; Beard & Allen, 2019), **Patric Hendershott** (Sa-Aadu & Shilling, 1988; Hardin III, Liano & Chan, 2006; Ooi, Ong & Wong, 2010; Jin & Yu, 2011), **James Webb** (Dombrow & Turnbull, 2000; Dombrow & Turnbull, 2002; Urbancic, 2007; Ooi, Ong & Wong, 2010; Jin & Yu, 2011), **Peter Colwell** (Sa-Aadu & Shilling, 1988; Dombrow & Turnbull, 2000; Dombrow & Turnbull, 2002; Jin & Yu, 2011), and **Michael J. Seiler** (Saginor, 2015; 2016, 2017, 2018, 2019; Beard & Allen, 2019).

The top five academic institutions in the U.S. that are frequently mentioned and in no particular order are: **University of Connecticut** (Dombrow & Turnbull, 2000; Dombrow & Turnbull, 2002; Hardin III, Liano & Chan, 2006; Jin & Yu, 2011; Saginor, 2015, 2016, 2017, 2018, 2019), **University of Georgia** (Dombrow & Turnbull, 2000; Dombrow & Turnbull, 2002; Urbancic, 2007; Saginor, 2015, 2017, 2018, 2019), **Florida State University** (Urbancic, 2007; Jin & Yu, 2011; Saginor, 2015, 2016, 2017, 2019), **Florida State University** (Urbancic, 2007; Jin & Yu, 2011; Saginor, 2015, 2016, 2017, 2019), **Pennsylvania State University** (Dombrow & Turnbull, 2000; Dombrow & Turnbull, 2002; Jin & Yu, 2011, Saginor, 2016, 2017, 2019).

The top five authors outside the U.S. that are frequently mentioned and in no particular order are **Seow-Eng Ong** (Newell *et al.,* 2002; Ooi, Ong & Wong, 2010; Saginor, 2015, 2016, 2017, 2018), ***Alastair Adair*** (Ooi, Ong & Wong, 2010), **Graeme Newell** (Ooi, Ong & Wong, 2010), **Piet Eichholtz** (Ooi, Ong & Wong, 2010), **Martin Hoesli** (Newell *et al.,* 2002; Ooi, Ong & Wong, 2010), **Joseph Ooi** (Newell *et al.,* 2002; Saginor, 2015; 2016, 2017, 2018, 2019).

The top five academic institutions outside the U.S. that are frequent mentioned and in no particular order are **National University of Singapore** (Newell *et al.,* 2002; Ooi, Ong & Wong, 2010; Jin & Yu, 2011; Saginor, 2015, 2016, 2017, 2018, 2019) , **University of Reading** (Newell *et al.,* 2002; Saginor, 2015, 2017, 2018, 2019), **University of Western Sydney** (Ooi, Ong & Wong, 2010), **University of Geneva** (Ooi, Ong & Wong, 2010), and **University of Ulster**, (Ooi, Ong & Wong, 2010).

4. Research Priorities

Europe, Asia, Central and North America have been leading contributors to real estate research discussions and have been change agents to real estate research over the past three decades (references). With the continued expansion of international research collaborations between authors at different institutions, increased globalization, as well as direct and indirect real estate investments, the keen interest in real estate research priorities continues to take centre-stage (reference). The growing importance and relevance of real estate in research discussions led to the evolution of journal development predominantly in the U.S. where a number of journal outlets focusing purely on real estate specific research were established and entrenched (reference).

Similarly, this growing interest in real estate research also led the curiosity of researchers into identifying which research topics were highly important to those in both academia and practice (references on research priorities). The identification of real estate research priorities has been further proliferated by the establishment of both regional and international real estate societies *(International Real Estate Society; African Real Estate Society; European Real Estate Society; Asian Real Estate Society; Pacific Rim Real Estate Society & Latin American Real Estate Society).*

According to Dombrow & Turnbull (2004), there are two ways to measure research trends: the number of papers or published pages distributed across topics or the citation patterns in the most widely recognized journals publishing academic research to identify popular sources and influential papers within and across real estate topics. Previous studies of research in real estate and related areas use both approaches.

Research on real estate research priorities was initiated in the early 2000s by Newell and Worzala (Newell, Acheampong & Worzala, 2002; Newell, McAllister & Worzala, 2003; Newell, Worzala, McAllister & Schulte, 2004) collaborating with different authors in surveying institutional property investors, property consultants, academics and analysts and their opinions on 40 property research topics. These studies were generally backed by real estate societies for the benefit its members (*Property Research Council of Australia, Pacific Rim Real Estate Society, European Real Estate Society, U.K. Research Assessment Exercise, National Council of Real Estate Investment Fiduciaries, Pension Real Estate Association, etc.*). They commonly administered twelve general property research topics and twenty-eight specific property research topics. These research projects were undertaken to evaluate past and current real estate directions as well as the priorities to be considered by institutional investors and to further bridge the gap between academia and practice.

These studies reveal that there is a much closer alignment between real estate research priorities in the U.K., Germany and Australia than observed for the U.S. across many research topics. This may be due to the macroeconomic structures of the different economies, the relative strength and maturity of their real estate markets, the quality and number of institutions offering real estate education as well as the preferred research techniques and methodologies in each of the countries, among others.

The Role of Property in a Mixed-Asset Portfolio as general property research priority was a chart-topper across all economies. This was seen as a non-negotiable topic. And in no particular order, the following four general property research topics were ranked closely: *Macroeconomic factors affecting property, Property and portfolio risk management, indirect property investment vehicles, Diversification within property portfolios,* and *Performance measures for property.* The three specific real estate priorities were, and in no particular order: *Impact of capital flows in and out of real estate markets, Diversification within a mixed-asset portfolio,* and *Forecasting methodologies.*

In a similar study, orchestrated for Nigeria specifically, Adewunmi & Olaleye (2011) administered 50 property questions, 15 general property research topics, and 35 specific property research topics to 135 real estate practitioners in the Lagos metropolis. The methodology and the analysis techniques were similar to those in Newell and Worzala studies. In contrast, they found that *Development finance, Land policy issues, Land accessibility, Performance of property,* and *Property investment strategies* were the top five general real estate research priorities. These findings are already indicative of the emerging/developing nature of African economies and much of these priorities are linked to the lack of sophistication in their real estate markets, infrastructure, systems and procedures and the maturity of the market as well as economic conditions. The seven most important specific property research topics were: I*mpact of capital flows in and out of the property market, Land reform issues,* *Taxation factors affecting property, Forecasting methodologies for markets, Rents, Returns, Computerization of land registries, and Securitization of real estate.*

The work by Newell and Worzala as well as Adewunmi and Olaleye provided an understanding of the existing perceptions and opinions from academia and practice in developed and developing countries. However, they too, were subjective. Dombrow & Turnbull (2004) offered a more scientific nuance to the research priorities' discussion. The focus of their paper was in identifying changes in emphasis in terms of both publication patterns and citation patterns revealed by the research published in the *Journal of Real Estate Finance and Economics* and *Real Estate Economics*. Dombrow & Turnbull also analysed trends in broad topics, the mode of analysis (theoretical, empirical, or simulation), the exporting-importing behaviour of researchers in real estate, as well as identifying the most highly cited papers and individuals in these two journals over the sample period. Although these two journals are considered the core of real estate journals, the authors could have considered increasing the journal sample so that a much wider net was cast in order to get a better understanding of the research priorities, however, the findings still enable a good grasp of the direction real estate has taken in terms of its research agenda.

The authors found that publication and citation patterns reveal that real estate is a largely empirical field and that the mix of topics and techniques published by the two journals as well as sources cited, and garnering citations are converging over time. The most frequently cited papers or authors tend to garner citations that vary with the relative popularity of the category in the broader literature. *Investments* and *Mortgages* represent the two largest topics whether measured by percentage of articles or pages published. *Brokerage, Institutions,* and *Non-residential real estate* are not very popular topics during the sample period, each comprising 5% or less of published pages. Overall, *empirical research* has grown while *theoretical contributions* have become relatively less important in real estate journals, the latter result primarily from the fact that page mix in *JREFE* converges to the *REE* page mix over the period.

5. Corporate Real Estate Research

The land and buildings owned by companies not primarily in the real estate business are referred to as Corporate Real Estate (CRE) (Liow Nappi-Choulet, 2007). However, up until the early 90's, Corporate Real Estate (CRE) was still a resource that was overlooked by senior executives in favour of activities and functions that were deemed to be "core" to the successful running of a business. One of the earliest attempts to highlight the importance of CRE was the work of Zeckhauser and Silverman (1983), who estimated that American companies' real estate typically accounted for at least 25% of their total assets, but barely 20% of them manage their real estate for profit. According to Brown and Arnold (1993) the notion of "not being in the real estate business" is the major hurdle in driving the change into effective use of CRE. Furthermore, Teoh (2009) discovered senior executives in many New Zealand corporations were not concerned with real estate holdings as these were considered as sunk costs. Even though the direct operating cost of corporate real estate was found to be second only to salaries and wages, real estate was constantly neglected by the majority of corporations throughout the world and was treated mainly as a tool of production (Roulac, et al., 2002; Gibler, Black, and Moon, 2002). This confirmed that many corporate real estate executives still did not believe a corporate real estate strategy and decision making can impact upon the wealth of a company's shareholders. This spurred research into the area of what can be done with a company's 'real estate holdings to achieve a greater positive impact on the wealth of shareholders and enhance the value of the organization (Gibson and Barkham, 2001; Manning and Roulac, 1999; Bon, 1994). Research has since dealt extensively with how Corporate Real Estate Management (CREM) goals and objectives (Carn et al., 1999; Gibler et al., 2002; Ilsjan, 2007; Lindholm, 2008) can align with and improve companies' corporate objectives and profits. Lindholm and Leväinen (2006) identified two approaches to how corporations can enhance shareholder value: revenue growth and productivity. This can be achieved using seven real estate strategies:

- increasing the value of assets.
- promoting marketing and sales.
- increasing innovation.
- increasing employee satisfaction.

- increasing productivity.
- increasing flexibility; and
- reducing costs.

These strategies, in turn, translate into several operational decisions involving the corporate real estate unit. This framework enables the development of a performance measurement system that allows the firm to track how real estate strategies add value to the firm. They also identified potential measures of performance for each strategy.

6. The Evolution of Corporate Real Estate

The CREM role has evolved significantly over the past three decades from space provider to a strategic resource to the business firm. This trend has evolved with changes in the business environment. (Ali et al, 2008). Corporate real estate has evolved in two ways: the way in which it is organized and the function it performs. CREM has grown in sophistication in order to keep pace with the ever-changing business drivers (Page & Valenziano, 2006). Over the past two decades, corporate real estate management has become essential in steering the direction of corporate performance due to its significant influence on corporate balance sheets. Clear corporate real estate strategies have become crucial in charting the route in optimum and efficient corporate real estate management.

The development of the CREM as a discipline within business organizations has been investigated by Joroff, Louargand, Lambert & Becker (1993), then (1996), O'Mara (1999), and Roulac (2001). The turn of the twenty-first century saw Corporate Real Estate Management (CREM) turn into a business strategy. Five evolutionary stages in the roles of CREM within the organization were identified. The first stage is known as taskmaster, which emphasizes the role of the Corporate Real Estate Officer (CREO) as a maintainer of the buildings. Traditionally, CREOs are executives within an organization tasked with identifying appropriate facilities for an organization’s operations. Part of their responsibilities include negotiating the best price to acquire the real estate, manage the space, then dispose of it when operations did not need it any longer (Gibler, Black & Moon, 2002). The required skills for this task are mainly professional technical skills, such as building engineering. This is followed by the role of the CREO as controller. The third stage highlights the role as the “dealmaker”, sees the CREO attempting to solve specific organizational problems through real estate solutions, such as standardizing building usage. The fourth stage emphasizes the role of CREO as an entrepreneur, who provides services to other business units at market costs. Finally, the CREO's role is transformed into that of a strategist, who is highly involved in the long-term planning of the organization and strategic business management process. This stage emphasizes the function of CRE as a support to the business in achieving its objectives. These changes have required the CRE manager to be more creative and proactive (Ali et al, 2008)

By 1985 – 1995, the corporate real estate discipline was undergoing large-scale restructuring and paradigm evolution as corporate real estate priorities had symmetrical corporate priorities; both corporate officials and academics were awakening to this change. Efficiency, costs, and concerns of growth dominated literature in this period, so was the role of real estate as contributors to profits.

By the latter half of the 90s to the early-mid parts of the new millennium, the managerial approach was in full swing and had been fully adopted, as the corporate real estate function shifted, along with corporate management concerns, to emphasize effective management. By the 2000s, Manning & Roulac (2001) and others (Bortoluzzi, *et al.,* 2018) observed that greater emphasis was being placed on contributions of the workplace and productivity arrangements (e.g., outsourcing), and how to most effectively manage the corporate real estate function to accommodate growth and change.

Further discussions [(Demirer, *et al.,* 2018), (Giacomo, *et al.,* 2017), (Boge & Salaj, 2017)] of this era also delved on the financial performance and value creation associated with the ownership of various CRE assets ranging from the manufacturing sector to restaurant conglomerates, etc.

Conclusion

The real estate academy has conducted multiple studies to assess the state of research of the discipline by evaluation the major outlets and organisations behind these outlets. Other papers have evaluated authors and their institutional affiliations, as well as their research priorities. Corporate real estate management, its strategic importance and how the role of corporate real estate managers have evolved over time has been well research. However, unlike the mother discipline of real estate, no study has evaluated the most important corporate real estate researchers, the typical outlets for their work and their research priorities. As a consequence, it is unclear how much it has advanced as a subfield within the real estate discipline. It is therefore important to address the following questions:

- Which are the major outlets for corporate real estate research?
- Who are the key contributors to corporate real estate research?
- What are their research priorities?

Chapter 3: Research Design

3.1. Introduction

According to Creswell (2009:3), research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis… and [t]he overall decision involves which design should be used to study the topic…. [i]nforming this decision should the worldview assumptions (or philosophical paradigm) the researcher brings to the study; procedures of inquiry (called research strategies); and specific methods of data collection, analysis, and interpretation.

Corporate real estate has had a steady stream of discipline-specific research publication and has evolved to warrant its separate identity and investigation. This is important because the level of maturity that the discipline has undergone and primarily driven by the need to collect relevant inventory registries (Zekhauser & Silverman, 1983) and intellectual thought-leadership in its control and management.

Studies in the 1980s were primitive and were primarily concerned with corporate real estate's identity and justification [(Brown, 1979), (Pittman & Parker, 1989), (Veale, 1987), (Veale, 1989), (Zeckhauser & Silverman, 1983)].

Significant attention on perceptions and attitudes of corporate executives and real estate researchers was placed in studies coming out of the 90s, and were primarily interested in operational and organizational restructuring, profiling and academic participation to corporate real estate research [(Carn et al., 1999), (Johnson & Keasler, 1993), (Manning, 1991), (Manning & Roulac, 1999), (Nourse & Roulac, 1993), (Rodriguez & Sirmans, 1996)]

Whilst the new millennium ushered in new methodologies and innovation. Studies of the new millennium were geared toward a sharp focus on sustainability within corporate real estate [(Bortoluzzi, et al., 2018); (Fauzi et al., 2017); (Park & Glascock, 2009)]. Other publications of this era looked at user needs and preferences [(Epley, 2004); (Gibler & Ziobrowksi, 2002); (Musa & Ahmad, 2018); (Urbancic, 2004); (Ziobrowski & Gibler, 2002)]. Still others provided various framework and techniques purposed to assist efficient management and control [(Adair, et al., 2003); (Boge &

Salai, 2004); (Demirer, et al.,2018); (Freybote & Qian, 2017); (Giacomo et al., 2017); (Ilir & Monique, 2018); (Lindholm & Levainen, 2006); (Lindholm & Nenonen, 2006); (Lindholm, 2008); (Liow & Ooi, 2004); (Louko, 2004); (Roulac, 2001); (Zaiton et al., 2008).

The increase in the amount of accessible research today makes it impossible for decision makers, policy makers and professionals to keep up to date with advances in their field (Boland, et al., 2014). Analysing the content of scientific journals is an important step in tracking research trends of scientific fields (Stojanowski & Buikstra, 2005). Content analyses of published articles indicates a growth in a specific field and determines the interests and beliefs of researchers, editors, the discipline, and perhaps readers and practitioners (Tahamtan, 2014).

Once a discipline has become established, 'it is both customary and useful to undertake an analysis of its authorship and institutional contributors as a basis of understanding the direction… (Urbancic, 2007)' the discipline had taken.

Additionally, an analysis of rankings over time can reveal trends in the significance of journals within a field that otherwise can be overlooked. Therefore, [a]n academic discipline requires a set of core theories, methodologies, and research outlets (Hardin III et al., 2007).

