INFLUENCES ON REAL ESTATE BENCHMARKING PRACTICE

Understanding the challenges and opportunities in the real estate benchmarking process

Graduation Thesis
Master Real Estate & Housing,
TU Delft

Bart Bisschops
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Name: Bisschops, Bart
Email: Bartbisschops@gmail.com

Graduation Lab: Corporate Real Estate Management
Faculty of Architecture,
TU Delft
Dr.ir. D.J.M. van der Voordt
Dr.ir. M. Prins
Dr.ir. R. Rocco
BsC. J. Suyker
Ir. L. Jansen
“What gets measured gets managed.”

- Peter Drucker

“What information consumes is rather obvious: it consumes the attention of its recipients. Hence, a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.”

- Herbert Simon
This report is the result of my graduation research for the master Real Estate & Housing of the faculty of Architecture at the Delft University of Technology. This research focusses on the influences on the real estate benchmarking practices of large corporations and the possible hurdles they encounter during this process.

During my initial search for a graduation topic my focus quickly turned to real estate performance measurement. This was an area in which my interests in real estate and quantitative analysis were combined. Real estate benchmarking is a very dynamic subject area the practice of which, in some areas, can be said to be still in its infancy. While some companies have gained a significant competence in this area, overall there is still a lot of room for improvement. Aside from this there seems to be a discrepancy between the way it is practiced and the theoretical framework, as provided by current research. The theory paints an idealistic picture of how real estate benchmarks should be derived from a company's mission and drivers and which KPI's could potentially be used. While it is extremely useful to have a direction and an idealistic goal to strive for, the reality is that corporate real estate departments often are still struggling in adequately setting up the most basic benchmarks. This is mainly caused by the inherent complexity and difficulties involved in gathering this data and extracting meaningful results from it.

In this research I have tried to paint a clear picture of the overall state of benchmarking and the hurdles frequently encountered during this process. I hope this will provide managers with a view of where they currently stand within the field and a possible roadmap for implementing and possibly improving their current benchmarking. Additionally I hope it will add to the current theory on the topic and possibly provide clarity on what future research might be interesting to pursue.

I would like to thank all companies who participated in the study and the managers who lend their time and shared their expertise. This made it possible to gain an in-depth view of the current practice in this area. In particular I would like to thank Johnson Controls where I was able to do my graduation internship and my company mentors Louis Jansen and John Suyker who provided extremely valuable information and guidance during this part of the research.

Lastly I would like to especially thank my mentors at the TU Delft, Theo van der Voordt and Matthijs Prins, who were always readily available for advice and guidance and have been truly supportive throughout this whole project. Their extensive comments on my reports and their guidance have been crucial in helping along and shaping this research and our meetings were always very enjoyable.

Overall, I hope you will enjoy reading my graduation thesis.

Bart Bisschops
Delft, 26 June 2014
# TABLE OF CONTENTS

0. Management summary ................................................................. 3
Readers guide .................................................................................... 15

I – Introduction ................................................................................. 16

1. Introduction .................................................................................. 17
   1.1 Problem description .............................................................. 17
   1.2 Problem statement .............................................................. 18
   1.3 Research questions .................................................................. 18
   1.4 Relevance ............................................................................... 18
   1.5 Motivation ............................................................................... 19

2. Methodology .................................................................................. 20
   2.1 Research Design ..................................................................... 20
   2.2 Type of research ..................................................................... 24

II – Conceptual framework ............................................................. 26

3. Current relevant theory ............................................................... 27
   3.1 General performance measurement theory ............................. 27
      3.1.1 Organizational Performance .......................................... 27
      3.1.2 Dimensions of performance .......................................... 28
      3.1.3 Performance Indicators ............................................... 31
      3.1.4 Development of Performance Measurement .................. 32
      3.1.5 Performance Measurement Systems .............................. 33
   3.2 Real Estate Performance Measurement .................................. 36
      3.2.1 Added value of real estate .............................................. 36
      3.2.2 Ways in which real estate management adds value .......... 38
      3.2.3 Real Estate Performance Indicators ............................... 40
      3.2.4 Real Estate Performance Measurement Systems ............ 41
   3.3 Conclusions ............................................................................ 43

