A preliminary framework for corporate real estate sustainable management

Nurul Sahida Fauzi[1], Ashrof Zainuddin[1], NorainiJohari[1], Siti Nadiah Mohd Ali[1] and Abdul Hadi Nawawi[2]

[1]*Faculty of Architecture, Planning and Surveying,   Universiti Teknologi MARA, Seri Iskandar Campus, Seri Iskandar, 32610, Perak, Malaysia*
[2] *Faculty of Architecture, Planning and Surveying,   Universiti Teknologi MARA, Shah Alam, 40450 Selangor, Malaysia*

Abstract. The global warming issue has motivated corporations to go green in their business operations including transforming from conventional real estate to green features real estate. However green CRE is more complex to manage due to a building's significant impact on environmental, social and economic aspects. Thus the need to have a best practice guide or framework as reference is crucial. Unfortunately, no best practice guidelines on CRE management have been found to be sufficient as much uncertainty still exists on the sustainable performance measurement components. This research aims to explore and then summarize the present sustainable CREM practices and components relating to sustainable performance measurement integrating a sustainable theory that balances environmental, economic and social impacts. These act as indicators to measure the outcomes of the practice in the form of a generic model on sustainability preliminary framework for CRESM. The objectives of this research include identifying corporate real estate sustainable management (CRESM) practice and components of sustainable performance measurement. The research uses content analysis method to analyse data gathered from literature and previous studies. The findings will be demonstrated in the form of a framework model on CRESM that will include14 CREM strategies and 15 components derived from analysis.

1 Introduction

The growing number of green buildings especially office buildings in Malaysia since 2009 are viewed as a serious issue to the corporate real estate (CRE) manager. Green office buildings are very complex to manage as compared to conventional buildings. This is due to the needs for well managed and maintained CRE as well as the need to maintain according to the criteria set by the GBI based on the sustainable theory on balancing environmental, economic, and social impacts. Thus, CREM for sustainable buildings is critical to be developed and well-practiced by all green buildings in Malaysia to contribute to the added value and overall performance of the business corporation. CREM for sustainable buildings is represented as corporate real estate sustainable management (CRESM). It is rare to encounter this term in CREM research. Even though there are many research related to CREM from the sustainability view, only a few research were found to use this terminology albeit with the application and concept identified to be similar to the objectives of CRESM.

There is still a lack of studies on corporate real estate sustainability management and most have just been started. This research aims to explore and then summarize the present sustainable CREM practices and components relating to sustainable performance measurement integrating a sustainable theory that balances environmental, economic and social impacts. These act as indicators to measure the outcomes of the practice in the form of a generic model on sustainability preliminary framework for CRESM. The framework produced is hoped to encourage more corporations to transform from conventional CRE to sustainable (green features) CRE.

2 Problems and issues

In response to various initiatives all over the world, the present day is seeing a growing number of sustainable office buildings or also known as green buildings which is viewed as a serious issue to the corporate real estate (CRE) manager. Green office buildings are very complex to manage as compared to ordinary office buildings. In maintaining this type of buildings CRE sustainable managers need to adhere to the maintenance criteria set by the green index (Masalskyte, Andelin, and Sarasoja *at el.* 2014) as well as considering a sustainable theory that balances environmental, economic, and social impacts.

Corporate real estate sustainable management (CRESM) must be strategically placed to achieve best practice as corporate real estate management offers possibilities in improving corporate real estate energy

efficiency and thus reduce energy consumption (Glumac, Oosterbaan and Schaefer *et al*, 2015). Throughout its long life cycle, a building has significant impacts on the environmental, social and economic aspects therefore, sustainability and real estate are naturally combined together (Masalskyte *et al.*, 2014). Oluwoye, Karatonis, and Fakorede (2001) found that, the neglect by corporations on their CRE exposes them to unavoidable takeovers, lost profits and lower stock price performance. This neglect remains a current and pertinent issue in many countries and among many corporations.