To identify and ascertain available CRE strategies that may be used by corporate officials to steer their corporate portfolios in pathways that meet overall business objectives, the body of current knowledge needs to explicitly delineate past and current research directions and their importance, authors that contribute to this knowledge, and the outlets that provide focus to this intellectual input.

By utilizing Content Analysis (CA), which is a procedure in identifying, evaluating, enumerating and interpreting research that is available within the body of knowledge, researchers would be able to synthesize the results using descriptive statistics. The outcome of this study would be to summarize the existing evidence regarding who the influential authors contributing to CRE research are and shaping its direction and highlight the journals that rigorously publish these intellectual inputs to the discipline.

Content analysis is ideal for this inquiry as it is a research method that is systematic and objective in describing and quantifying research phenomena (Elo & Kyngas, 2008). Additionally, this technique can handle large volumes of textual data in order to corroborate and synthesize evidence in a coherent manner. Content analyses have been useful in discerning temporal changes in topical foci and evaluating the balance between method and theory (Stojanowski & Buikstra, 2005), and therefore, this method is able to aid the corporate real estate discipline to define its core interests completely.

Content Analyses uses very explicit and rigorous methods to identify, select, assess and enumerate all relevant information pertaining to a specific question posed in a study for the purposes of generating new insights that add to the cumulative knowledge within a field.

3.2. Research philosophy

A proper understanding of research methods cannot be had without an appreciation of their accompanying methodology (Proctor & Capaldi, 2001). Choosing a fitting research philosophy is a vital aspect of research methodology. ‘Philosophical paradigm within research holds utmost importance, as it is the basic belief system or world view that guides the investigation’ (Bortoluzzi et al., 2017). Philosophy in research is defined to infer to the development and generation of knowledge, its context, and the nature of that knowledge.

There are three major educational research paradigms. According to Scotland (2012) these are *scientific, interpretative, and critical*. Scientific paradigms hold the position of either *Realism* or *Objectivism,* the Interpretative paradigm would be associated with either *Relativism* or *Subjectivism*, whilst the Critical paradigm would be more associated with *Historical Realism* or *Subjectivism.*

Differences in philosophical perspectives in each paradigm combined with the aims of the study, to a large extent, determine the focus, approach and mode of enquiry which in turn, determine the structural aspects of a study design (Kumar, 2011).

Qualitative research is based on interpretivism and quantitative research is based on positivism (Saunders, Lewis & Thornhill, 2009):

1. Interpretivists intend to grasp the subjective meaning of social action to conduct research methodology
2. Positivists prefer to collect data about an observable reality and search for regularities and causal relationships in data to create law-like generalizations

The figure below is an illustration by Chetty (2016), depicting the component of the research approach:

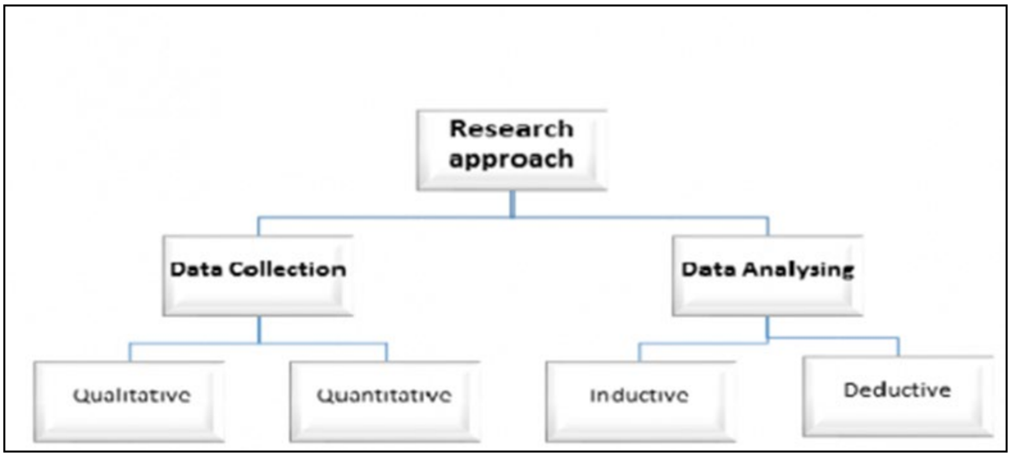


Figure 1: As adapted from Chetty (2016), *Components of Research.*

Research philosophy is classified as ontology, epistemology and axiology. These philosophical approaches enable the decision on which approach should be adopted by the researcher and why, which is derived from research questions; hence before selecting the appropriate research philosophy, it is important to know about the various types of philosophies in research (Saunders, Lewis & Thornhill, 2009). Its further asserted that 'the important assumptions are present in research philosophy which explains the researcher's view regarding the world'. These assumptions will determine research strategy and the methods of that strategy.

[U]nderstanding the underlying ontological and epistemological assumptions behind each piece of research… enables better recognition of 'how these assumptions relate to the researcher's chosen methodology and methods, and how these assumptions connect to the findings' (Scotland, 2012).

This study stands on the modified-objectivist paradigm and has a qualitative approach behind its investigation. The interpretive method of qualitative evidence synthesis for this examination will employ content analyses, and an archival study using conceptual analysis is employed to synthesize the available literature in the body of corporate real estate knowledge to produce findings that would enable the addressing of the stated research questions.

3.3. Methodology

Methodology refers to the strategy or plan of action which lies behind the choice and use of methods, whilst methods are the specific techniques and procedures used to collect and analyse data (Scotland, 2012), where the data collected will either be qualitative, quantitative or both.

Three types of research designs are widely discussed in literature, and they are, *qualitative, quantitative, and mixed methods.* Qualitative and quantitative approaches should not be viewed as opposites or dichotomies; instead, they represent different ends on a continuum (Creswell, 2009:3). Mixed methods on the other hand, is a technique that embraces both methods and incorporates various aspects and elements from both to address the research problem.

The current study will utilize both qualitative approach and quantitative approach, however the qualitative approach will play a rather dominant role in the study than would the quantitative approach. The qualitative nature of this study would be due to the archival strategy to be used to derive data from articles selected after the execution and completion of the search strategy, and specific keywords and terms used to provide meaning and interpretation on findings. Qualitative procedures rely on text and image data… and has unique steps in data analysis (Creswell, 2009:173). The quantitative techniques to be used include descriptive statistics to enable the collation and summation of the results.

The goal of this study would be to provide insights on the views held within the corporate real estate research field. The aim of this study is to identify and understand trends regarding who the leading authors in corporate real estate research are, where do they publish, and what research themes/discussions are prevalent in the body of corporate real estate knowledge. From a research perspective, the qualitative research method is the best suited method to enable this study to develop these subjective meanings that are varied and multiple.

Because of the broad nature of the three research questions posed in this study, the answers to these are negotiated by the various interactions of corporate real estate participants (i.e. academicians, professionals, regulators, financiers, etc.) from a social, cultural and historical perspective.

A four-pronged literature review process will be employed as part of the investigation; *Identification, Screening, Eligibility* and *Included Papers (articles).* In the identification leg of the research, various databases (EbscoHost, JStor, etc.), academic search engines (Google Scholar), and e-journals on the Wits Library/Databases, will be examined.

The screening process will filter all papers identified through search strategy, and based on duplicated papers, title screening and articles that do not meet the criteria, as well as the application of the inclusion and exclusion criterion, articles that meet the eligibility test will form part of the batch, whose full-text articles will be retrieved.

3.4. Research methods

Research methods are the ways through which a researcher makes sense of the object of inquiry, therefore, research strategy is assumed as the general plan of how the researcher will go about answering the research questions which shape the flow and structure of the study (Datt, 2016).

Research methods involve the forms of data collection, analysis and interpretation that researchers propose for their studies (Creswell, 2099:15). The choice of methods depends on whether the intent is to specify the type of information to be collected in advance of the study or allow it to emerge from participants in the project… additionally, the type of data analysed may be numeric information gathered on scales of instruments or text information recording and reporting the voice of the participant (Creswell, 2009:16).

	QUANTITATIVE METHODS	MIXED METHODS	QUALITATIVE METHODS
RESEARCH METHOD	Pre-determined	Both pre-determined and emerging methods	Emerging methods
RESEARCH QUESTIONS	Instrument based questions	Both open- and closed-ended questions	Open-ended questions
SOURCES OF DATA	Performance data, Attitude data, Observational data, and Census data	Multiple forms of data drawing on all possibilities	Interview, data, document data, and audio-visual data
DATA ANALYSIS	Statistical analysis	Statistical and textual analysis	Text and image analysis
DATA INTERPRETATION		Across database interpretations	Themes, patterns interpretations

Content analysis is a qualitative research method that flows from what other researcher's term "naturalistic research tool" (Hall & Valentin, 2005; Hsieh & Shannon, 2005) or "humanistic research tool" (White & Marsh, 2006), and is said to be interpretative in its approach. Content analysis has evolved since its inception where its methodology was cumbersome and time-consuming. The advent of the personal/portable computers have yielded sophisticated software that reduces the time spent on manual counting processes. The core principles of this technique demand rigor despite the enabling assistance from technology.

Wilkinson & Birmingham (2003) succinctly summarized these principles below as follows:

> To conduct a content analysis, the data (the text of an interview, speech or focus-group discussion) are coded or grouped into categories which are tested for their reliability and validity (whether they accurately represent what is being said, in a transcript for example). These categories or codes will include words or themes, word senses, phrases or whole sentences. Once coded, the textual data are interpreted, and the results of the analysis provided.

Content analysis flowchart

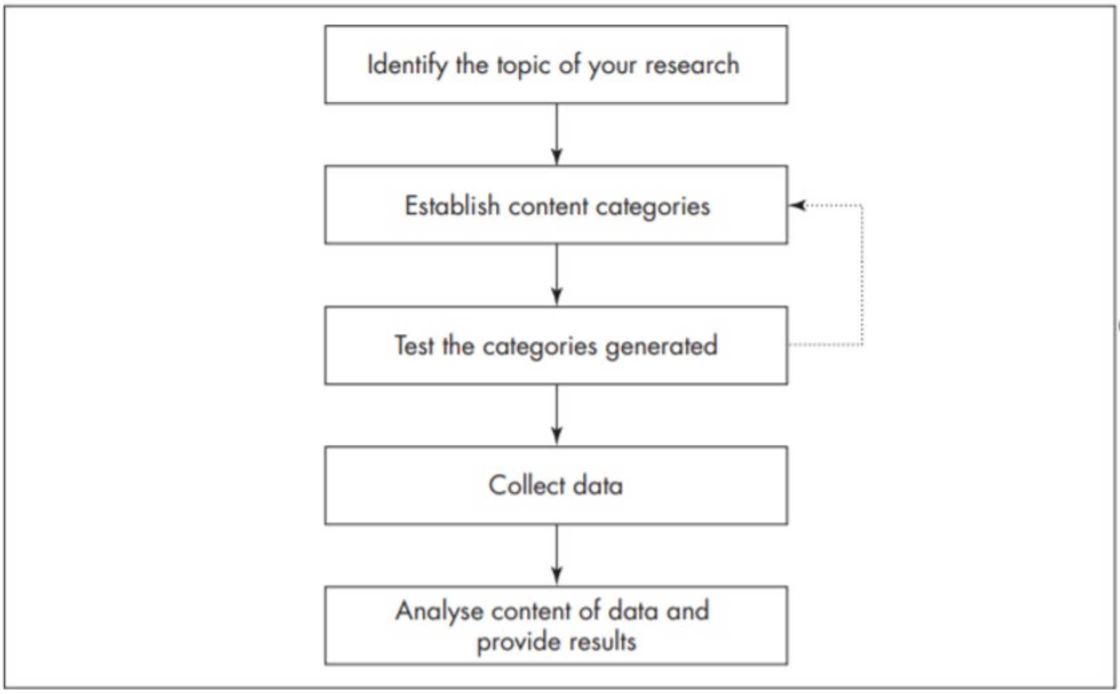


Figure 3: As adapted from Franzosi (2008), *Content Analysis Flowchart.*

In this descriptive study, qualitative content analysis approach is used to analyse content of journals that publish corporate real estate research. The intention through this method is to provide insights relating to the stipulated research questions posed earlier in this inquiry, namely:

i. Who are the leading authors in corporate real estate research?

ii. Which outlets publish corporate real estate research?

iii. What are the cutting-edge discussions (or research priorities) leading corporate real estate literature?

At this juncture, a short but comprehensive detail will now be provided below on this research method. A worthwhile exercise to enable better understanding of its brief origins, characteristics, mechanics, etc. This will be achieved under the following sub-headings:

a. Background to Content Analysis
b. Approaches to Content Analysis
c. Types of Content Analysis

3.4.1. Background to Content Analysis

Content analysis is a method of analysing written, verbal, or visual communication messages (Elo & Kyngas, 2008). It is a research method that uses a set of procedures to make valid inferences from text (Weber, 1990:9) … and classifies textual material by reducing it to more relevant and manageable bits of data (Weber, 1990:5). It is a technique that may be used with either qualitative or quantitative data (Harwood & Garry, 2003). Content analysis is valuable when a researcher seeks to observe and quantify the frequency of certain words, phrases, concepts, ideas, thoughts or even subjects in either modern or archaic settings and is ideal to providing answers to open-ended questions such as those of this study.

Krippendorf (1980:21) defines content analysis as a technique that is useful for making replicable and valid inferences from data to their context, whilst Neuendorf (2002:1) labels it as a systematic, objective, quantitative analysis of message characteristics. Therefore, content analysis is an observational research method that can be used to systematically evaluate the actual and symbolic content of all forms of recorded communication including not only text but also visual and aural data (Hall & Valentin, 2005).

Simplistically put, content analysis is a technique that focuses its investigation on either key words and/or key concepts during an enquiry, where trends and themes are branded systematically through a coding process that categorizes, contrasts, or compares those words and/or concepts (GAO, 1996).

This technique was first used more than 200 years ago to analyse textual material from newspaper and magazine articles, advertisements, political speeches, hymns, folktales and riddles (Harwood & Garry, 2003), and has become entrenched as solid qualitative analysis technique that is used in divers fields and disciplines, including nursing, medicine, anthropology, political science, history, psychology, corporate real estate, journalism, sociology, business, etc. (Kollath-Cattano et al., 2018; Schredi, 2010; Erlingsson & Brysiewicz, 2013; Graneheim et al., 2017; Schilling, 2006; White & Marsh, 2006etc.).

The research method is applied in qualitative, quantitative, and sometimes mixed modes of research frameworks and employs a wide range of analytical techniques to generate findings and put them into context (White & Marsh, 2006).

According to Elo & Kyngas (2008), [t]he aim of content analysis is to attain a condensed and broad description of the phenomenon, and the outcome of the analysis is concepts or categories describing the phenomenon. The authors highlight that the purpose of those concepts or categories is to build up a model, conceptual system, conceptual map or categories.

The method may be used with either qualitative or quantitative data, and includes either inductive, deductive or both approaches. Where the knowledge is not sufficient about the phenomenon of interest or when the knowledge is fragmented, then the inductive approach should be employed. Deductive content analysis is used when the structure of analysis is operationalized on the basis of previous knowledge and the purpose of the study is theory testing (Elo & Kyngas, 2008).

Content analysis requires a large body of voluminous works for substantive inferences to be made and therefore, as a result, this methodology tends to be time-consuming, painstaking and laborious, and it has been often seen as simply a tool for word counts, and lacking rigor. Moreover, in the absence of computer-aided programmes, it renders the process susceptible to various human-errors.

The method found its critics in the quantitative field, who considered it to be a simplistic technique that did not lend itself to detailed statistical analysis, while others considered that content analysis was not sufficiently qualitative in nature (Elo & Kyngas, 2008).

However, there are various advantages that have been noted in history that allows this technique to remain firm within research including its unobtrusive nature. It looks directly at communication via texts or transcripts, provides valuable historical/cultural insights over time through analysis of text, and provides insights into complex models of human thought and language use (Writing.colostate.edu., 2019).

Harwood & Garry (2003), summarize its benefits and limitations as per the below:

Summary of Benefits and Limitations of Content Analysis

Benefits	Limitations
• flexibility of research design ie., types of inferences	• analyses the communication (message) only
• supplements multi-method analyses	• findings may be questionable alone, therefore, verification using another method may be required
• wide variety of analytical application	• underlying premise must be frequency related
• may be qualitative and/or quantitative	• reliability – stability, reproducibility, accuracy of judges
• may be automated – improves, reliability, reduces cost/time	• validity – construct, hypothesis, predictive and semantic
• range of computer software developed	• less opportunity to pre-test, discuss mechanism with independent judges
• copes with large quantities of data	• undue bias if only part data is analysed, possibly abstracting from context of communication
• unobtrusive, unstructured, context sensitive	• lack of reliability and validity measures reported, raising questions of credibility
• development of standards applicable to specific research, eg., negotiations	

Figure 4: As adapted from Harwood & Garry (2003)

Many researchers in some form or fashion employ some elements of content analysis without specifically mentioning this technique. There are various ways to manipulate texts for analysis and interpretation including word-frequency counts, concordances, co-occurrences, key-word-in-context (KWIC), listings, content analysis, classification & retrievals on the basis of content categories, etc.