4. Explorative interviews ................................................................. 44
   4.1 results ..................................................................................... 44
   4.2 Conclusions ............................................................................ 46
      4.2.1 Theoretical model ......................................................... 46
      4.2.2 Questionaire ................................................................. 48
      4.2.3 Hypotheses ................................................................. 48
0. MANAGEMENT SUMMARY

In order to be able to effectively steer an organization toward its goals, it is important to have a clear view of current (and possible future) performance. Performance measurement can be grouped under the broader field of performance analytics, which can be defined as "the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions" (Davenport & Harris, 2007, p.7).

Problem description
Traditionally, corporate real estate managers have predominately focused on factors such as operating costs, costs per square foot and maintenance cost. These measures and indicators work well when the only purpose is to control costs and property is seen just as a cost of doing business rather than a value adding opportunity. When the corporate real estate manager needs to show and demonstrate the strategic potential of their real estate, more comprehensive and developed measures and methods are needed (Lindholm & Nenonen, 2006, p. 117). In order to measure these aspects of performance, specific indicators have to be developed or chosen. Multiple studies on real estate performance have aimed at making an inventory of metrics that are relevant to real estate and could be used to measure its performance (Lindholm & Levainen, 2006; Appel-Meulenbroek & Feits, 2007; Varcoe, 2001).

While performance measurement is an important aspect of real estate management, presently many companies have limited resources available for it. In the face of limited resources many managers often have to choose on which aspects to measure. Neely (2005, p.1241) argues that while practitioners can often easily imagine a long list of aspects that should be measured, the real challenge lies in getting that list down to a manageable set that still considers all important aspects. Varcoe (2001, p.119) found that organizations often lack an objective assessment and rationale for the selection of indicators.

Problem statement
Real estate performance measurement is often constrained by the limited amount of available resources and information. Therefore, a choice has to be made on which aspects are to be measured. While a number of studies have been done on which indicators are available, only little information is available on how organizations can choose which indicators are best suited for their organization. If organizations are to effectively measure the performance of their real estate, more information is needed on how real estate managers can choose a limited set of key performance indicators that provide them with the information they need in order to make decisions.

Main research question
If the first steps are to be taken into solving the problem that has been described in the preceding part, information is first needed on what the factors are that influence the choice of Key Performance Indicators. Only when the influences on the choice of which KPI's to measure are made clear can managers make a more informed decision in this area. This leads to the following main research question:

- How do the context variables and hurdles influence the choice for the specific Key Performance Indicators that are benchmarked by the Corporate Real Estate Management departments?
0.1 METHODOLOGY
This section will discuss the research methodology for this study. It will first present the research design after which it will go into the type of research that is appropriate for this subject and in what research paradigm the study is performed.

Research Design
The research that is conducted can be divided into four main sections. The first section is where the research problem is defined, the main research questions are formulated and the scope of the research is demarcated. After this, a conceptual model is built through a study of the current relevant theory on the subject and by doing a series of explorative interviews. The study on the current theory is divided into general and real estate performance measurement. The theoretical framework encapsulates the main findings of this first part of the research and can be used to structure the rest of the research. The third part consists of the main empirical research. On the basis of the conceptual framework in the previous part, the questionnaire for the second, more structured series of interviews is constructed. This second interview series is conducted in a semi-structured fashion with 12 real estate management departments. The results of these interviews are analyzed using Atlas.TI and the results are then presented along the structure of the theoretical model. The last part consists of the main conclusions that can be drawn from this research and a discussion on the scientific and practical relevance of these findings.

Explorative interviews
The first series of interviews are conducted with an open topic-interview structure. Interviews are conducted face to face with a number of different practitioners including real estate managers and consultants working in the area of real estate performance measurement. The aim is to

Semi-structured interviews
In the second series interviews are conducted with 14 interviewees including real estate directors, real estate managers and facility managers. In this way the problem is explored from a number of perspectives and viewpoints and a more complete picture can be obtained. Interviews are conducted face to face in a semi-structured format. The interview consists of roughly 20 questions of which about a third are of a closed nature.