Managing a real estate will not be a big problem to real estate business because this is within the nature of their knowledge. This is not the case for CRE where it represents real estate owned by non-real estate corporations. According to Omar and Heywood (2014) most business corporations assume CRE just provides operational space, or a workplace to employees and finding suitable location to operate business. Business minded corporations believe CRE is only a medium to support business operations and not the main factor producing profit for the business. Despondently, some only assumed CRE as a burden to the business as what was found by Farahiyah Fadzil, Hishamuddin Mohd Ali and Ahmad Ariffin Bujang (2011). Senior management views their CRE function as primarily to improve operational efficiency and reduce costs; and has not required CRE assistance with strategic planning, either at corporate or business-unit levels. Masalskyte, Andelin, and Sarasoja *at el.*(2014) affirmed, CREM is merely a means to save money in many ways and expand expertise in sustainability management. Real estate is just something that is there in place, but is not a focus area.

In Malaysia, Ting (2003), found operational properties owned by large companies and public corporations in Malaysia are under-used and under-managed. However, in recent years the awareness on the importance of CRE and CREM as part of the contribution to the success of the business has shown an improvement where literature shows an extensive number of CRE research especially in Malaysia. On the contrary, no research has been found discussing on CRESM in Malaysia compared to several found from Australia, Finland, UK and Germany.

According to Hartmann, Linneman and Pfnür et al (2010) research done has not found the existence of one "best practice" of CRE management model in a specific situation. Thus, performance measurement is the best indicator to evaluate how well the CRESM application and strategy contribute to the value added factor for the corporation and business (Lindholm & Leväinen, 2006). From previous research, most measured the performance through direct data as cost and value data and very few considered measuring the performance using intangible elements or indicators of performance. In fact, performance may also be measured through indirect data as what is commonly evaluated such as measuring employee satisfaction with the workplace, client satisfaction with services, physical condition of properties and space per employee (Lindholm & Leväinen, 2006). Kaplan and Norton's (2004) study also described in their model, organizations can increase the

performance through economic value by looking at revenue growth and or productivity. Revenue growth comes from new markets, new products, new customers, and expanded sales to existing customers while productivity can be measured on the ratio of output to input. Output is commonly measured with products, services, market shares and value while input is measured through cash, labour, energy, materials, and work environment. Productivity is advanced by increasing output and reducing input such as costs or a combination of the two (Feige, Wallbaum, Janser, & Windlinger, 2013).

From the literature research done, it can be assumed that comprehensive CRESM practices are still lacking especially on the understanding and components involving classification that are directly related to sustainable theory. These cause some information to be left out and sometime not directly related to the specific sustainable CRE. Hence a framework developed then will initially fill the gap existing in this field and promote further study.

3 Research design

The research was conducted by reviewing all the available literature from previous research to identify the existing CRESM practices. It includes all the strategic models available in practice. In addition the performance measurement approaches applied in practice of CRE are also studied to be used as indicators to measure the outcome of strategic CRESM. All the reviewed data is then analysed through contents analysis to develop a preliminary framework based on the sustainable theory that balances environmental, economic, and social impacts.

4 Theoretical frameworks

4.1 Corporate real estate management (CREM) strategies

In 1993 Nourse and Roulac developed a CRE strategic framework which encompassed 8 strategies identified as strategy 1 (cost minimization), strategy 2 (flexibility), strategy 3 (promotes human resource objectives), strategy 4 (promote marketing message), strategy 5 (promote sales and selling process), strategy 6 (facilitate production, operation, and service delivery), strategy 7 (facilitate managerial process and knowledge framework), and strategy 8 (capture the real estate value creation) (Nourse & Roulac, 1993). This framework has been used and tested by several researchers to examine the strategic management of CRE for the selected corporations.

Previous research by De Jonge (1996) proved that CREM provides maximum value for the business and came up with 7 components of CRE. The strategies formed cover strategy 1 (increasing productivity-selection of location, innovative workplaces, retaining human capital), strategy 2 (cost reduction- workplace costs, accommodation costs, facility costs, benchmarking,

corporate finance), strategy 3 (risk control- inflexibility of real estate portfolio, selection of location, value risk, working environment, environmental aspects, development process), strategy 4 (increase of value- acquisition and disposal of real estate, redevelopment of real estate, market analysis), strategy 5 increase of flexibility - organizational flexibility, financial flexibility, technical flexibility), strategy 6 (changing the culture- workplace innovation, communication, image) and strategy 7 (PR and marketing, selling points, sales strategy). Former research by Krumm & de Vries (2003) showed application of De Jonge's (1996) strategic framework to discuss on real estate decisions towards corporate performance.