Many ranking articles, across various academic fields, when generating the pecking order of either prolific authors or, research priorities, or journals predominantly use *word-frequency counts* and invariably tally up the total number of pages, appearances, total citations, citations per article, citations per article excluding self-citation, and number of papers adjusted for multiple authorship amongst others, as an inquiry method:

- in real estate [(Adair et al., 2003), (Clauretie & Daneshvary, 1993); (Diaz et al., 1996), (Dombrow & Turnbull, 2000, 2002, and 2004), (Gibler & Ziobrowski, 2002), (Gibler et al., 2008), (Hardin III et al., 2006 and 2007), (Jin et al., 2011), (Lusht, 1993), etc.],
- in finance [(Cox et al., 2003), etc.],
- in business studies [(DuBois & Reeb, 2006), (Morrison & Inkpen, 1991), etc.], [(Lehmann et al., 2000), etc.]
- in information statistics [(Garfield, 1977), (Walstrom & Leonard, 2000), etc.],
- in economics [(Medoff, 1989), etc.]

In many instances, especially in media studies when researching elements of hermeneutics and semiotic expressions, content analysis is used to count the number of times a word appears or the amount of space allocated to a specific concept or story in the media (Berelson, 1952:33). Therefore, content analysis can be regarded as a foundational research tool that can be applied in a range of different settings and as a first stage in research project development as a result of literature identification… it also provides a basis for systematic reviews and meta-analysis techniques (Hall & Valentin, 2005).

Content analysis is a flexible research method that can be applied to many problems… either as a method by itself or in conjunction with other methods (White & Marsh, 2006). Based on the above, it is comprehensible why this technique lends itself to the current investigation.

According to Berelson (1952:19), content analysis serves many purposes to avid researchers who intend exploring qualitative data, including:

- Disclosing international differences in communication content
- Compare media or “levels” of communication
- Audit communication content against objectives
- Code open-ended questions in surveys
- Identify the intentions and other characteristics of the communicator
- Determine the psychological state of persons or groups
- Detect the existence of propaganda
- Describe attitudinal and behavioural responses to communications
- Reflect cultural patterns of groups, institutions, or societies
- Reveal the focus of individual, group, institutional, or societal attention
- Describe trends in communication content

3.4.2. Approaches to Content Analysis

The key to content analysis – in fact, to all modes of inquiry – is choosing a strategy for information loss that yields substantially interesting and theoretically useful generalizations while reducing the amount of information analysed and reported by the investigator (Weber, 1990).

Two approaches are generally highlighted in literature, namely, *qualitative content analysis* and *quantitative content analysis*. Many researchers (Harwood & Garry, 2003; Neuendorf, 2002, etc.) have indicated that qualitative content analysis normally is used to sift through the various qualitative characteristics of content, thereafter, quantitative content analysis is used to establish the occurrence/existence and frequency in the phenomenon being studied.

A. **Qualitative content analysis**

Qualitative content analysis is a systematic, rule-based process of analysing verbal and textual data (Schilling, 2006), and is considered an autonomous method that can be used at varying levels of abstraction and interpretation (Graneheim et al., 2017). This approach studies descriptive elements of linguistic interpretation relating to their content or setting, and ‘flows from a humanistic tradition and inductive in its approach’ (White & Marsh, 2006).

Unlike quantitative content analysis, qualitative content analysis is subjective, and the researcher choosing this approach, is part of the study, and is said to embrace the ontological assumption of multiple truths, and multiple realities (Erlingsson & Brysiewicz, 2013). Qualitative content analysis therefore provides for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns (Hall & Valentin, 2005).

According to Wilkinson & Birmingham (2003), qualitative research is concerned with capturing the richness, and describing the unique complexities, of data. The authors argue that counting numbers in this fashion often dilutes the quality of the information collected as to make it of little use. Literature further indicates that moving beyond the mere count of documents to include key themes and concepts outside selected key words and phrases allow for more deeper and more accurate analyses.

B. **Quantitative content analysis**

Quantitative content analysis is aimed at developing numerical data that can be statistically manipulated for the purpose of replicability and scientific objectivity. ‘Quantitative content analysis flows from a positivist tradition and is deductive in its approach’ (White & Marsh, 2006).

This method is aimed at statistical formulations, directed toward empirical problems, and its statistical character is one of the most distinctive attributes… it consists of tabulated occurrences of content units and… attempts to characterise the meanings in a given body of discourse in a systematic and quantitative fashion (Franzosi, 2008).

Berelson (1971) argued that quantitative content analysis should only be employed whenever the following three factors are present for your intended study:

1. You are interested in very precise results
2. There is the possibility of the collected data being biased
3. The data collected will be statistically related to numerical data

Quantitative content analysis involves specialized procedures that allow for replication (White & Marsh, 2006). This enables the findings of this approach to be subjected to independent testing and ensures that issues of reliability and validity are mitigated. Other possible measures of quantitative content analysis include regression analysis, time-series regression analysis, discriminant analysis, and cluster analysis (Weber, 1990:69).

3.3.3 Types of Content Analysis

Two categories of content analysis are prevalently discussed in literature, which are *conceptual analysis* and *relational analysis.* GAO (1996) and Writing.colostate.edu. (2019) provide the below descriptions of both:

1. *Conceptual Analysis (Quantitative)*
   - Conceptual analysis can be thought of as establishing the existence and frequency of concepts – most often represented by words or phrases – in a text, where a concept is chosen for examination, and

the analysis involves quantifying and tallying its presence. The focus of conceptual analysis is through the observation of the frequency/occurrence of the selected terms within a text or texts, whether those be implicit or explicit.

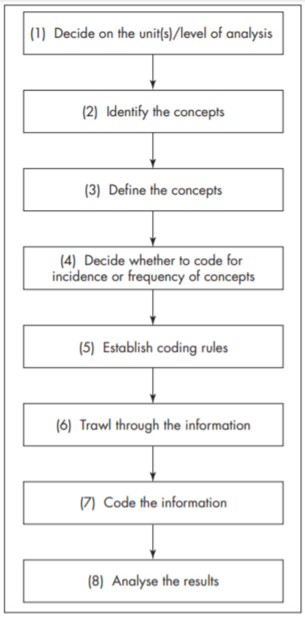


Figure 6: As adapted from Wilkinson & Birmingham (2003).

2. *Relational Analysis (Qualitative)*
    - Relational analysis is used to examine the relationships among concepts in a text, by identifying what other words or phrases appear next to the analysed text, and then determining what different meanings emerge as a result of these groupings. The focus of relational analysis is to look for semantic, or meaningful relationships. This analysis method is on the back of the notion that concepts, as with symbols, only acquire their meaning through their connections to other concepts (*symbols*).

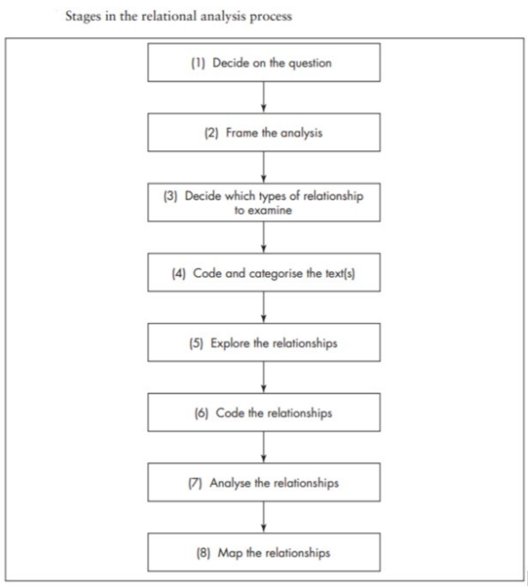


Figure 7: As adapted from Wilkinson & Birmingham (2003).

In specifically addressing the three research questions of this study, conceptual analysis will be used to reduce the texts to categories that will consist of a set of words or phrases. This will be done to allow for the necessary coding specific words and/or patterns that ultimately allow for the three questions to be answered. In this regard, conceptual analysis will assist to examine and quantify the presence and frequencies of various authors and outlets that publish corporate real estate research.

3.5. Population and Sampling

To enable a comprehensive and unbiased search (Tranfield *et al.*, 2013), the search criteria in the keyword search were that the term “Corporate Real Estate” AND “tools” OR “measurements” OR “techniques” OR “productivity” OR “metrics” OR “framework” OR “strategies” OR “perceptions” OR “attitudes” OR “benefit” OR “methodology” OR “standards” OR “practice” OR “process” OR “design” OR “integration” OR “management” OR “technology” OR “collaboration” OR “systems” OR “development” OR “occupiers” OR “transactions” OR “finance” OR “opportunities” OR “marketing” OR “outsourcing” OR “impact” OR “environment” OR “business” OR “principles” OR “foundation” OR “innovation” OR “value” OR “operations” OR “governance” OR “performance” OR “model” OR “departments” OR “markets” OR “valuation” OR “perspective” OR “organizations” OR “proposition” OR “expectations” OR “implications” OR “contribution” OR “transformation” OR “digitalization” OR “functionality” OR “sustainability” OR “experience” OR “efficiency” OR “leadership” OR “policy(ies)” should occur in at least one of the following parts of the article: the title, the abstract, or the keywords, to capture articles that addressed corporate real estate research.

Only peer-reviewed articles are to be accessed via a random search strategy in search engines such as *Google Scholar* and in databases as *JStor, EBSCOhost, Emerald, ProQuest* and *other Wits Library* databases. These sources provide scholarly archival journals, and multidisciplinary collection of databases. The search will focus on literature published from 01st January 1990 – 31st December 2019.

The predefined timeframe is due to the awakening of corporates and academia to the sheer importance of corporate real estate as a separate discipline. Prior to 1993, as described by many others [(Clauretie & Daneshvary, 1993), (Veale, 1993), (Johnson & Keasler, 1993), (Lusht, 1993), (Manning & Roulac, 2001)], corporate real estate was still lagging in terms of growth and development, thus studies prior to this period were few and far between, additionally some publications have been in longer existence then others (e.g Real Estate Economics, formerly the *Journal of the American Real Estate and Urban Economics Association*), and therefore the baseline reasoning to commence survey from the beginning of the 1990s up until 2019.

This assertion on the selection period is somewhat justified when considering that the studies after 1993 were much more dynamic than those in the 1980s due to some of these studies being based on newly constructed ideologies and perspectives than those in the 1980s.

Evidently, research themes in corporate real estate have matured since the advent of the seminal work by Zeckhauser & Silverman (1983), and post-1993 research enthusiasm, corporate real estate researchers are more receptive to novel ideas and unconventional approaches by borrowing practices from other related disciplines to solve corporate real estate research problems.

A screening process will be used for all the articles in each journal in order to sift out articles that do not have corporate real estate as their unit of analysis and prime focus in their abstract, discussion, results, and findings.

The below journals have been selected on the basis of their publishing of real estate discussions, and therefore, the assumption is that either of these journals, during their existence, may have also published corporate real estate specific articles:

1. Journal of Real Estate Research (JRER)
2. Journal of Real Estate Literature (JREL)
3. Journal of Corporate Real Estate (JCRE)
4. Facilities Journal (FJ)
5. Journal of Real Estate Finance and Economics (JREFE)
6. Journal of Property Investment and Finance (JPIF)
7. International Journal of Strategic Property Management (IJSPM)
8. Real Estate Economics (REE)
9. Journal of Real Estate Practice (JREP)
10. Land Economics (LE)

Further inclusion and exclusion criterion has been developed to assist the search strategy. To this end, the below criterion will be used:

Inclusion:

- Only primary studies relating to the research questions posed by this study are to be included
- Peer reviewed journal articles and conference papers are to be included
- Articles that specifically attempt to explain and highlight corporate real estate research in both positive and negative outcomes are included
- Studies conducted in both industry and academic settings will be included
- Articles whose full text are available for download are to be included

Exclusion:

- Duplicate copies of the same research study are to be excluded
- Articles that do not specifically describe or study corporate real estate as their main focus are excluded
- Articles whose primary medium of communication is not English are excluded

- Articles published on websites of various corporate real estate companies are excluded
- Sections or chapters of corporate real estate textbooks are excluded
- Government published manuscripts are excluded
- Academic thesis and dissertations are excluded

3.6. Development of the Research Instrument(s)

Papers that have as outcomes in their study or matters relating to corporate real estate and its position in business, will form part of the primary studies, that is, studies that take the possession or assumed to be taking a possession on the strategic and operational concepts of corporate real estate in order to further the body of knowledge in some way, are the articles of interest.

The conceptual analysis technique will be used to address the research questions posed in this inquiry and the qualitative content analysis approach is employed. Many pecking order pursuits in real estate have been previously recorded in literature, and many of them used some version of content analysis involving *word-frequency counts.*

The below steps describe the process undertaken to have the conceptual analysis conducted – adapted as per Schilling (2006):

Steps in conducting conceptual analysis.

1. Deciding on the level of analysis
2. Deciding on how many concepts to code for
3. Deciding on whether to code for the existence (outlets) or frequency (authors) of a concept
4. Deciding on how concepts will be distinguished
5. Developing rules for text coding
6. Deciding on what to do with “irrelevant” information
7. Coding of the texts
8. Analysing results

As alluded, Content analysis research techniques is used to identify and evaluate the state of corporate real estate research by formally defining the problem statement, the sources of information, the search strings (search strategy), the criteria for inclusion and exclusion of the papers found in the searches, the coding rule book will be established, the enumeration and syntheses to be undertaken, and the ordering the information collected from the primary papers.

3.7. Data collection Protocol

A review protocol will be developed with clear objectives highlighted, specifying the steps involved in content analysis. An inclusion and exclusion criteria has been established before the review is conducted to ensure a comprehensive search in a systematic manner, and the search strategy has been discussed under the *population and sampling* component that enables a clear search of articles among the various databases, e-journals, academic search engines, etc.

A detailed data extraction procedure will be explicitly stated, where the study selection, quality assessment, extraction and syntheses will be developed before the actual conduct of the study.

The background and rationale for the survey will be detailed hereunder along with the research questions. Herein, the study will also detail the strategy that will be employed to search for primary studies along with the terms and the data resources as well as preliminary results from the pilot study. A study selection criterion and procedures, therefore, will be fully explicated to enable replicability.

Next, the study quality assessment checklists and procedures will be documented for each individual study. Information obtained from each of the primary studies will be specified and documented. The data extraction strategy would also be written out; from the information required from each study, to whether manipulation of data will be required, or any assumptions or inferences requiring specificity, this section of the study would detail such. Figure 4 below highlights the process to be undertaken:

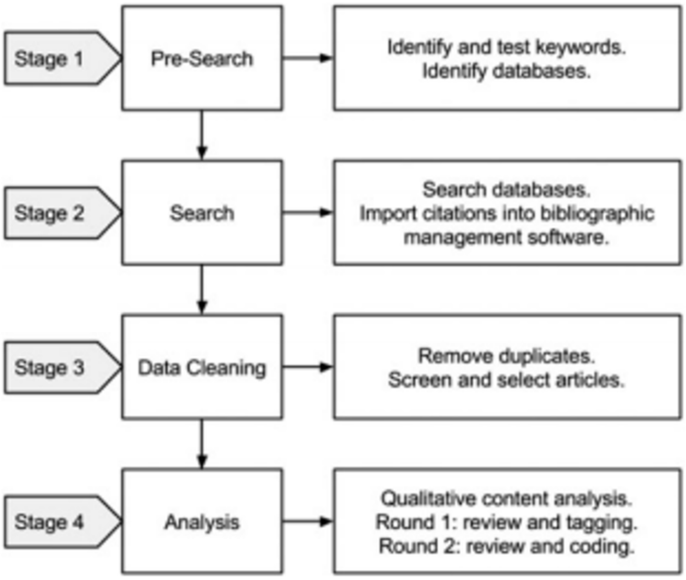


Figure 8: As adapted from Mayring (2014), *Qualitative Content Flowchart*

One of the distinct advantages of using this method is that it demands rigor and replicability, that is, all details of the review, including the search strategy, needs to be documented and well-articulated so that readers and researchers alike can emulate the study to verify findings. Another justification of why this method lends itself and fits well with the research questions of this current study.

3.8. Ethical Risks and Mitigation Strategy

The current study is an archival study and will be examining published or secondary research. In a similar study, Ferdinand *et al.* (2012) cited that they didn't require international review board approval for their research project as it essentially was a secondary study and only reviewed data in published articles and no human participants were interacted with.

However, ethics remain important even in secondary studies. Content analyses at times, may contain studies or research projects that have ethical insufficiencies. Moreover, informed consent given for an original study is not necessarily still valid at the content review level.

In this light, the author of the current study, nevertheless, applied for relevant ethical clearance for the current study and received approval to conduct the research.