Type of research
Because of the necessarily complex nature of real estate research, the research is conducted as a qualitative, explorative study. The research will be conducted largely within an interpretivist research paradigm. According to Schultz et al. (1996) interpretivist research design evolves over time as features emerge from the research that the initial design did not cover. The interpretivist also explores first and then develops theory thus allowing deeper explanations and insights. Strauss and Corbin (1990) state that “Interpretivism, or the qualitative approach, is a way to gain insights through discovering meanings by improving our comprehension of the whole. Qualitative research explores the richness, depth, and complexity of phenomena. Qualitative research, broadly defined, means “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification”. Myers (2003, p.3) mentions the depth into which the intricacies of the topics are explored as one of the major strengths of the qualitative approach. While they are not generalizable in the traditional sense they thus have other redeeming qualities.
0.2 THEORETICAL EXPLORATION

There are many different theories on what proper performance is, and the field is rife with differing and sometimes conflicting definitions. The main findings on general performance measurement theory will be presented below.

General performance measurement Theory

There is not a clear cut definition of the performance of an organization. In this research, the main point of Tangen (2005) As much as possible, the definition of Lindholm (2006) is followed, which states that performance is “a measurement object’s ability to achieve desired results” (Lindholm, 2006). When the idea of performance is considered, an important question to ask is: ‘performance for whom?’ Here there are two main theories. The first is the idea that the ultimate goal is wealth creation for the shareholders and the second is that value should be maximized for all stakeholders within the company. There are many different aspects of performance. Srimai et al. (2011) describe this as the different ‘dimensions’ of performance. Many of these have been developed over the years, including (but not limited to) Quality, Time, Flexibility, Cost, Productivity, Efficiency, Effectiveness, Innovation, Customer value, Stakeholder value and many more.

The amount of indicators that can possibly be used to measure performance is not an exhaustive list; anything that can be measured could potentially serve as an indicator. It is often argued that a proper measurement system should include both financial and non-financial indicators and both lagging and leading indicators that consider both internal and external performance and both long term and short term gains (Buytendijk et al., 2000; Srimai et al., 2011; Kaplan & Norton, 1996, Neely, 2005). When implementing KPI's, companies should resist favoring known data, should define them in a language that the relevant parties understand and finally should limit the set of metrics to 10 or less (Jordan et al, 2009).

Real Estate Performance Measurement

Lindholm & Nenonen (2006, p. 117–118), comment that “the common understanding between the core business and corporate real estate still lacks both the quantity of relevant data and the common understanding of how to prove the value-adding elements” Measuring this added value is a complicated ordeal however. Den Heijer (2011) Identified 12 distinct was in which real estate might possibly add value to the organization.

When it comes specifically to real estate, there are many different indicators that can give an indication of an object’s performance. A number of researchers have compiled lists of the most relevant indicators for real estate performance based on literature studies, interviews and case studies. They state that there is no one indicator of ‘good’ performance by real estate. Rather they advocate that the firm should develop a performance measurement system of valid and reliable measures that match their objectives and are reasonable considering available data and resources (Lindholm & Levainen, 2006)

Overall, there seem to be a consensus on the fact that organizations should choose a limited set of personalized indicators that are based on their own strategy and context (Lindholm, 2006; Knapp et al., 2009; Neely, 2005)
0.3 EXPLORATIVE INTERVIEWS

Because there is still relatively little known about the area that is studied, besides the theoretical exploration, a number of practitioners were interviewed. While in this series there was no structured interview protocol, there were a number of topics that steered the discussions with the interviewees. This list of topics was kept consistent throughout all the interviews in this part of the research. The main goal of this interview series was to gather information with practical experience in the field in order to counterbalance the theoretical perspective. Interviewees were chosen in order to have a variety of different perspectives on the topic of real estate performance measurement.