Lindholm & Gibler (2005) also developed a set of CRE strategies covering 7 strategies that have been classed as strategy 1 (increasing the value of assets), strategy 2 (promoting marketing and sales), strategy 3 (increasing innovation), strategy 4 (increasing employee satisfaction), strategy 5 (increasing productivity), strategy 6 (increasing flexibility), and strategy 7 (reducing costs). However, with the increased emphasis on environmental sustainability and green building approaches to corporate real estate management, Gibler & Lindholm (2012) found firms may differ in terms of reduced costs, greater financial returns, increased standing in the community, improved image, higher productivity and increased employee satisfaction. Therefore, the Lindholm et al. (2006) model is updated to include an eighth potential real estate strategy: (strategy 8) supporting environmental sustainability. Supporting environmental sustainability may support growth through improved image and profitability through reduced operating cost.

As published, several studies also used theoretical typology of CRE strategies proposed by Nourse and Roulac (1993) to test the CRE strategy formulated by corporations and also to identify whether the CRE strategy is applicable with this formula. As shown in Zaiton Ali, McGreal, Adair, Webb, & Roulac (2008) in their research, this strategy formula was applicable to be tested in UK. The strategic link was measured to real estate operating decisions criteria relating to location, the quantity of space per employee, building size and character, ownership rights, financing, control and risk management as per developed by Nourse & Roulac (1993).

Contradictory results were found for the case in Malaysia by Zaiton Ali, Mcgreal, Adair, & Webb (2008) using the formula developed by Nourse and Roulac on industrial classification, where one of the strategies namely Strategy 3 (promote human resource objectives) was unused. However, Malaysian companies discover a new additional strategy of corporate social responsibilities (CSR) that has been identified as an important strategy to add up in CRE strategies.

A similar approached was used by Mohd Fauzee Musa & Zarita Ahmad@Baharum (2012) in their research. However the components were analyzed and adopted from a combination of CRE strategic management components from previous research namely De Jonge (1996), Roulac (2001) and Lindholm (2008).

From these, only 4 components were adopted including strategy 1 (minimize cost), strategy 2(increasing value), strategy 3(increasing flexibility) and strategy 4 (promote marketing and sales). In summary, even though there are increased numbers of CRE strategy formulas in existence, the strategy selected supposedly is possible to be implemented for the respective corporation.

Table 1. Analysis of CREM strategic practice

Author / Strategy	Nourse & Roulac (1993)	De Jonge (1996)	Lindholm & Gibler (2005)	Zaiton Ali et. al (2008)	Mohd Fauzee Musa & Zarita (2012)	Lindholm & Gibler (2012)
Cost Minimization	X	X	X	X	X	X
Flexibility	X	X	X	X	X	X
Promotes Human Resource Objectives	X			X		
Promote Marketing Message	X		X	X	X	X
Sales and Selling Process	X	X		X	X	
Facilitate Production, Operation, and Service Delivery	X			X	X	
Facilitate Managerial Process and Knowledge Framework	X			X	X	
Capture the Real Estate Value Creation	X	X	X	X	X	X
Increasing Productivity		X	X			X
Risk Control		X				
Changing the Culture		X				
Employee Satisfaction			X			X
Corporate Social Responsibility				X	X	
Supporting Environment Sustainability						X

Source: Researcher (2016)