3.9. Validity and Reliability

The issue of validity is paramount in research. It constitutes a significant factor that influences the accuracy of any investigation. Therefore, to identify and manage these threats is essential to ensure that the content literature review is robust, replicable and reliable. Four threats have been highlighted under the *Limitations* section of this thesis and will be briefly expounded upon along with the intended measures of mitigation. Those four threats are: *investigator bias, publication bias, bias related to primary studies,* and *threats to data extraction process and its results:*

A. *Investigator bias* occurs when the review/analysis is conducted by an individual researcher. There is higher potential of threats to validity in comparison to a review conducted by several researchers. Since this discourse is being done as part fulfilment of a master's thesis and the existing time constraint factor, the current author opted to carry out some tasks twice to minimize possible errors. Tasks such as *screening, reading* and *synthesis of results* will be conducted twice.

B. *Publication bias* relates to issue that positive results would be more likely published than negative results (Sheuly, 2013). There are significant possibilities that the author of the current study could have included some articles which are solely on 'corporate real estate' research, since the generic keyword (Boolean) search specified "*corporate real estate"* as the main search term and followed by terms such as "*framework" OR "strategies" OR "tools" OR "measurements",* etc. Therefore, the author of this study will conduct a pilot search study, and its results reported before the actual search of the study. The results of the pilot will assist in refining the search strategy in the review protocol to minimize this bias.

C. *Bias related to primary studies* relates to the predisposition in the identification of primary studies. The search strategy developed under the review protocol will be used to cover as expansively as possible, sources of data that would assist the objectives of this examination. The search string will be applied to several esteemed search engines, databases, and academic social media. Further mitigation will be through the author reading the titles and abstracts of included studies twice to ensure that consistency in selection is kept.

D. *Threats to the data extraction process and its results* is a sure way to jeopardize the findings and generalizability of the intended study outcomes. Unless the literature review process is thorough, rigorous, and objective, then it provides little scientific value (Kitchenham, 2004). Data extraction forms and Data extraction tables have been developed to assist in applying consistency across all included studies. All information in the included studies will be carefully recorded and annexed to this study for validation.

3.10. Data Analysis

The extracted data will be synthesized in a way that it addresses the research questions posed in this study. The synthesis of data will be detailed in a descriptive statistical format and complemented with quantitative summary of data. This study is qualitative in nature and will be integrating various study results to derive conclusions that will shed light on the stated research questions.

Citing Lockwood *et al.* (2005), Boland *et al.* (2013) highlight that when deciding on a method for synthesizing qualitative evidence, it is important to keep in mind that there is no single correct approach and that in many published syntheses, reviewers appear to choose the method based solely on familiarity and whether the method fits with their theoretical standpoint.

This is not ideal, Boland *et al.* (2013) mentions. They advocate that ‘rather than choosing your method of synthesis based on familiarity with one method, it is better to make an informed decision based on:

a) Your research questions

b) The time, resources, and expertise available to you

c) The type and availability of the data you will be retrieving, and.

d) The anticipated output or synthesis product, and what it will be used for

This enquiry will therefore adopt the integrative approach to the research questions on corporate real estate authors, outlets, and research priorities.

Integrative syntheses are those where the focus is on summarizing the data, and where the concepts (or variables) under which data are to be summarized are assumed to be largely secure and well specified. Thus, at the integrative end, all approaches involve the quantification and systematic integration of data (Dixon-Woods *et al.*, 2005).

CHOSEN METHODS	*KEY ASPECTS OF THE METHOD*	*SHORTCOMINGS OF THE METHOD*
Content Analysis	A technique for categorizing data and determining the frequencies of these categories	It is inherently reductive and tends to diminish complexity and context
	The method relies on the systematic application of rules	It may be unlikely to preserve the interpretative properties of underlying phenomenon
	The method has developed as a way of conducting primary research, but offers a means of synthesizing study reports by allowing a systematic way of categorizing and counting themes	Frequency-counting may fail to reflect the structure or importance of the underlying phenomenon
	Content analysis is a well-developed and widely used method in the social sciences, with an established pedigree	The results may be over-simplified and cound what is easy to classify and count, rather than what is truly important

Table 2: As adapted from Boland et al., (2013).

Chapter 4: Data Collection and Results

4.1. Introduction to data collection

The data used in the collection of data was collected from ten (10) journal outlets that cover various aspects relating to real estate. A total of 5718 articles were extracted from the 10 journals between 1990 and 2019. The Wits e-journals and database (open access) was used to extract these articles. Wits database subscribes to various journals and databases. However, for this search we used *Business Source Ultimate, Econlit, Taylor & Francis, ProQuest, JStor, Wiley Online Library, Directory of Open Access* and *Springer.*

Out of the 5718 articles extracted from the 10 journals, 444 articles were drawn out to form part of the final batch relevant to corporate real estate (CRE).

Figure 1: Journal Articles Under Review (1990 – 2019)

Out of the 10 journals used for this study, the *Journal of Real Estate Finance and Economics* had the largest volume of articles published (1257 articles), but only 3 articles (0.24%) published work in the area of corporate real estate. The poor coverage of corporate real estate is in contrast to the dominance of asset securitization, the role and functionality of various funding and operational institutions, property valuations and cycles, regulations, risk management and brokerage services, etc.

The *Pacific Rim Property Research Journal* focuses on applied research that considers aspects relating to real estate market dynamics, property valuations, property cycles, housing markets, property management, property development, property investment, property finance, property education, etc. About 403 articles were gathered in the journal from 2000 – 2019, but only seven (7) articles were applicable to this study, constituting 1.74% of approved articles from this journal.

The *Journal of Corporate Real Estate* is one of the leading journals dedicated almost exclusively to corporate real estate research. There were 383 articles out of the 396 available during the study under review, constituting over 96% of approved articles for the study. The articles in this journal include strategic planning and implementation, acquisitions, designs, occupation, disposals and operations. There is a pure focus on commercial buildings, including manufacturing, health-facilities, educational, municipal, offices, etc.

The *Journal of Real Estate Portfolio Management* was established by the *American Real Estate Society* and is purposed at disseminating applied research on real estate investment and portfolio management. Its primarily interested in real estate markets and is geared toward institutional investment professionals, wherein both private and public debt and equity form the basis of this scholarly work. However, of the 430 articles extracted out of the journal, not one article was found that addressed matters of corporate real estate.

The *International Journal of Strategic Property Management* is interdisciplinary in nature and publishes articles relating to asset management, facilities management, budgeting and financial controls, marketing, leasing, risk management, real estate valuation and investments, etc. Four hundred and forty-four (444) articles were drawn from the journal, however only seven (7) articles were applicable to this study (1.58%).

First published in 1988, the *Journal of Applied Corporate Finance* is one of the reputable finance journals that enjoys audience from senior corporate policy makers. It addresses matters relevant to both academics and finance professionals. The topics covered in the journal range from capital structuring (including discussions on private equity, public equity, private debt, and public debt), to corporate governance, financial reporting, risk management and corporate strategy etc. Considering that real property occupies such a substantial position on the corporate balance sheet, its prominence would be covered extensively in ways relating to its effective control. However, out of 545 articles retrieved from this journal, only one article (0.18%) was found that specifically covered corporate real estate and its various facets and operations.

Another prominent publication of the *American Real Estate Society* included under this study is the *Journal of Real Estate Literature* which was created to be a source of comprehensive literature on matters relating to real estate research. The journal further covers innovations relating to methods and technology. It accepts dissertations, book reviews, working papers and literature reviews amongst other things. Only two (2) corporate real estate articles were published out of 308 articles (0.65%).

Real Estate Economics (REE), previously called the *Journal of The American Real Estate and Urban Economics Association*, is one of the oldest and most prestigious journal included in this study. Although ranking third in terms of the number of articles published in corporate real estate (10), in comparison to the number of overall articles published from 1990 – 2019 (824 articles), this only constitutes 1.21% of CRE articles during the period under review.

This poor publication rate indicates the dire need for CRE to feature in publications, considering how influential REE is in terms of facilitating communication discussions and improving decision-making amongst both academics and practitioners alike. This journal is known to cover topics relating to real estate tax implications, real estate investment vehicles and mechanisms to financial and urban economics and its effect/impact on real estate, etc.

The *Journal of Real Estate Research* is another publication from the *American Real Estate Society* that had 22 articles approved from the 717 available (3.07%). The journal looks at topics that seek to add to the body of knowledge in areas of finance, management, development, market analysis, marketing, and valuation in relation to real estate. It is a scholarly publication that is intended to equip decision makers with real estate frontier knowledge.

Finally, the *Journal of Property Research*, previously known as *Land Development Studies,* was established in 1984 as an international journal specifically geared toward applied research in real estate investments and development. It focuses on theoretical and empirical research, case studies, as well as critical literature surveys. Seven (7) articles from this corpus were relevant to corporate real estate compared to the 394, constituting a 1.78% CRE publication rate.

The majority of the articles on corporate real estate management literature revolve around facilities management from the perspective of the end-user. Only a fraction of corporate real estate (CRE) articles have embedded in their titles “Corporate Real Estate” (46/444 = 10.36%).

When scanning through the 5718 articles within real estate literature, what is apparent is that topics relating to real estate investment trusts (REITs) dominate throughout the varying years and across the various journal outlets. Other topics that feature frequently after REITS are in the areas of risk and return movements across the spectrum, the types of commercial mortgage instruments, dividend policies on various real estate transactions, broker commissions, market cycles, corporate governance mechanics on various real estate classes, and housing prices along valuation practices of various real estate classes.

Similarly, minimal discussions were held in literature relating to market efficiencies, asset allocation and selection decisions, federal agency and government sponsored enterprises (e.g. Ginnie Mae, Fannie Mae and Freddie Mac), distressed property transactions, real options on real estate transactions, etc.

4.2. Results

4.2.1. Introduction to data analysis

In what is to follow, comparisons in both single and co-authorship trends are highlighted to possibly extract meaningful reasons why there still remains very limited literature on this discipline. Both corporate and academic institutional affiliations are discussed purely to highlight institutions that are actively providing direction to the field and where these researchers reside. These Institutions are essentially leading discussions in this discipline.

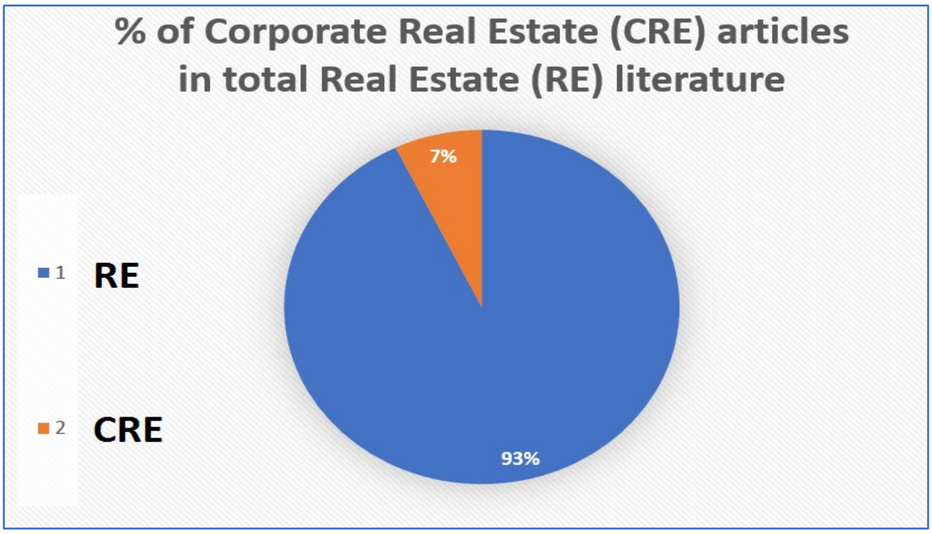


Figure 2: Proportion of CRE vs RE Literature

According to Zeckhauser and Silverman (1983), corporate real estate generally accounted for over 25% on the balance sheets of various large corporations, however, when considering the proportion of corporate real estate literature compared to the entire real estate literature in the 10 journals spanning over the period 1990 – 2019, corporate real estate literature makes up only 7% of real estate literature, which is quite poor considering how vital corporate real estate is both from an economical and strategic perspective.

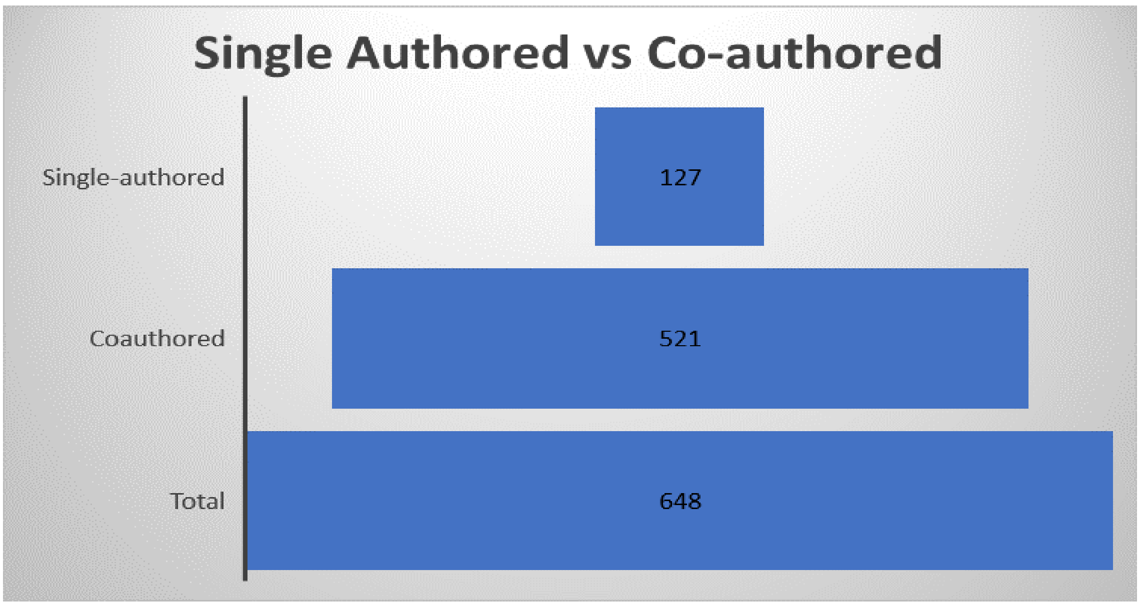
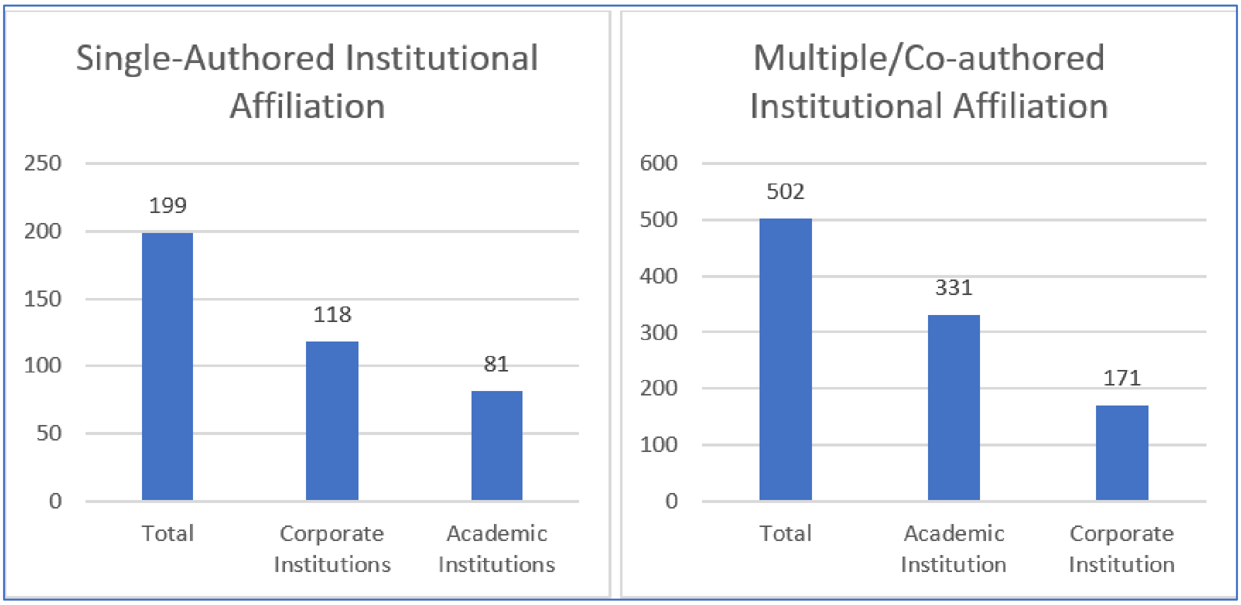


Figure 3: Proportion of Single vs Co-authored researchers in CRE Literature

Over 600 authors made a variety of individual and collective contributions to the field of corporate real estate. Over 80% of corporate real estate articles were co-authored between various writers from both higher education institutions and industry. This could be perhaps due to the novelty of the discipline. Authors that have collaborated on a paper, tend to continue the trend over the years. (e.g., Zaiton Ali, Stanley McGreal, Alastair Adair, James R. Webb).