The conclusions from the explorative interviews can be divided into three main parts. The first is the information gathered on the structure of the benchmarking process itself and the influences on it. This information has been incorporated into the theoretical model that is constructed and the questionnaire that is made. These are explained in-depth in the next chapter. The second set of conclusions concern a multitude of conclusions and lessons on the benchmarking process that interviewees have drawn from their experiences in their management and consulting practices.

Firstly, when it comes to the selection of the KPI's that are used, a number of important considerations were shared by the interviewees. Multiple interviewees confirmed the prescription often found in the theoretical exploration, that the KPI's should be derived from the mission, drivers and strategies of the organization and secondly that the number of KPI's that are used should be limited. An overabundance of indicators might deviate managers from their main goals and send them astray instead of helping them. Another important consideration at this stage is to only start benchmarking if you have a clear view of the use the data will be put to. In other words it should be done with the end in mind. One important account was shared of a case in which an entire benchmark was setup, but when the results starting coming in they could not really do anything with that data. If you do start a benchmark, it should be reasonable considering the available time and resources. Benchmarking can come with considerable costs attached to it and careful deliberation is needed ahead of time of whether these costs will be worth the benefit gained from the benchmark. When it comes to the benchmarking process itself, a number of important possible hurdles and considerations could be identified. By far the most important hurdle on the minds of the real estate managers was how to solve the problem that differing definitions are used throughout the portfolio. This could be caused by misunderstanding or, for example, by international differences. Another important factor is having the right IT infrastructure to support the benchmarking process. Because benchmarking is an iterative process, it is also important to establish a clear process for regularly updating the information. 6 week update intervals were seen as typically appropriate for real estate according to one interviewee. If process is set up, it is also important to raise enough support within the organization and from higher up. Benchmarking is a collaborative process between many parties and there should be enough support. Lastly another important factor according to multiple interviewees is that it is important to set up a process to ensure the validity of the data. The results of a benchmark might be challenged by managers or departments who score low and they might question the validity of the data.

Finally there can be a number of uses identified to which the Benchmark can be put. Naturally, possible opportunities can be distinguished for improving the efficiency of
the portfolio. Also, a clearer picture might form about the performance of the portfolio. This performance might also be communicated upward more effectively because of the new benchmark. If certain outliers might be spotted, these can serve as the basis for further analysis. Finally one account was shared about a system in which best and worst performer would automatically be matched for a meeting to exchange solutions and thus try to improve the performance of the worst performer.

0.4 THEORETICAL MODEL

On the basis of the preceding analysis, the benchmarking process has been divided into 5 main parts. While benchmarking can be done as a one-time event, truly meaningful results can only be achieved if it is implemented as an iterative process. These parts are selection of the KPI’s, Collection and validation of the data, analysis of the data, use of the results and finally feedback from this process that can be used to improve the next iteration of the benchmarking process and build organizational knowledge. We are for this study interested not only in this process itself, but in the relationship with the organization in which it is performed. There are a certain number of variables that can influence the benchmarking process and the selection of KPI’s. As its output, every iteration of the benchmarking process generates a certain amount of management information which can then be used in various ways by the corporate real estate management department. This process is depicted in the theoretical model in figure 0.1. It is then also put into the different layers of context in which it takes place, namely the CREM department that does the benchmarking, the organization in which it takes place and finally the external context. Some of the main influences and uses have been depicted in the model.

![Theoretical model of the benchmarking process.](image-url)
0.5 SEMI-STRUCTURED INTERVIEWS

In order to test the theoretical model and the hypotheses that are set forth, a total of 14 semi-structured interviews were conducted with 12 corporate real estate managers and 2 facility managers.