4.2 Performance measurement

Performance measurement is the best way to measure the best strategic practice used, or in other words, to create value to the organization it must include CRE. Several publications have appeared in recent years documenting numerous studies that strongly linked green building to enhance productivity. It has been found that, green star-

rated green buildings generate a reduction of 39% the average monthly cost of sick leave and show productive staff (Dunckley 2009). Similarly Kats et.al (2003) also found that green office building increases the productivity of workers and increases production from $37 to $55 US Dollars per square foot. Armitage, Murugan, & Kato, (2011) reported that the labor employers have a strong belief that a green office would have a positive impact on the health of workers and consequently on the productivity of the organization. This supports the findings in Dunckley (2009) and Kats et al (2003). A study conducted in Malaysia by Syazwan et al (2009) revealed a similar finding that shows a reduction in the sick building syndrome (SBS) when the ventilation rates per person among typical office buildings increases. Previous research explains similar methods to measure the best practice or value creation of CRE and most of the research done focuses on measuring performance through financial and economic criteria as presented in the research by Nappi *et al* where value creation is measured via two economic proxies which are economic value and market value added (Nappi-Choulet et al., 2009). The results from that particular research show CRE is negatively associated with economic value added, but this association is significant only for firms outside of service industries and shows a positive association on market value added with the change in CRE for firms in service industries. In addition, it was found that it is still difficult to determine the actual performance by merely looking at the financial and economic criteria (Feige, Wallbaum and Janser et al 2013).

However, according to research by Krumm & Linneman (2001) financial and economic criteria are no longer the only basis for determining the added value of corporate real estate. Liow & Ingrid (2008) recommended that performance indicators are needed to focus on productivity and profitability. Performance and productivity are rarely analyzed as factors connected to the office environment (Feige et al., 2013). Performance can be viewed using several different criteria such as individual performance, team performance, organizational performance, and building performance. Other than that, some research uses the elements of satisfying operational needs that might include flexibility and productivity, reducing occupancy costs, less capital in real estate and the element of allowing investment of the savings more profitably in other areas of the business, to measure the performance especially in core activities (Jordan, McCarty, & Velo, 2009).

The common criterion used for performance measurement in relation to performance and productivity is individual performance. Individual performance may possibly explain the individual impact and opinion towards the CRE. Previous study indicates that, individual performance can be described as a person's contribution to the objectives of the organization (Feige, Wallbaum and Janser et al 2013). However, individual performance has been identified as a qualitative construct in nature because it is abstract and cannot be measured directly. Therefore, much research has been done to estimate the performance through performance criteria and performance indicators (Marcus and Schuler, 2001).

Performance measurement using performance indicators especially on customer satisfaction measurement practices is also widely use, but was rated lower overall (Varcoe & O'Mara, 2011).

Literature in strategic management suggests there is a need to focus on factors internal to the organization to know an organization's performance. Both Too added, core processes are those processes that are strategically important to the organization's success and have a high impact on customer satisfaction (Too & Too, 2010). Jordan, McCarty, & Velo (2009) concurred and stressed that good performance measurement systems create a direct line of sight between CRE goals and stakeholder interests and any decision making must be linked to customer expectations.

The evaluation of performance and productivity can be difficult for service companies and knowledge-intensive organizations in general. Previous research shows that the methods that could be used to measure the performance of CRE can be broken into two main groups: quantitative and qualitative. Quantitative metrics with are self-explanatory include occupancy cost/m2, occupancy cost/person, lease cost as a percentage of occupancy cost, lease income as a percentage of total occupancy cost, capital expenditure as a percentage of total assets, capital expenditure as a percentage of total occupancy cost, outages (space cannot be used because of repair/maintenance problem), occupancy cost as a per cent of total revenue, occupancy cost as a per cent of total expenditure, m2 per person, vacant space as a per cent of total space, subleased space as a per cent of total space and hours the facilities utilized, asset value per person; and asset value increase (Kenley & Heywood, 2000).

Nevertheless, previous research has demonstrated that quantitative methods to measure performance especially on productivity cannot usually be applied to service companies because of the qualitative nature of the output of knowledge work and the fact that knowledge workers operate, by definition, with intangible resources (Feige, Wallbaum and Janser et al 2013). They suggested a possible solution to this problem by considering indirect measures as elements of measurement such as absenteeism, hours worked, lateness, safety rule violations, number of grievances filed, or employee turnover.