Over the 30-year period, it also appears that majority of single-authored papers were written by practitioners. These were mostly best practice papers. Some were seasoned consultants and captains of industry who sought to provide input to the industry's development through their experience. Various multinational corporations with large real estate portfolios were represented and many of those had prolific senior members of their organizations publishing credible corporate real estate research. Not many academics ventured into corporate real estate research on their own. Only 41% of single-authored research emanated from academic corridors.

However, in contrast to single-authored papers, academics represented about 66% of total co-authored articles in the discipline. It would appear that some of these authors have a generally reputable research career, as they are represented in various other ranking literature. These authors tend to have high publication rates in other sub-fields within the discipline but not so much in corporate real estate. Industry represents just fewer than 35% of co-authored research. One of the likely reasons for this low collaborative effort compared to individual efforts could be that such knowledge is withheld amongst industry peers until it is published in order to gain or maintain a competitive advantage or to project though leadership within industry.

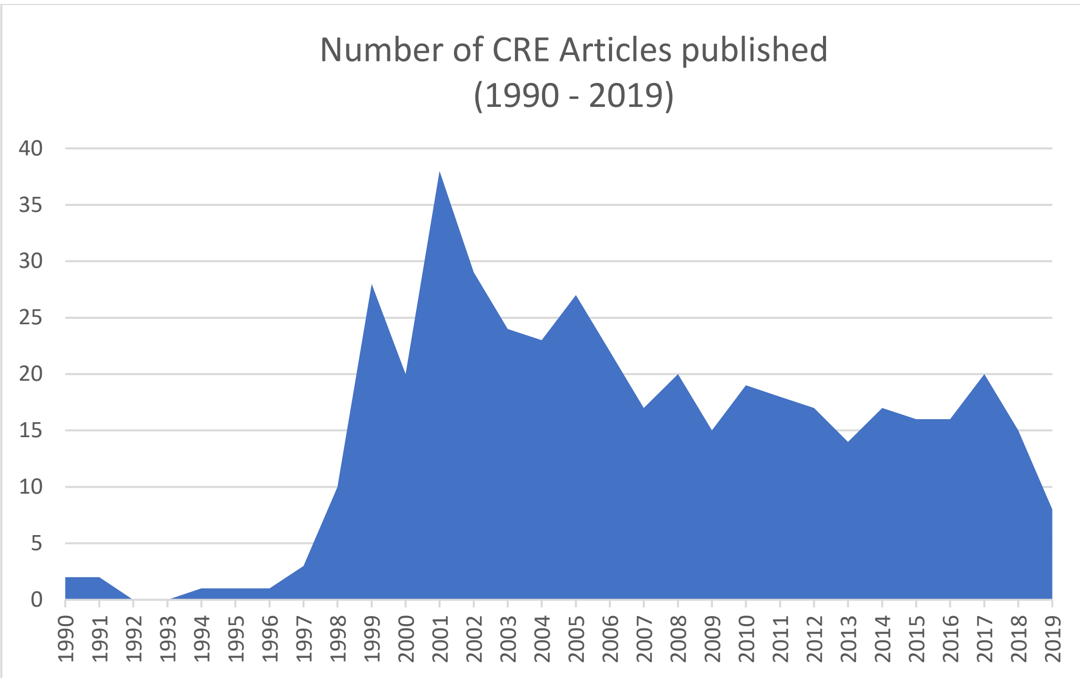


Figure 5: Proportion of CRE articles published over the 30-year period.

Between 1990 and 2000, 68 articles were published on the topic. The year 1999 had the largest volume of publications in the field at 28 articles. Between 2001 and 2010, a surge in published corporate real estate was recorded at 234 articles. Over 50% of all articles were published between 2001 and 2010. The year 2001 has the largest number (38) of published articles from both single and multiple authors, followed by

2002 (29), then 2005 (27), and 24 articles in 2003. A drop is noted between 2011 and 2019 where only 141 articles were published.

4.2.2. Single-authored Articles

Whilst many articles published in corporate real estate were predominantly co-authored, there are several articles that were published by single authors. Hundred and forty-six (146) articles have been authored by 127 authors. Leading the authorship rankings during the 30-year period is *Barry P. Haynes* at 5 articles, followed *Liow Kim Hiang* at 4 articles. Both *Antii Louko* and *Franklin Becker* jointly share the third rank with 3 articles each. *Alan White, Alan Drake, Beverly Rollins-Hinkle, Howard Cooke, John R. Glagola, Thomas A. Musil, Rober Harris,* and *Thomas W. Bogle* all share 2 articles each over the review period.

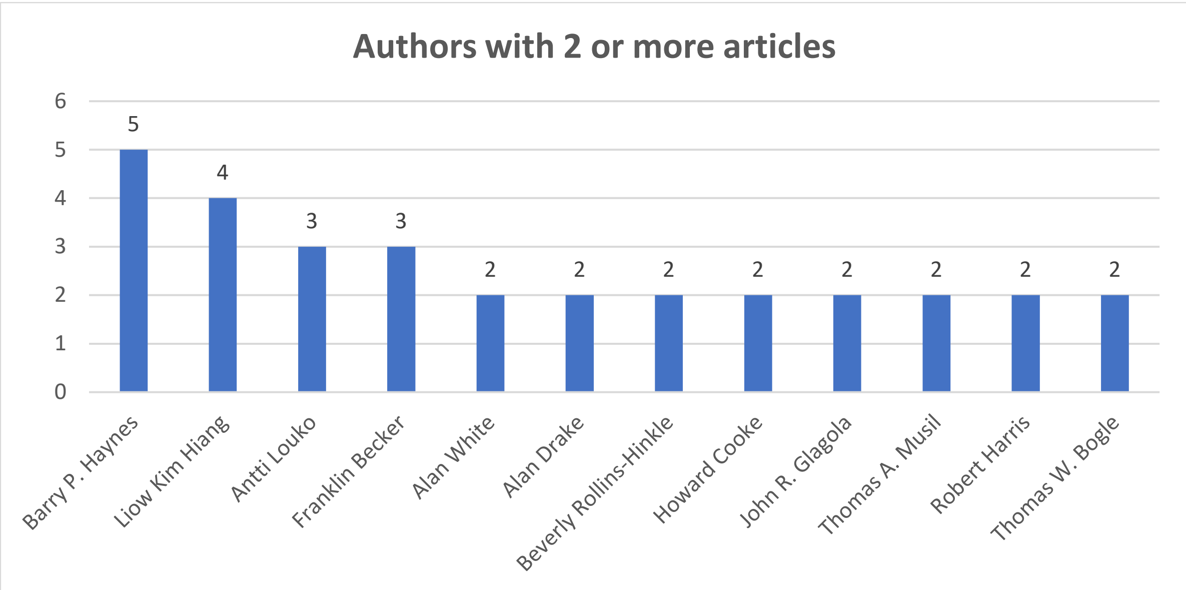


Figure 6: Authors with two or more articles published over the 30-year period

4.2.3. Multiple/Co-authored Articles

Over 500 authors co-authored 733 corporate real estate articles between 1990 and 2019. These authors were from both academic and industry. *Christopher Heywood* leads the pack with 13 co-authored articles. *Suvi Nenonen, Monique Arkesteijn, Geert Dewulf,* and *Rianne Appel-Meulenbroek* have each co-authored 8 articles, whereas *Andreas Pfnür, Anna-Liisa Lindholm, Karen M. Gibler,* and *Theo J. M. van der Voordt* have co-authored 6 articles, with *Linda Too, Hans De Jonge, James C. Brau,* and *Andrew Holmes* co-authoring 5 articles.

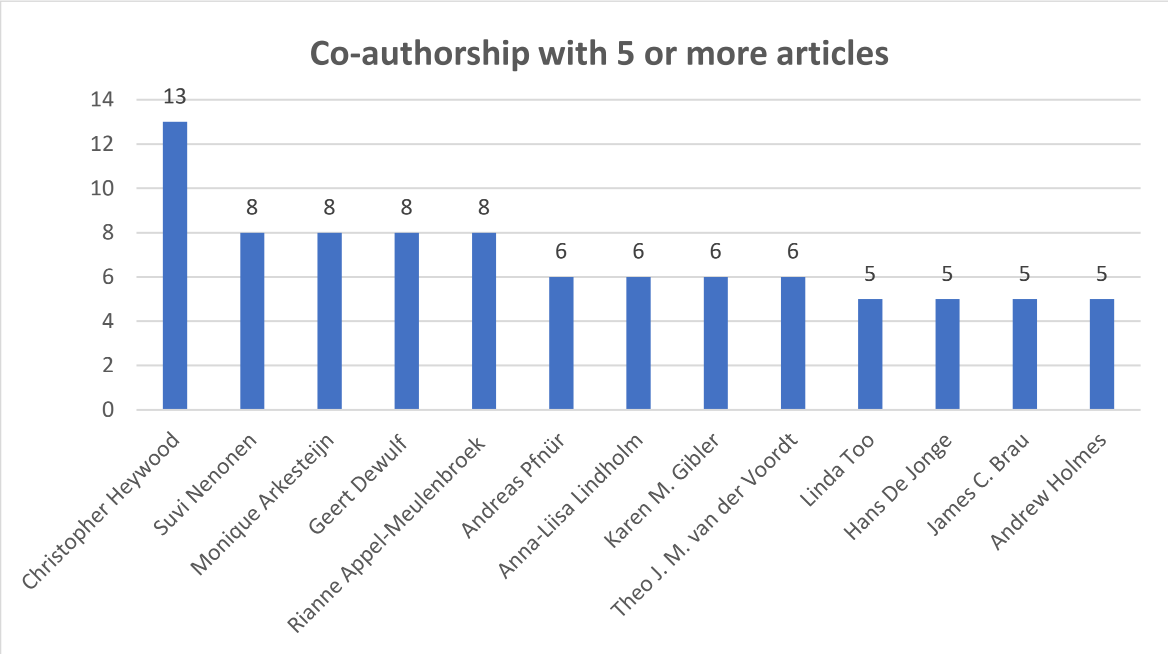


Figure 7: Co-authorship with five or more articles published over the 30-year period

Six-hundred and forty-four (644) articles were co-authored by 508 authors from both academia and industry. Many of the top ten authors of co-authored articles are from higher education institutions, and these authors feature prominently in other top-tier and premium real estate journals. Nine (9) authors had 4 articles they have collaborated on. Twenty-one (21) authors had three (3) articles they co-authored. Sixty-seven (67) authors had 2 articles they've been a part of, and over 401 authors have collaborated in one (1) article.

4.2.4. Single-authored Institutional Affiliation

Corporate real estate literature has had over 190 affiliated institutions, both academic and corporate, linked to the contributing authors. Just under 60% of institutions were linked to the corporate industry and just over 40% were linked to academia.

Eight (8) corporate institutions were linked to 3 or more articles. *Jones Lang LaSalle* and *Sprint Corporation* jointly lead the industry in CRE literature with 5 articles linked to both firms. *Jones Lang LaSalle* are a global firm leading in corporate real estate services specializing in industrial, commercial, retail, residential and hotel real estate. This global firm manages over 4.6 billion feet in property and facilities management. *Sprint Corporation* on the other hand is a global communications company serving commerical and residential clients in over 70 countries, however, they are a chief global user of the wide variety of property and corporate facilities across the globe. *Donaldson* came in at third, a world renowned property services consultancy, which was acquired by global property advisor *DTZ* in 2007.

Donaldson is a leading provider of property advisory services across a broad range of continental clients. *Arthur Andersen, Ramidus Consulting Ltd, Cushman & Wakefield, Ernst & Young, Jonathan Edward Consulting, Deloitte & Touche, DEGW PLC* and *Fraser CRE Ltd* all had three (3) articles associated with the firms.

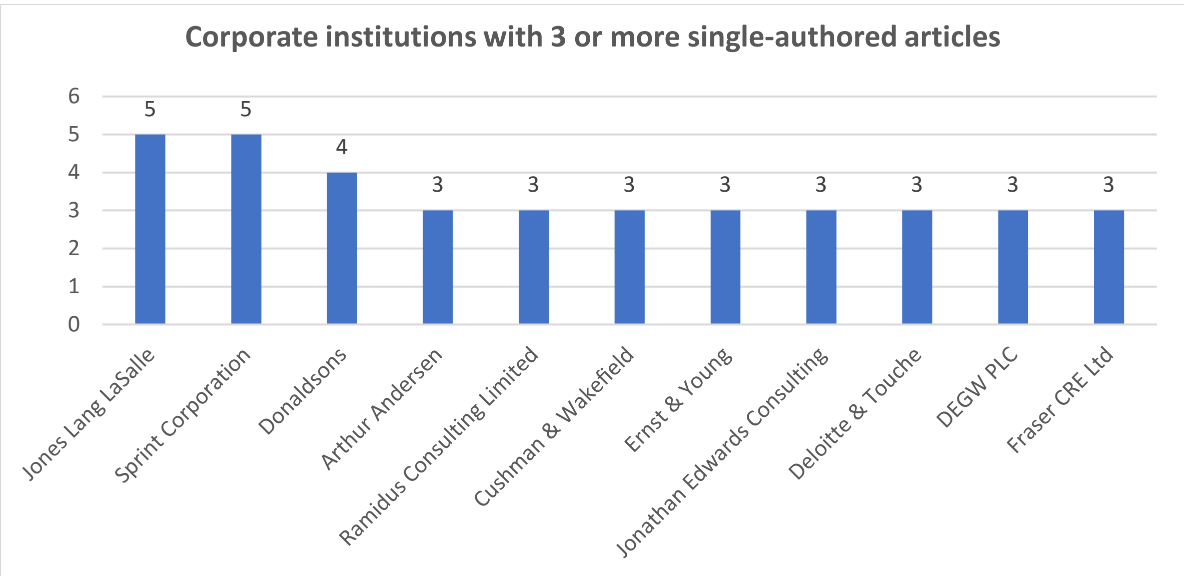


Figure 8: Corporate Institutions with three or more articles co-authored over the 30-year period

Over sixty (60) corporate institutions also featured in CRE literature over the 30-year period. Fifteen (15) corporate institutions had two (2) articles linked to their firm, whilst fifty (50) corporates had one article associated with their firm.

The *National University of Singapore* leads the academic institutions with nine (9) articles associated with the university, followed by *Sheffield Hallam University* at 5 articles, whilst *Delft University of Technology* and *Universiti Teknologi Malaysia* jointly share in third place at 4 articles. Four universities: *University of St Thomas, University of Reading, University of Gdansk* and *Cornell University* had 3 articles linked to their institutions.

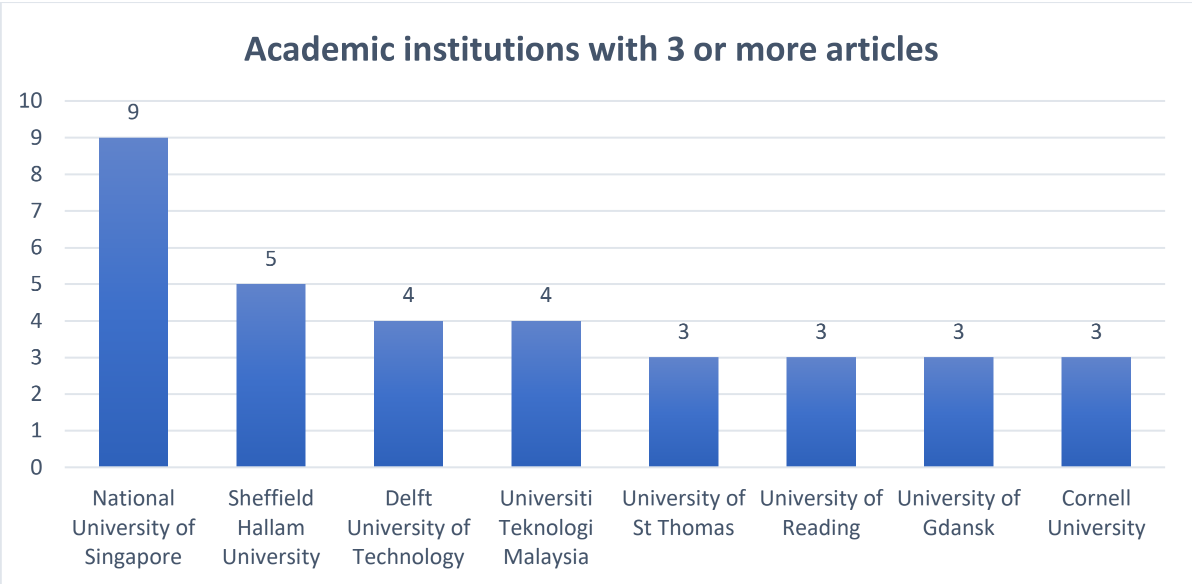


Figure 9: Academic Institutions with three or more articles single-authored over the 30-year period

Thirty-eight (38) other academic institutions have been linked to various CRE publications. Eighteen (18) institutions had two (2) articles linked to their university, whilst twenty-nine (29) institutions had one (1) article.