Cases were selected along two main parameters for this series of interviews. The first is that only multinational corporations were selected that are large enough to have their own dedicated corporate real estate departments. The second is that a set of companies is desired that is varied along multiple variables. The main variables along which variety was sought were the sector in which the core business of the firm operates, its strategic focus and the type of CRE department. 14 interviews were conducted with a total of 16 people. All interviews were conducted face to face with the interviewees and all of them took place at the working location of the interviewee. Interviews were generally scheduled to last 45 minutes to an hour but some went on for up to an hour and a half. Interviewees received the questionnaire in advance in order to prepare relevant data. All interviews were fully transcribed on the basis of the audio-recordings. Data was analyzed using excel and Atlas.TI.

0.6 SAMPLE DESCRIPTION

The following will describe the context in which the real estate benchmarking takes place along three levels of analysis, namely the Organization, the CREM department and the overall environment in which the firm finds itself.

*The organizations*

<table>
<thead>
<tr>
<th>Company</th>
<th>Revenue (2012) (Millions)</th>
<th># of countries located in</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akzo-Nobel</td>
<td>15.390</td>
<td>80+</td>
<td>50.600</td>
</tr>
<tr>
<td>BP</td>
<td>370.870</td>
<td>80+</td>
<td>85.700</td>
</tr>
<tr>
<td>Canon</td>
<td>29.635</td>
<td>50+</td>
<td>196.968</td>
</tr>
<tr>
<td>Ericsson</td>
<td>26.478</td>
<td>180+</td>
<td>110.000</td>
</tr>
<tr>
<td>Hewlett Packard</td>
<td>89.201</td>
<td>170+</td>
<td>331.800</td>
</tr>
<tr>
<td>IBM</td>
<td>77.510</td>
<td>170+</td>
<td>434.246</td>
</tr>
<tr>
<td>JCI</td>
<td>31.083</td>
<td>150+</td>
<td>170.000</td>
</tr>
<tr>
<td>KPN</td>
<td>12.409</td>
<td>3+</td>
<td>27.165</td>
</tr>
<tr>
<td>Microsoft</td>
<td>54.619</td>
<td>100+</td>
<td>94.000</td>
</tr>
<tr>
<td>OCE</td>
<td>2.648</td>
<td>30+</td>
<td>21.635</td>
</tr>
<tr>
<td>Philips</td>
<td>24.788</td>
<td>100+</td>
<td>118.087</td>
</tr>
<tr>
<td>Wolters Kluwer</td>
<td>3.603</td>
<td>25+</td>
<td>19.112</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>78.577</strong></td>
<td><strong>109</strong></td>
<td><strong>166.720</strong></td>
</tr>
</tbody>
</table>

Table 0.1: Company data (Information obtained from 2012 annual reports and companies’ websites)

To give a different indication of the size of the companies that are interviewed, their annual revenue, employees and the number of countries they are located in are depicted in table 0.1. The 12 companies that are interviewed have an average revenue of 78.577 million euros with a range of 2.648 – 370.870 million euros. Nine of the twelve companies had revenue between 12 and 90 billion euros. Two companies had significantly smaller yearly revenue of respectively 2.6 and 3.6 billion euros and there was one larger exception with a yearly revenue of about 371 billion euros. In other words the companies consisted of two mid-cap companies, 9 large-cap companies and one mega-cap.
The companies are classified according to the standard bedrijfsindeling 2008 (SBI 2008). This is a classification designed by the Dutch central bureau of statistics. More than half of the companies are from the industrial sector and four are from the information and communication sector. However, both these sectors are very broad and contain a wide variety of different subsectors. If the companies are subdivided into subsector, it can be seen that a wide variety of different types of companies are included.

**Portfolios managed by CREM departments**

The following data concerns metrics on the portfolio for which the interviewee bears responsibility, which is not always the whole real estate portfolio of the organization. The interviewees were asked to answer the questions with respect to the part of the portfolio that they bear responsibility for. This is done in order to ensure the availability and the accuracy of the data that is obtained. It also provides a picture of different levels within the corporate real estate management department.

Out of twelve interviewees, five were responsible solely for the Netherlands or Benelux area. One managed the whole of Europe. Then there are two who have the combination Europe, Middle East & Africa (EMEA), one is responsible for both Europe and Asia. The final three interviewees are responsible for the whole, worldwide real estate portfolio.