In concurrence, Nurul Sahida Fauzi, Abdul Hadi Nawawi, & Yuhadi Sanuddin (2012) demonstrated indirect performance measurement consisting of seven dimensions related to CRE including effectiveness (quality, quantity, meeting targets), efficiency (ratio of expected resources to those used), quality (subjectively or objectively assessed quality attributes), profitability (ratio of total revenues to total costs), productivity (ratio of quantity of output to input in terms of value/cost), quality of work life (psycho-social aspects and social response to company) and innovation (applied creativity) previously used by Sink 1985, were use in that research. The seven dimensions of performance include a number of tangible elements such as efficiency, profitability, productivity and effectiveness, but also include intangible elements such as quality of work life and innovation. The latest solution described confirmed that the best alternative to

address this problem is moving to subjective measurement. Subjective measures are not based on quantitative operational information, but on the personnel's own subjective assessments and is normally collected using survey questionnaires (Feige et al. 2013).

Recently, sustainability pillars are considered in the corporation to integrate a performance measurement with economic, environmental or ecological and social aspects. These three pillars are generally added to present the element of sustainability in the organizational management. Economic sustainability is the common element to performance measurement in the market for a long time and normally it is related to the financial results of the corporation. This is agreed by Christensen, Baldwin, & Ellis (2012) in the research with includes the indicator of increased productivity that directly results in the revenue of the corporation. However, Mansfield (2009), used improvement in building performance and durability of the real estate after a cost reduction towards building life. Lamprinidi & Ringland (2006) also use reduced cost to measure the economic aspect of performance. According to Glatte (2012), by looking at the pure economic view economics is defined as a target concept related to performance targets (procurement, inventory, production, sales), Financial targets (liquidity, investment, financing) and success targets (turnover, earnings, profitability).

Another pillar is environmental that is also known as an ecological dimension that covers impacts related to inputs such as energy and water use and outputs such as emissions, effluents and waste. It also considered biodiversity, transport, product and service related impacts and environmental compliance. Furthermore, environmental sustainability means maintaining or improving the integrity of the life supporting systems on the earth and to sustain the biosphere, maximizing future options for the current as well as future generations (Muhammad Zahid Zulkipli Ghazali, 2015). Mona (2013) found environmental sustainability from the perspectives of the productivity and well-being of occupants, as well as the advantages and benefits of green features to the environment, such as energy efficiency, recycling and reduction of greenhouse gases. Similar to previous research which shows several indicators of performance measurement related to sustainable concern demonstrated environmental sustainable with improved efficiency of water consumption, less life cycle cost (Collins & Junghans, 2015), it determines the environment as global warming prevention through the reduction of CO_2 emissions, waste minimization of pollutants, water conservation, and minimization of waste water generation, ecosystem conservation, reuse materials or recycling, environmental management promotion, reduction of office energy use and greenhouse gas emission generated, promotion of biodiversity and indoor comfort environment quality.

The last pillar for sustainability is social that is more concerned on the impacts on the organization including labor practices, human rights and society (Muhammad Zahid Zulkipli Ghazali, 2015). Mona Isa et. al (2013) disclosed that environmental elements include improved environment for office workers and building users while de Francesco & Levy (2008) identified social as changing the behavior to become more aware of day-to-day sustainable activities. Some of the research revealed that social sustainable perspectives include sustainable criteria related to occupant satisfaction (Christensen et al., 2012), flexible working environment, health and safety education, training and education of employees, employee retention, participation in local community programs, percentage comparison of male and female employees, percentage of staff who participate in basic environmental training, employee years of continuous service, total CSR spending and absentee rate (Lamprinidi & Ringland, 2006).

According to Green Building Index (GBI) Malaysia all buildings awarded the GBI ratings must fulfill six (6) criteria of GBI that covers energy efficiency; indoor environmental quality, sustainable site planning and management, material and resources, water efficiency, and innovation (Mona Isa et. al 2013).