4.2.5. Multiple/Co-authored Institutional Affiliation

Over 500 affiliated institutions, in both academic and corporate organizations, were linked to co-authored articles published during the period 1990 – 2019. Sixty-six (66%) of affiliations were by way of academic institutions at 331, whilst 34% of affiliations were from corporate institutions at 171 features.

Thirteen (13) academic institutions were linked to 5 or more articles that have been co-authored. *Delft University of Technology* in the Netherlands led the ranking with twenty-eight (28) articles linked to the university, followed by *Aalto University* in Finland had sixteen (16) articles, and the *University of Melbourne* had twelve (12) articles. Other academic institutions that featured prominently after the *University of Melbourne* were *Georgia State University* (10), *Eindhoven University of Technology* (9), *Helsinky University* (8), *University of Reading* (7), *Bond University* (7), and *BY University* (6). The *University of Twente* (5), *Cornell University* (5), *Norwegian University of Science* (5), and *SDA Bocconi School of Management* (5) all had five articles affiliated with co-authorship.

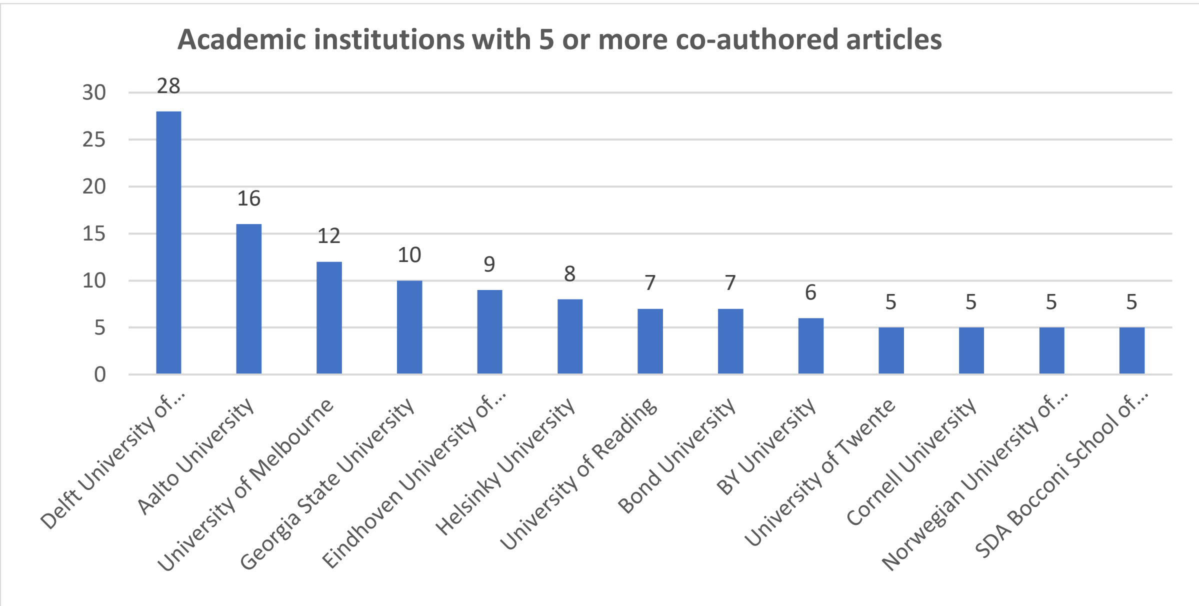


Figure 10: Academic Institutions with five or more articles co-authored over the 30-year period

Over 140 academic institutions were affiliated to various co-authored articles published in CRE research. Six (6) institutions were affiliated to 4 articles, sixteen (16) were affiliated to 3 articles, twenty-nine (29) were linked to 2 articles, and seventy-eight (78) were linked to 1 article.

Again, *Jones Lang LaSelle* (14) was ranked top in the co-authorship of CRE research during 1990 – 2019. The *Centre for People and Buildings* ranked second with 9 articles. The *Centre for People and Buildings* is a knowledge center specialized in the relationship between people, work and the work environment. The organization was created to collect, develop and provide knowledge about accommodation issues, hence the high-volume of research on corporate real estate.

CBRE came in third in overall ranking over the 30-year period. *CBRE* is essentially a global leader in various property and advisory services, providing property and corporate management solutions, client strategy & consulting services, occupier and transactional services, and flexible space solutions etc.

Booz Allen Hamilton Inc. and *Jones, Day, Reavis & Pogue* were jointly affiliated to 4 articles, whilst the *Roulac Group, Knoll Inc.* & *DEGW Inc.* were linked to 3 co-authored articles.

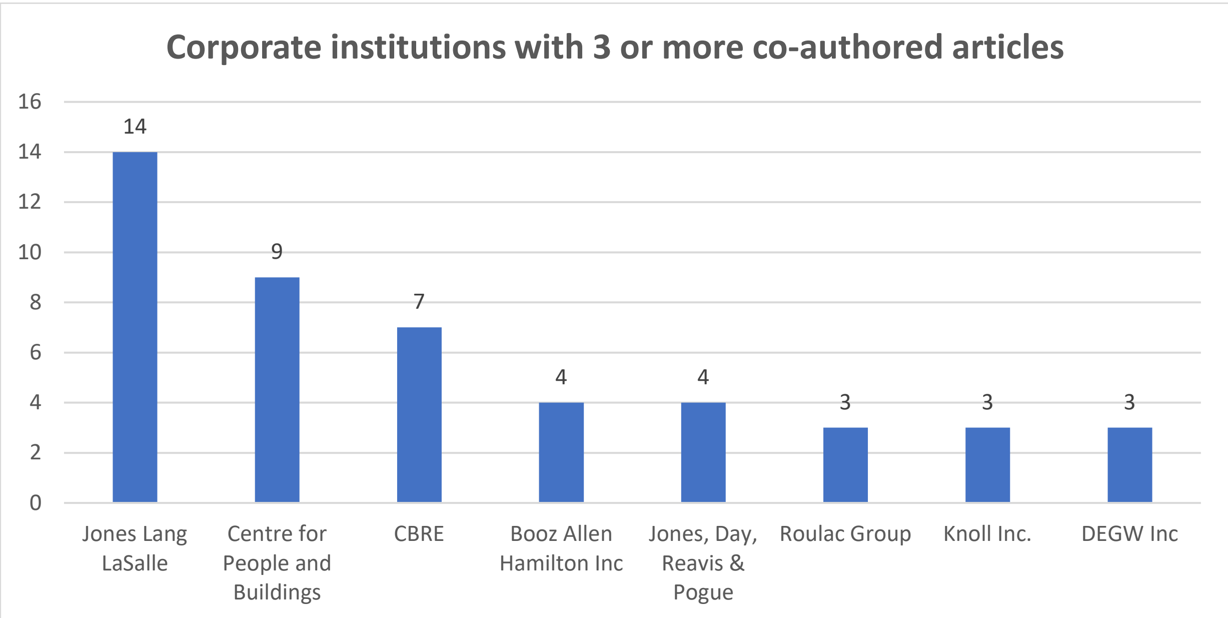


Figure 10: Corporate Institutions with three or more articles co-authored over the 30-year period

Another 114 corporate institutions were affiliated with various co-authored articles. Ten (10) large corporates/institutions were linked to 2 co-authored articles. Over 100 other corporates/institutions were associated with 1 article.

4.2.6. Single-authored Country Contributions

Twenty-one (21) countries were linked to 149 single-authored articles. Forty-eight percent (48%) of single-authored articles came out of the *U.S.A.* This represented a dominance of this country in corporate real estate thought-leadership. Twenty-three (23%) of all CRE literature during the review period came from the *U.K.* these two countries have shaped research priorities of corporate real estate literature over the 30-year period. The *Netherlands* and *Malaysia* had 5 articles, while *Finland*, *Sweden*, and *Singapore* had 4 articles.

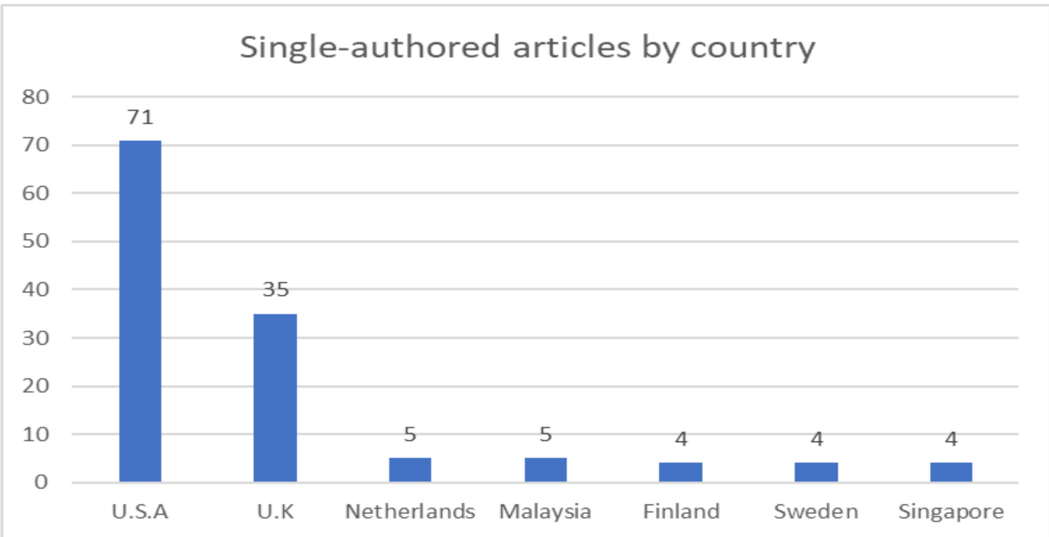


Figure 11: Single-authored articles by country

Another fourteen (14) countries were featured in 21 single-authored articles. Both *Australia* and *Canada* jointly share the fifth rank with 3 articles. *Poland, Germany* and

Norway ranked sixth over the 30-year period with 2 articles. *Turkey, Switzerland, New Zealand, Lithuania, India, Saudi Arabia, Northern Island, Nigeria,* and *Estonia* were associated with 1 article.

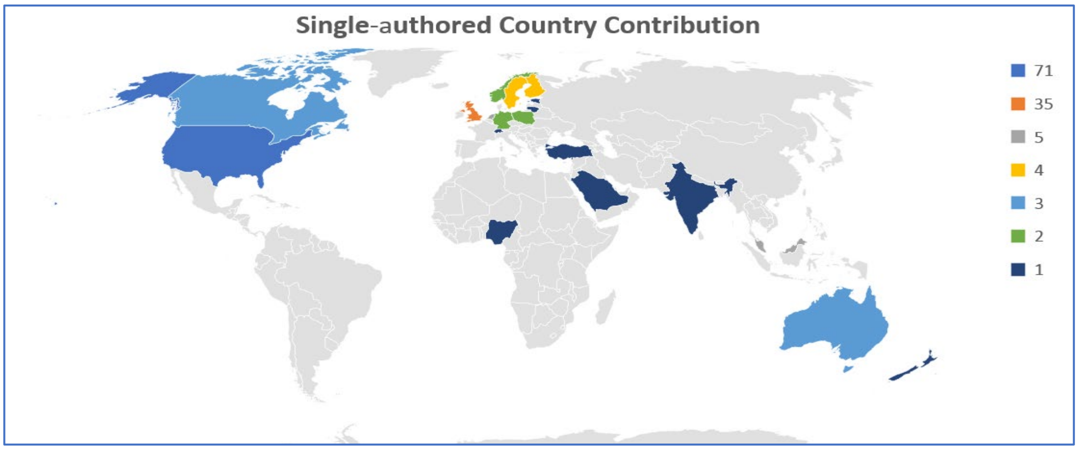


Figure 12: Single-authored country contribution

4.2.7. Multiple/Co-authored Country Contributions

Again, the *U.S.A.* was affiliated to 106 co-authored articles, and the *U.K.* had 57 articles. The *Netherlands* ranked third with 52 articles, followed by *Australia* (31) and then *Finland* (27) at fifth. The *U.S.A, U.K., Netherlands, Australia,* and *Finland* collectively made up 76% of all co-authored articles of CRE research coming out from the last 30-years.

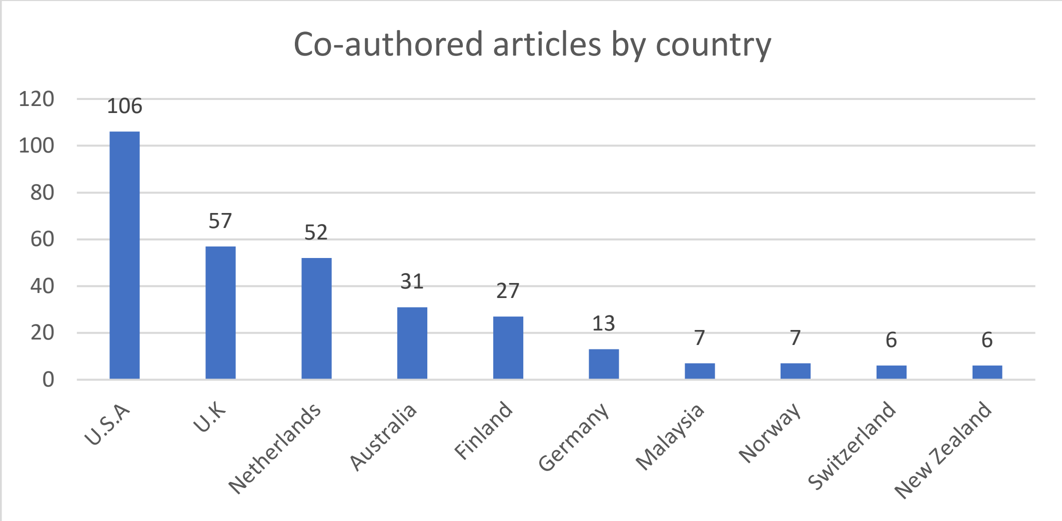


Figure 13: Co-authored articles by country

Thirty-two (32) countries were affiliated to 358 co-authored articles. Twenty-two (22) other countries were affiliated to 46 co-authored articles. *Italy* and *Sweden* were linked to 5 articles, while *Canada, China, Singapore, France, Poland, Ireland,* and *Nigeria* were associated with 5 articles. *Denmark* and *Taiwan* were tied with 2 articles each. *Brazil, Hawaii, Saudi Arabia, Korea, Botswana, South Africa, Belgium, Spain, Serbia, U.A.E*, and *Pakistan* were linked to 1 article.

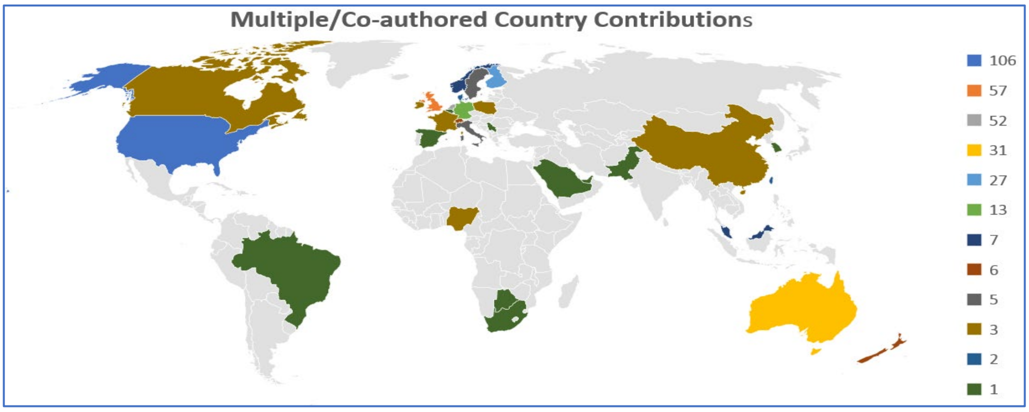


Figure 14: Co-authored country contribution

4.2.8. Research Priorities

Scanning through the voluminous articles relating to corporate real estate and the array of topical discussions, nineteen (19) overarching themes were constructed to capture the essence of each individual article. Over the 30-year period, three eras were observed and classified as follows:

a. The era of "discovery" (1990 – 1999)
b. The era of "consolidation" (2000 – 2009)
c. The era of "innovation" (2010 – 2019)

Though there being nineteen (19) themes collectively, three (3) main themes dominate article content during the 30-year period:

1. *Asset Management Function*
2. *Corporate functions, Strategies, Management, and Leadership Tools*
3. *Physical Workplaces vs Traditional Workplaces vs Virtual Environment – New Ways of Working*

These three themes encapsulated the gist of the discussions held under the review period. The "*Physical workplaces vs Traditional workspaces vs Virtual environment - New Ways of Working"* theme had the highest number of articles over the period (760 keywords), followed by the "*Asset Management Function"* (559 keywords), and lastly the "*Corporate functions, Strategies, Management, and Leadership Tools"* (405 keywords).