## 5 Model and preliminary framework for corporate sustainable real estate management

Figure 1. Spiral Model of CRESM
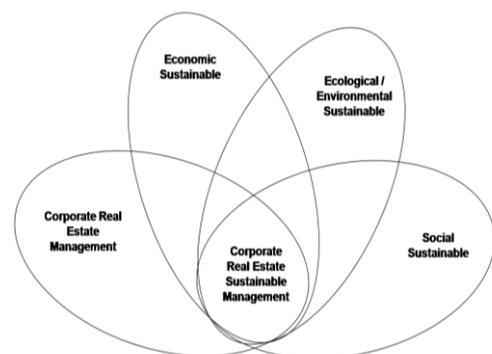
Source: Researcher (2016)

From the analysis done, CRESM can be seen as integrating three pillars of sustainable management which includes economic, ecological and social aspects; with corporate real estate management. Hence, a spiral model of CRESM was developed to make a clear view of the integration between all the elements presenting sustainable concern in the practice of CREM. The elements covered under CREM in this model are summarized from strategies used or best practice identified from previous research while the performance measurement to evaluate the outcome from the practice have been found from literature research chosen and classified into several important classes to suit representative sustainable performance measurements. 14 variables or strategic measures were discovered and 15 components or indicators chosen to measure the practice. The integration of CREM strategy with sustainable performance measurement is illustrated in Figure 2 on preliminary framework of CRESM. The variable in the framework are distributed to three pillars of sustainability.

Figure 2. Preliminary Framework of CRESM
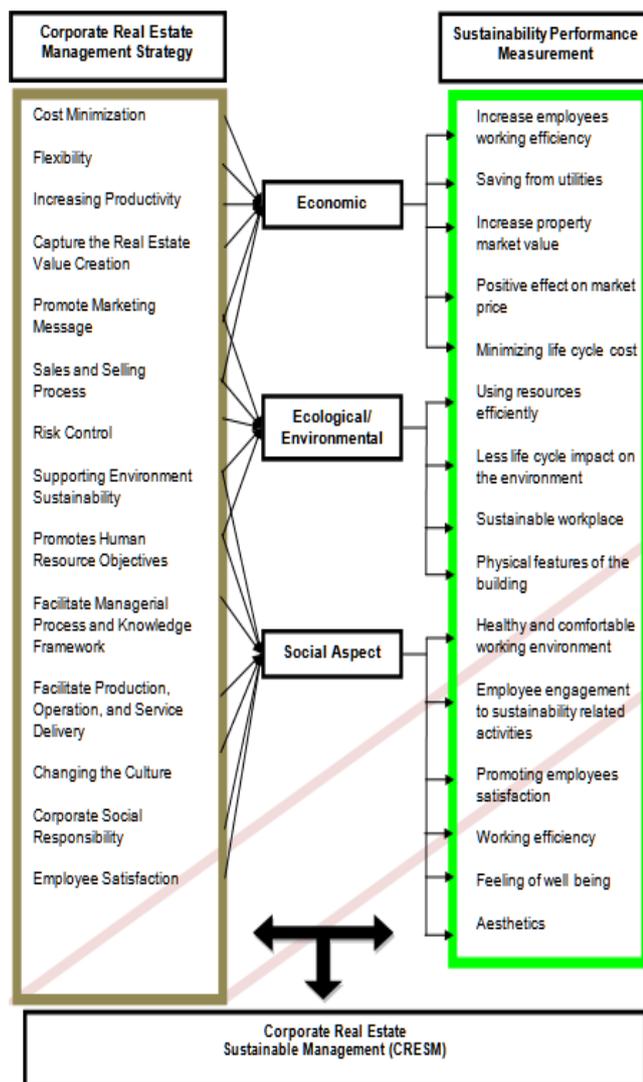
Source: Researcher, 2016

6 Conclusions

The research reveals 14 strategies practiced in CREM including cost minimization, flexibility, increasing productivity, capturing the real estate value creation, promoting marketing messages, sales and selling processes, risk control, supporting environmental sustainability, promoting human resource objectives, facilitating managerial processes and knowledge framework, facilitating production, operations and service delivery, changing the culture, CSR, and employee satisfaction. Additionally, 15 indicators to measure sustainable performance measurement were discovered namely elements under economic sustainability including increased employee working efficiency, savings in utilities use, increases in property market value, positive effect on market price and minimization of life cycle cost, ecological covers on using resources efficiently, less life cycle impact on the environment, sustainable workplace and physical features of the building. Lastly, social elements comprising healthy and comfortable working environment, employee engagement to sustainability related activities, promoting

employees satisfaction, work efficiency, feeling of well-being and aesthetics. The framework developed is recommended for further study to discover a best practice to suit the specific situation.