There was a surge in the number of articles published across all three themes from the era of discovery (1990 – 1999) to the era of consolidation (2000 – 2009) with *Corporate functions, Strategies, Management, and Leadership Tools* at 540%, *Physical Workplaces vs Traditional Workplaces vs Virtual Environment – New Ways of Working* at 394%, and *Asset Management Function* at 323%.

However, from the era of consolidation (2009 – 2000) to the era of innovation (2019 – 2000), there were significant reductions in publication interests, with *Corporate functions, Strategies, Management, and Leadership Tools* at -61% and Asset *Management Function* at -37%, but *Physical Workplaces vs Traditional Workplaces vs Virtual Environment – New Ways of Working* increased by 21%, and that would be due to an increased interest in research focused on the *end-user* and the ways in which workplaces are evolving.

Time Period	# of Keywords
2019 – 2010	1 258
2009 – 2000	1 823
1999 – 1990	334
	3 415

Table 1: Number of Keywords in CRE Research (1990 – 2019)

The *Asset Management Function,* embodied articles whose theme focused on or highlighted property and asset management functions needed to operate corporate property, firms owned. The theme, *Commercial Property assets,* captured articles whose emphasis was on the physical real estate portfolio. The various properties under a corporate's portfolio holdings are discussed under this theme.

Building components, operations and management systems captured articles whose angle of research related to the internal workings of the building's systems, including the service systems and how they improve occupancy quality, etc.

The *Corporate functions, strategies, management, and leadership tools* is a theme capturing articles relating to the various operational functions and strategies a firm employs in its day-to-day operations. Many articles, under this theme explored an array of tools that corporate executives use to inform their core-business operations and how those inform their real estate decisions. Articles under this theme also highlighted various aspects to be considered by corporates and how they affect the core-business.

Not all research articles focused on office corporate dwellings, some researchers focused on manufacturing and retail plants and operations, whilst other articles were from researchers in state departments, and therefore, articles of this nature were captured under the theme *Other corporate facilities under management.*

The theme, *User Preferences and Requirements/Office Occupants and Attributes* captured articles from the perspective of corporate employee productivity, and the overall corporate user-needs. Articles under this theme focused on the "*soft*" underlying occupant qualities.

A firms’ identity generally encompasses its character, philosophies, values, morals, etc. Articles in corporate real estate embodying this angle of research were captured under the theme *Corporate culture, image, and identity*.

A number of research techniques and models are used in corporate real estate research. The theme, *Research and economic analysis,* captures articles of this nature as well as those that describe and analyse the variables in corporate real estate research. Other articles in this theme further looked at the impact of economic drivers and the many market structures that influence corporate real estate transactions.

The evolution of technology and the globalization of world economies has advanced workplace efficiencies. Information, technology, media and telecommunications have shaped the way in which multinational companies operate, therefore, research articles in corporate real estate that focused on that angle were captured under the theme *ICT and TMT systems and implementation.*

Sustainability Rating Systems is a theme that captures articles that present systems that assess and evaluate the viability of existing buildings and their operations. Various bodies exist globally that certify technical and environmental sustainability rating systems.

A number of researchers undertook studies in their domicile country, where those countries formed the emphasis of their research focus. These specific countries are captured under the theme, *Specific Countries Under Review.*

Corporate real estate does have focus on facilities-related impact on corporate holdings. Articles with this research angle consider effective and efficient delivery of services that support the underlying property. These articles are captured under the theme, *Facilities Processes, Procedure and Management.*

The advent of the concept *Corporate Real Estate* threw many firms into a frenzy of whether the ownership of corporate holdings was more beneficial than leasing thirdparty real estate. Articles under the theme Ownership *vs Leasehold* captured research that explored the various alternatives in these two dichotomies.

With many corporate firms having a portfolio of real estate that serves their core-operations, and after the realization of this important asset by firms after the ground-breaking seminal works by Zeckhauser & Silverman in 1983, researchers also delved into research that investigated possible alternatives to long-term financial goals and risk tolerances. A number of articles in the earlier period explored possible benefits of *corporate selloffs,* as well as the instruments available to corporate real estate executives of corporate firms. These articles are captured under the theme *Portfolio Management and Investments.*

Multiple European municipalities and state organizations during the new millennium also began viewing their expansive state portfolios more seriously and approached their management from a structured point of view. Corporate real estate management of state-properties and the regulations passed by governments in this discipline were captured under the theme *Public administration and Municipal Corporate Real Estate.*

Environmental, Social, and Governance (ESG) is a term used in the capital markets intended to evaluate the behaviour of firms and generally encapsulates non-financial performance indicators that relate to sustainability and accountability. *Stakeholder Relationships* as a theme captured articles that explored the external relationships and partnerships that firms have with its various stakeholders.

Sustainability Approaches and Design Strategies is a theme that contained articles that looked at design strategies that improved the operability and efficiencies of existing buildings along with systems that enable the operational costs to be maintained at a constant level. Moreover, it also includes articles that considered sustainable design strategies (passive and active), green building materials and construction.

Physical workplaces vs Traditional workspaces vs Virtual environment - New Ways of Working is another large theme with a number of articles that engrossed the variations between traditional and modern workplace strategies and their attributes. Other articles under this theme also explored what kind of workstations can be incorporated by corporate firms in their attempt to achieve a balanced contrast between efficiency and workforce productivity.

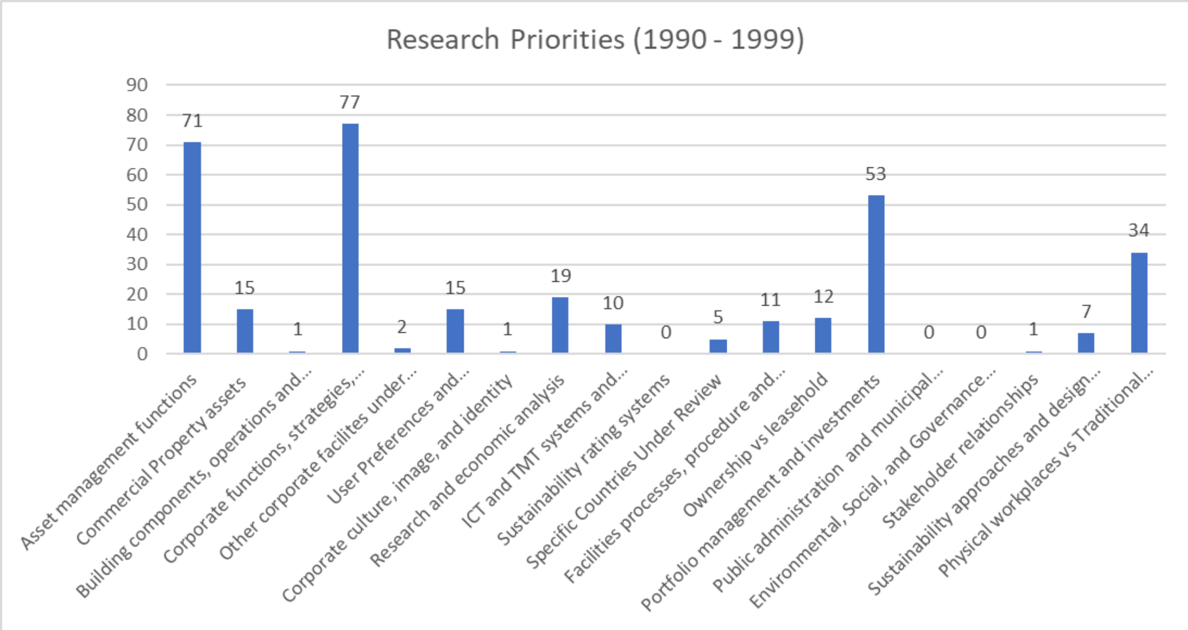
a. *Discussion to Research Priorities Results*

What follows next is a presentation of the results of corporate real estate research priorities over the 30-year period using content analyses on the keywords extracted from the 444 articles.

i. *Research Priorities (1990 – 1999) – Era of Discovery*

The advent of corporate real estate research began in the early 1980s. Although meagre in volume, corporate firms began realizing the importance of corporate real estate holdings on their balance sheet, and so began a surge of this research in the 1990s.

The three themes ranking in higher order during the era of discovery (1999 – 1990) were *Corporate functions, strategies, management, and leadership tools* at 77 articles (23% of corpus during this period), *Asset Management Function* at 71 articles (21% of corpus during this period), and *Portfolio Management and Investments* at 53 articles (16% of corpus during this period).



Under the theme, *corporate functions, strategies, management, and leadership tools,* articles with this research angle were interested with the effect of corporate real estate in relation to their operations. Alternative business and alignment strategies were examined. Capital structures and capital budgeting tools were modelled against their corporate real estate holdings to see how this newly discovered balance sheet reacts to these conventional financial tools that firms have had always relied upon.

Corporates executives essentially wanted to quantify what conceivable benefits exist for firms as a result of their corporate real estate holdings. Other aspects that were examined against corporate real estate were change management strategies, bottom-line costs, firm value and size, globalization, marketing strategies, operational dynamics, alliances, and sustainable competitive advantage strategies, amongst other research variables.

Under the theme, *Asset Management Function,* articles in this cluster investigated tools that enabled more efficient methods of management. Because not many corporate firms were versed with the nature of this asset alongside its benefits, researchers studied how acquisition and disposal decisions would impact the core business.

Other articles had as its prime focus, the personnel involved in the management of this asset class; so, corporate real estate managers and executives were being equipped with best practice methodologies to manage this real estate asset class. Articles in this cluster also covered topics such as corporate real estate strategies and costs, centralized vs decentralized management, mergers, operating expenses management, location decisions, scenario planning, free-rider problems, and taxation effects, etc.

Under the theme, *Portfolio Management and Investments,* articles in this grouping focused on the underlying market structure and valuation techniques of corporate real estate. Some articles applied investment management principles to this real estate asset class in order to extract the various market values and relevant achievable cashflows to better inform corporate executives.

Other researchers performed net present value and internal rates of return for corporates that held corporate real estate. Risk profiles, shareholder value/wealth, repurchase agreements, portfolio dispositions and stock pricing of underlying shares of firms were the focus of other research articles under this theme.

Case studies and surveys were the preferred tools of research during this nascent period due to lack of secondary data and research skills. Data accumulation and research trends lagged behind other conventional real estate disciplines, and therefore, research interests both in academic corridors and corporate hallways explored future growth opportunities, and because not much was known in this research discipline. Interviews were conducted and decision models were constructed to better inform corporate executives. Traditional real estate models were not equipped to provide meaningful insights, therefore conceptual framework and questionnaires to those in industry were heavily relied upon by researchers in this field during the earlier years.

Discussions that many corporate executives were having related to corporate headquarter relocations, restructuring, downsizing, user-participation, and occupier requirements because firms wanted to understand how best to adapt this balance sheet asset to business operations. The paradigm shifted from corporate real estate being seen as a *“necessary overhead”* to an *“enabling asset”,* which therefore created challenges of distinguishing corporate real estate from the core business of the firm.

Not much technology was available to better inform decision-making. The management information storage and report generation relied on traditional tools that lacked the ingenuity of integrating information between corporate real estate and the core-business.

Additional challenges experienced during this era related to the provision of property maintenance to corporate headquarters. Because real estate departments within the business was either not established or was not given much attention and resources, corporate executives quickly realized the necessity of this business resource to look after this asset. This entailed the establishment of policies relating to procurement strategies, process management, integration of productive operations with corporate real estate, management of external third parties and service providers, life-cycle evaluation and management, etc.

Moreover, corporate executives also needed research to better inform decisions relating to ownership vs leasing of corporate headquarters, and if owned, whether to insource or outsource day-to-day management.

Further knowledge was needed to better understand the advantages and disadvantages of sale-leaseback transactions. The corporate executive during this era sure did find a myriad of new challenges that they needed to quickly understand in order to better manage this augmented asset of the firm.

ii. Research Priorities (2000 – 2009) – Era of Consolidation

Corporate real estate research in the new millennium had matured from its earlier era. During the earlier period, discussions of the various facets of corporate real estate were being undertaken from both academic and industry perspectives. This period recorded the largest volume of research articles.

The three themes ranking in higher order during the era of consolidation 2000 – 2009 were *Corporate functions, strategies, management, and leadership tools* at 493 articles (27% of corpus during this period), *Asset Management Function* at 300 articles (16% of corpus during this period), and *Physical workplaces vs Traditional workspaces* *vs Virtual environment - New Ways of Working* at 168 articles (9% of corpus during this period).

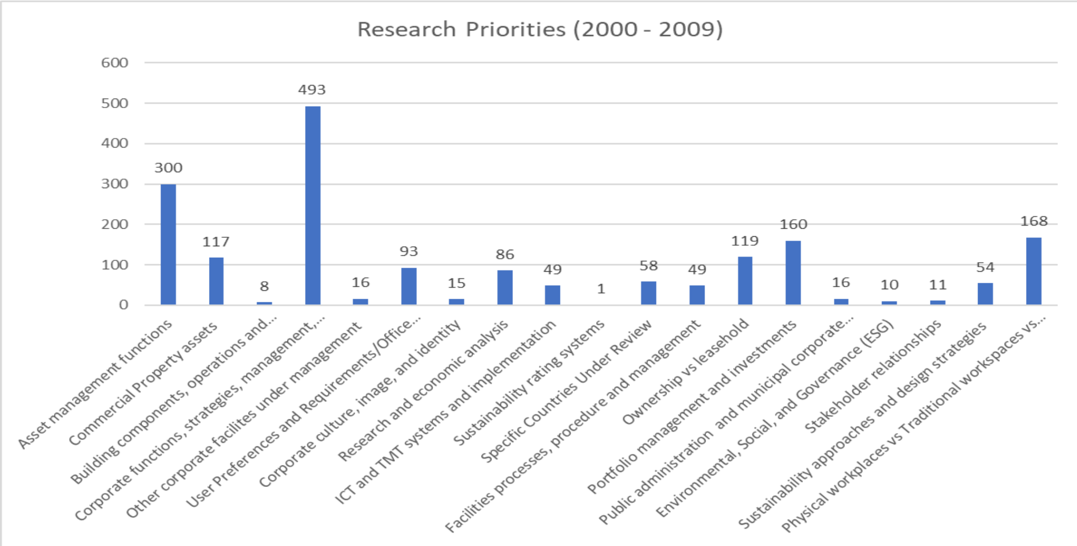


Figure 16: Research Priorities (2000 – 2009)

Corporate functions, strategies, management, and leadership tools, as a theme took predominance in corporate real estate discussions during 2000 – 2009. Executives continued to explore the impact of corporate holdings against several business strategies and what that meant to business processes.

Innovation, through adaptive marketing strategies and brand awareness were also being discussed during this era. Trends were being analysed to create a bank of established “best practices”.

Researchers during this period also saw it befitting to highlight what other corporations were doing in relation to business planning, business operations, business continuity, business performance and ultimately business alignment.

All these efforts conducted in a bid to better inform business decision-making. Besides the usual analyses performed on capital budgeting, costs and structure, other researchers were interested in change management strategies, globalization, relationship management and competitive advantage enhancing tools that industry can employ in order for firms to distinguish themselves.

Asset Management Function, the other dominant theme, continued its spotlight on the management of corporate real estate. Discussions under this theme had also matured, with researchers extrapolating more established research techniques from other real estate research facets, all this due to the availability of secondary data to perform more meaningful research projects. During this era, audits were being performed to create comparable benchmarks.

A lot more corporate firms had now established an inventory of their corporate holdings and more willing to share ideas and knowledge through the research that was being proliferated, which therefore entailed an entrenching of more structured corporate real estate management practices by corporate firms.

With the amassed confidence by corporate executives, research deepened to cater for corporate real estate planning, disposals, performance measurement tools, strategies, reporting and benchmarking. All of this in an effort to build more credible management tools for those who desired to retain their corporate holdings.

Managers and executives of firms with corporate real estate (CRE) were also the focal point of research during this era. These personnel of CRE were examined and evaluated to sift out which attributes and characteristic traits one needed to efficiently and effectively manage this asset class. Their minds were enquired in order to chart out an array of methods and techniques others can implement in their own organizations. Agency costs, embedded value, forward planning, frameworks, key performance indicators, location analysis, etc. were other research angles from both academia and industry.

Physical workplaces vs Traditional workspaces vs Virtual environment - New Ways of Working, as a theme, surpassed the *Portfolio Management and Investments* theme, although not by a large margin. The former theme took precedence due to its interest in the new ways of working that firms globally were grappling with. Due to the advancement of technological systems, traditional forms of operations were highly disrupted and required firms to rethink what that meant to their office-needs alongside employee productivity.