References

1. Ali, Z., Mcgreal, S., Adair, A., & Webb, J. R., J. REL, **16(1)**, 35–54, (2008).
2. Armitage, L., Murugan, A., & Kato, H., J.CRE, **13(3)**, 169–180, (2011).
3. Bon, R., J.Fac, **10(12)**, 13–17, (1992).
4. Christensen, P., Baldwin, E., & Ellis, C., *ProQuest Dissertations and Theses*, (2012).
5. Collins, D., & Junghans, A., *Procedia Economics and Finance*, **21**, 128–136,(2015).
6. De Francesco, A. J., & Levy, D., J.Eur. RE Resc, **1(1)**, 72–87,(2008).
7. Farahiyah Fadzil, H. M. A. and A. A. B. Corporate *In 18th European Real Estate Society Conference ERES 2011, June 15 – 18th 2011*. (pp. 1–12), (2011).
8. Feige, A., Wallbaum, H., Janser, M., & Windlinger, L., J.CRE, **15(1)**, 7–34, (2013).
9. Gibler, K. M., & Lindholm, A.-L., J.Ppty. Resc., **29(1)**, 25–48, (2012).
10. Glatte, T. *The Importance of Corporate Real Estate Management in Overall Corporate Strategies*, (2012).
11. Glumac, B., Oosterbaan, M. A., Schaefer, W. F., & Sulla, K., J.CRE, **17(2)**, 134–156, (2015).http://doi.org/10.1108/JCRE-11-2014-0026
12. Jordan, M., McCarty, T., & Velo, B., J.CRE, **11(2)**, 106–114, (2009).
13. Kenley, R., & Heywood, C., J.Con, **1**, 6–8. (2000).
14. Krumm, P. J. M. M., & de Vries, J., J.Prpty. Inv. & Finc, **21(1)**, 61–72, (2003).
15. Lamprinidi, S., & Ringland, L., *GRI Research and Development Series Publication* (**Vol. Third Gene**), (2006).
16. Lindholm, A. A.-L., & Leväinen, K. I., J.CRE., **8(1)**, 38–46, (2006).
17. Lindholm, A., & Gibler, K. M., **12**, (Hinks 2004), 1–18, (2005).
18. Liow, K. H., & Ingrid, N.-C., J.CRE., **10(1)**, 54–67, (2008).
19. Mansfield, J. R., J.CRE., **11(2)**, 91–105,
20. Masalskyte, R., Andelin, M., Sarasoja, A.-L., & Ventovuori, T., (2014). J. CRE., **16(2)**, 126–139, (2009).
21. Mohd Fauzee Musa, & Zarita Ahmad@Baharum. *Procedia - Social and Behavioral Sciences*, **36** (June 2011), 273–279, (2012).
22. Muhammad Zahid Zulkipli Ghazali. World Journal of Science , Technology and Sustainable Development Article Information, **12(2)**, 100–118,(2015).
23. Nappi-Choulet, I., Missonier-Piera, F., Cancel, M., J. CRE., **11(2)**, 78–90, (2009).
24. Nourse, H. O., & Roulac, S. E., J. REA, **8(4)**, 475. (1993).

25. Nurul Sahida Fauzi, Abdul Hadi Nawawi, & Yuhadi Sanuddin. *1st International Conference on Innovation and Technology for Sustainable Built Environment 2012 (ICITSBE 2012)*, (pp. 469–484), (2012).
26. Oluwoye, J., Karatonis, A., & Fakorede, A., Pacific Rim Property Research Journal, 7**(1)**, 18–34, (2001).
27. Omar, A. J., & Heywood, C. a., J. CRE., **16(1)**, 60–76, (2014).
28. Ting, K. H., 9*th Pacific Rim Real Estate Society Annual Conference, Brisbane, Queenland, Australia, 20-22 January 2003* (pp. 1–20) , (2003).
29. Too, E., & Too, L., J. CRE., **12(3)**, 196–208. (2010).
30. Varcoe, B., & O'Mara, M., (2011).
31. Zaiton Ali, McGreal, S., Adair, A., Webb, J. R., & Roulac, S. E., Journal of Property Research, **25(3)**, 241–267, (2008).