Virtual reality, "*hot-desking*", agile/mobile worker requirements, offer an alternative to office-bound operations. Research articles from this theme embodied creativity and a consideration of collaborative workstations, interactive planning, flexible workspaces and efficiency improvement discussions.

The physical workplace was being radically considered by researchers and explored the possible processes, controls and procedures firms can consider for the ever-expanding concept of labour mobility. Space planning decisions, space utilization, work patterns, work styles and practices, flexible leasing, workplace design strategies and innovation was burgeoning research focus during this era. Environmentally responsible operations and corporate governance strategies were also being linked to how firms were rethinking the ways in which office employment was potentially moving towards.

The sale and leaseback strategies as well as the conundrum between “insourcing vs outsourcing” continued to take centre-stage in research discussions. Facilities management became a vital component upon the realization of corporate holdings on corporate balance sheets.

Facilities technical knowledge along with the post-occupancy evaluation tools and techniques were also leading discussions in corporate real estate due to the need for more hands-on/active management. Maintenance programmes, life-cycle cost, and procurement strategies likewise, deepened discussions by providing nuances of how executives could essentially improve the corporations’ bottom-line.

The use of technology during this era erupted with many start-up companies initiated for this purpose. SAP Real Estate provided software that enabled traditional property managers, end-to-end management of real estate. This offering spilled over to corporate real estate with newer versions integrating generic property management software with corporate real estate management. Distribution systems, network of places digital technologies, cyberspace networks and data management systems further matured corporate real estate as a discipline.

Although case studies and surveys did continue to persist, with the availability of secondary data amidst the boom of information and technology, academic research also began employing alternative research tools in the corporate real estate enquiry. Neural network models, conceptual models, multivariate models, regression models, Monte Carlo simulation analysis, logic models, and factor analyses were key in the different lines of enquiry about this real estate asset class.

iii. *Research Priorities (2010 – 2019) – Era of Innovation*

The golden era of technology came about as an entrenchment of globalization and the efficiencies with which transactions could be initiated and concluded with relative ease across the globe. This also meant the way in which property was being managed was also transformed.

The era of innovation of (2019 – 2010) recorded a drop in corporate real estate research output. The era of consolidation (2009 – 2000) witnessed an insatiable hunt for corporate real estate research both from within industry and academia alike. Many buzzwords came out of this era but more importantly, many lessons were learnt that enabled the discipline to necessitate its own research agenda.

The three themes ranking in higher order during the era of innovation (2019 – 2010), *Physical workplaces vs Traditional workspaces vs Virtual environment - New Ways of Working* at 203 articles (16% of corpus during this period). *Corporate functions, strategies, management, and leadership tools* at 190 articles (15% of corpus during this period), and *Asset Management Function* 188 articles (15% of corpus during this period).

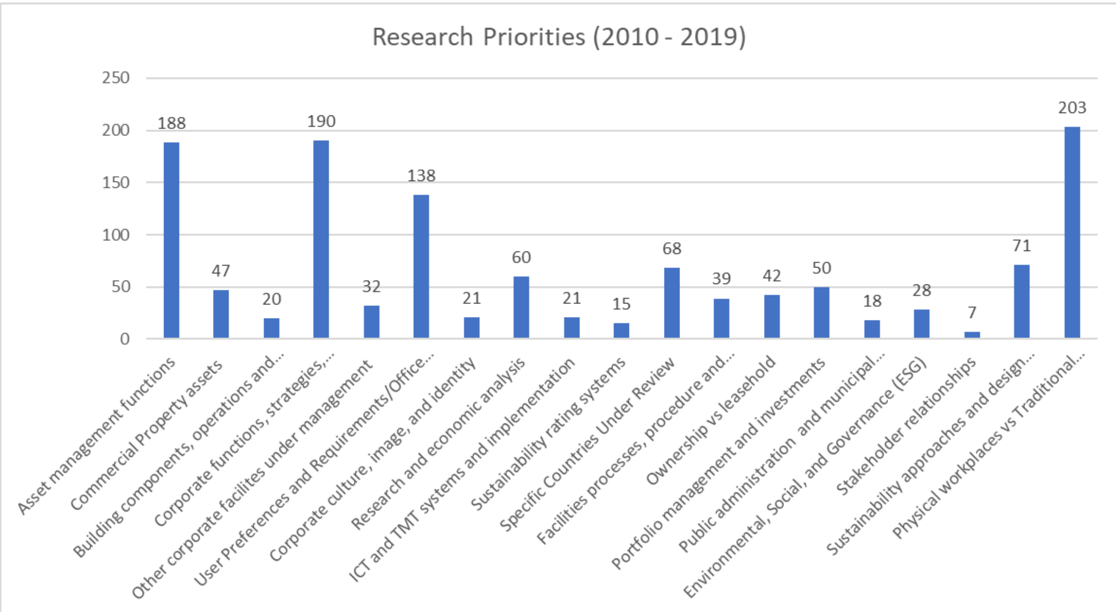


Figure 17: Research Priorities (2010 – 2019)

Physical workplaces vs Traditional workspaces vs Virtual environment - New Ways of Working as a theme was not highly regarded during the era of discovery (1999 – 1990) but made its debut during the era of consolidation (2009 – 2000), however the era of innovation (2019 -2010), it topped rankings by having many more articles.

Under the *Physical workplaces vs Traditional workspaces vs Virtual environment - New Ways of Working* theme, workspace design and environment took centre-stage amidst the rapidly changing landscape of work practices, worker mobility, formal interaction, and work support infrastructure. Discussions had evolved to take into account activity-based practices and workstations, co-working spaces, creative workspaces, hot-desking, alternative office stations, open plan configurations, free-seating, unassigned workstations, co-locations, collaborative work environments, and virtual workspaces, etc.

The emphasis of discussions during this era entailed integrated workplace management systems, knowledge-intensive firms, shared services, intelligent workplaces, workplace change management, agility working, productivity benchmarking, and workplace simulations, etc.

Corporate functions, strategies, management, and leadership tools continued to highlight transformational and organizational change management strategies along with the alignment tools and strategies. Decision-making support tools and process management techniques were further issues of concerns and researchers continued to undertake studies that provided insight to these challenges.

The *Asset Management Function* theme, on the other hand, elevated their discussions to include measurements of value-creation, performance levels and measurements, key performance indicators, and best practices case studies. The spotlight was placed on the hands-on active management function and all factors relating to property management, including cost benchmarking, relocation strategies, site acquisition and site selection decisions. This could be due to the mobility of corporates worldwide as a result of globalization patterns and in other instances the ever-changing dynamics of real estate markets in many domestic economies.

Sustainability rating systems also grew in significance where a number of researchers investigated the effects and impact of rating systems both from a construction level and from the management perspective. Energy star certification, leadership in energy and environmental design certification (LEED), and green star-certified buildings also had prominence in discussions related to sustainability.

Linked with the facilities management theme, the life-cycle planning, procurement management, and sustainability maintenance programmes ranked high in research interest. More advanced nuances included energy retrofitting, green cost-benefit analyses, green leasing, sustainable designs, development and refurbishments.

Additionally, this period also recorded a high number of state-instituted or municipality-led research in corporate real estate management where local authorities, local government, and public-sector organizations began integrating concepts of workplace efficiencies and processes.

Throughout the three periods, much of the research projects undertaken gave credence to corporate real estate as a discipline that necessitated its own research agenda. However, it is also evident that more still needs to be done. As a research discipline, researchers need to increase publication output of CRE research in order to provide thought-leadership amidst the changes in workplace dynamics and its impact on corporate operations.

Chapter 5: Conclusion

5.1. Introduction

Over the years, the discipline of real estate has grown in the volume of research output, the number of outlets that has actively published real estate research, and the number of academics as well as institutions that engage in real estate research.

The status of corporate real estate, as a subset of real estate, has not been evaluated thoroughly despite growing awareness of the strategic value of the asset to business success.

This study set out to answer three important questions:

i. Who are the leading authors in corporate real estate research?
ii. Which outlets publish corporate real estate research?
iii. What are the cutting-edge discussions (or research priorities) leading corporate real estate literature?

A study looking into how real estate journals are perceived for promotion and tenure, and for professional practicability was undertaken by Diaz, Black and Rabianski back in 1996, as the field of real estate was an emerging academic discipline that could no longer be overlooked by both industry professionals and academics. As with the real estate discipline back in its early stages, Corporate Real Estate has also grown and evolved to merit its own specific research as a separate real estate discipline (Hardin III et al, 2006).

This viewpoint was made clear in the study by Johnson and Keasler (1993), and many other studies (Park & Glascock, 2009; Lindholm, 2008; Liow Nappi-Choulet, 2007; Ilsjan, 2007; Gibler, Black, and Moon, 2002; Gibler et al., 2002; Roulac, et al., 2002; Carn et al., 1999; Manning & Roulac, 1999), that Corporate Real Estate had increasingly become an area of emphasis for real estate professionals and academics, however, in the 30-year period under review, only 7% of the 5718 articles in the ten (10) journal outlets identified in this study published research focused on corporate real estate. Over 60% of these articles single authored with the remainder published by multiple authors. As the field continues to grow, new academic and professional journals emerge as publishing outlets for academic real estate research (Diaz, et al., 1996). With the poor publication on specific Corporate Real Estate topics in literature, it only be expected that much more interest will be emanate on the discipline.

Consistent with trends in other academic fields, Dombrow & Turnbull (2000) found an increase in co-authorship amongst individual and institutional contributors to the real estate discipline. Similarly, this study demonstrates that this prevalent trend is observed in the corporate real estate literature. Most of the co-authored papers involved academics and practitioners; this could perhaps be due to either the novelty of the discipline or its strong links to strategic management and business outcomes. Both corporate and academic institutions were affiliated to articles that were single or multi-authors. In institutions affiliated to single-authored articles, 30% came out of corporations, and 70% articles came out of universities. Researchers who chose to undertake research on their own in corporate real estate were mainly from industry. In institutions affiliated to multiple-authored articles, 94% were from academic institutions, and 34.06% came out of corporations. Over 50% of all 444 articles in corporate real estate were published during the period 2001 – 2010.

5.2. Summary of findings

A hundred and forty-six (146) articles have been authored by 127 authors. Leading the authorship rankings during the 30-year period is *Barry P. Haynes* at 5 single-authored articles. Over 500 authors during 1990 – 2019 co-authored 733 articles, and *Christopher Heywood* leads the pack with 13 co-authored articles.

Corporate real estate literature has had over 190 affiliated institutions, both academic and corporate, linked to single-authored research artices. *Jones Lang LaSalle* and *Sprint Corporation* jointly lead the industry in CRE literature with 5 articles linked to both firms and the *National University of Singapore* leads the academic institutions with nine (9) articles associated with the university.

Over 500 affiliated institutions, in both academic and corporate organizations, were linked to co-authored research articles published during the period 1990 – 2019; *Delft University of Technology* in the Netherlands led the ranking with twenty-eight (28) articles, and again, *Jones Lang LaSalle* (14) was ranked top in the co-authorship of CRE research in corporate institutions.

Twenty-one (21) countries were linked to 149 single-authored articles and Thirty-two (32) countries were affiliated to 358 co-authored articles. Forty-eight percent (48%) of single-authored articles came out of the *U.S.A.,* The *U.S.A.* also ranked top in terms of affiliated co-authored articles with 106 articles. Ong, Ooi and Wong (2001) undertook a survey of U.S. and U.K. real estate journals to examine the issues of cross-continental publishing in real estate research to understand the research interaction between the two major English-speaking countries. The study was also aimed at determining the extent to which authors from other countries publish in U.S. and U.K. journals. Similar to the findings of their research, this study found that the U.S.A led the charge with the greatest number of single-authored and co-authored research papers. Other countries that provided thought-leadership to corporate real estate over the 30-year period included the U.K., Netherlands, Malaysia, Finland, Sweden, Singapore, Australia, Norway, Switzerland, Germany, and New Zealand. These findings echo the conclusions by Urbancic (2007), who reported that sizeable contributions to U.S.-based journals are also the product of rapidly increasing numbers of non-U.S. contributing authors and institutions.

Using content analysis, nineteen (19) overarching themes were constructed in relation to corporate real estate research priorities to capture the essence of each of the 444 articles over the 30-year period (1990 – 2019). Also, three-time eras were observed and classified as the era of "*discovery"* (1990 – 1999)*, "consolidation"* (2000 – 2009), and *"innovation"* (2010 – 2019).

When scanning through the 5718 articles within real estate literature, what is apparent is that topics relating to real estate investment trusts (REITs) dominate throughout the varying years and across the various journal outlets. Other topics that feature frequently after REITS are in the areas of risk and return movements across the spectrum, the types of commercial mortgage instruments, dividend policies on various real estate transactions, broker commissions, market cycles, corporate governance mechanics on various real estate classes, and housing prices along valuation practices of various real estate classes. These findings are consistent with the earlier study by Lusht (1993).

Between the nineteen (19) themes in total, three (3) main themes dominate during the 30-year period. The "*Physical workplaces vs Traditional workspaces vs. Virtual* *environment - New Ways of Working"* theme had the highest number of articles over the period (760 keywords), followed by the "*Asset Management Function"* (559 keywords), and lastly the "*Corporate functions, Strategies, Management, and Leadership Tools"* (405 keywords).

5.3. Conclusions

Consistent with findings in the various mainstream real estate literature (Newell et al., 2002; Newell, et al., 2003; Newell, et al., 2004; Beauchamp et al., 2008; Adewunmi & Olaleye, etc.), corporate real estate professionals and academics differ in priority on which topics are more important. Generally, what is clear is that strategic, specific, and general property themes are prevalent in both mainstream real estate discipline and corporate real estate discipline.

In the study by Redman, Tanner and Mankyan (1998), the authors demonstrated that from the citation patterns that several finance and economic journals are highly influential in the real estate field, garnering frequent citations. Clauretie and Daneshvary (1993) found that amongst the top 10% of real estate authors, some are finance authors who occasionally publish in real estate journals. As with mainstream real estate journals, this study found similarities with the earlier studies. More notable, contributors to the corporate real Estate discipline over the past three decades also emanate from both finance and economic disciplines.

This is the first major review of corporate real estate as a subset within the real estate discipline. This report adds to previous studies that have traced the evolution of the field by identifying the contributing journals, its contributors, and the research priorities within the discipline.

5.4. Implications of the study

The lack of consensus about the strategic importance of corporate real estate in the firm in some of the early research (ilir & Monique, 2018; Ali, McGreal, Adair & Webb, 2008) have led many organizations to pursue real estate operations and transactions not aligned with corporate business objectives that proved ill-advised. These initial research findings likely drove both academia and industry to undertake research that provided thought-leadership to the owners and users of the asset, enriching the field in the process.

5.5. Limitations and directions for future studies

The limitation to this study is that content analysis is also susceptible to individual interpretations, which implies that too much liberal classifications in terms of the themes derived under research priorities by the current author could be interpreted differently by another researcher. Therefore, the overarching themes were constructed based on the authors' structure, discussions, and findings. Interpretation of these papers were on hinged on the understanding of the authors own understanding. The assumption used in this report was to extract articles from a predefined list of journals that likely published corporate real estate specific research.

This assessment in the state of research in corporate real estate is beneficial on a number of levels:

i. It provides key insights in the gaps of knowledge compared to other real estate sub-fields, and will steer the direction of future studies

ii. It directs new researchers to key authors and outlets of credible and reliable corporate real estate research

iii. It also encourages active research scholars to pursue interest research themes within corporate real estate as highlighted in the review

iv. And it further arouses interest and stimulus around the identification of relevant CRE research areas and themes affecting corporate executives and the industry

5.6. Recommendations

The majority of the articles on corporate real estate management literature revolve around facilities management from the perspective of the end-user. Only a fraction of corporate real estate (CRE) articles have embedded in their titles "Corporate Real

Estate” (46/444 = 10.36%). A total of 5718 articles were extracted from the 10 journals between 1990 and 2019. Out of the 5718 articles extracted from the 10 journals, 444 articles were drawn out to form part of the final batch relevant to corporate real estate (CRE). When scanning through the 5718 articles within real estate literature, what is apparent is that topics relating to real estate investment trusts (REITs) dominate throughout the varying years and across the various journal outlets.

Very little of the studies examined in the body of knowledge have clearly acknowledged corporate real estate specifically to warrant its pecking order, even with the emerging growth in recent years. With the rise of CRE as a distinct practice area by professional bodies, and the growing provision of specialized services by multinational firms, there is inadequate assessment of CRE research and what factors drive specific CRE research agenda.

This work will serve as a good introduction to the discipline to newly minted researchers who are initiating studies in the field by pointing out journals, authors and institutions that are leading research into corporate real estate (CRE). Policymakers will have a signpost on literature that enables them to access sources of thought-leadership in the field prior to any decisions and major policy shifts. Seasoned academics will also be able to take stock of how much evolution the discipline has undergone. Finally, professionals will also be able to identify which authors and institutions are worth partnering with in this field.

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