In table 0.2 a number of metrics are presented describing the real estate portfolios for which the interviewees are responsible.

<table>
<thead>
<tr>
<th>m2 (n = 10)</th>
<th>Objects (n = 11)</th>
<th>Countries (n = 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>796.873</td>
<td>288</td>
</tr>
<tr>
<td>Range</td>
<td>20.000 - 6.000.000</td>
<td>4 - 1300</td>
</tr>
</tbody>
</table>

Table 0.2: Portfolio data.

Graph 0.1: Average composition of real estate portfolios (n=11)
Graph 0.2: Composition of real estate portfolios (n=11)

Graphs 0.1 and 0.2 depict the composition of the Real Estate portfolio for which the interviewees were responsible. In graph 0.1 the compositions of all the different companies are averaged. As can be seen, about two thirds of the average portfolio consists of office space. 23% is production, 9% logistics and finally 2% devoted to R&D Centers.
Size, position and mandate of the CREM departments

In order to analyze the size and position of the CREM departments, a model was used that was first built by O’Mara et al (2002). In this model the departments are organized according to size, position and mandate. The CREM departments in the study consist on average of 4 people with a range of 1-6 (n = 11). So they consist of relatively small groups of skilled managers. They are often supported by a decentralized network of local real estate managers, property managers and facility managers. Almost all the real estate departments report to Finance. This was either directly to the CFO or indirectly. One organization purely reported to operations. However this was something that had only recently gone into effect and before it they reported to finance.

In general the CREM departments are very close to the executive board 6 out of 12 CREM departments report directly to the executive board and 4 had only 1 level in between them and the board. When it comes to the mandate, every company has basically its own unique structure of approval procedures. This makes it hard to form generalizations about the approval procedures that are in place for the interviewed CRE departments. However, after careful analysis of the results some patterns could be distinguished. Firstly the mandate of CRE departments ranged from on the one hand a strictly advisory role on a voluntary basis, to on the other end of the spectrum a formal mandate for all real estate decisions. The procedure often differs according to the amount of money involved in the transaction or for example according to the length of the lease term. The biggest type of real estate transactions invariably required the approval of the executive board for all interviewed organizations.

Tasks and strategies of CREM departments

Graph 0.3 shows the average importance of the tasks for the CREM groups. This result shows that the answers are pretty evenly dispersed among the different tasks. However, this average result hides the fact that the CREM groups that were interviewed were very diverse in their task priorities as can be seen in the table with the individual results. When it comes to the strategies they consider most important (graph 0.4), the most noticeable result is that all of the 12 interviewees mentioned ‘minimizing occupancy cost’ as one of the four most important strategies they employ. For some of the departments this has always been the case while for others this is more of a result of the current economic crisis or other outside influences.
0.7 OVERALL CONCLUSIONS

Benchmarking is a much more complex activity than initially suspected. While some data might be easily collected, extracting meaningful information from even the most basic benchmarks is usually wrought with difficulties. Many different problems might arise along the way. Companies are trying to solve these problems in different ways but most are still struggling to find truly adequate solutions.

When we look at the overall status of benchmarking among the companies included in the study there are some which have built considerable competency in this area. The majority however, are still in the beginning stages of this process. They are using only the most basic of benchmarks which are often still incomplete and the validity of which is still low. Interviewees, on average, express low confidence in the completeness and the validity of the benchmarks they use. In addition to this, some companies mainly focus on the data that is most readily available instead of moving towards more integral, precise definitions of cost and space and purposefully designing and implementing the collection processes required for these.

KPI's

The benchmarks that are used by the companies in the study are remarkably similar in that most focus on four basic indicators and their resulting ratios. While the precise implementation and chosen definitions differ from company to company, these indicators can be grouped under occupancy cost, m2, FTE and workplaces. Out of these four, occupancy cost and m2 are benchmarked by all participants. FTE and workplaces, as well as the ratios are named a slightly less number of times. When it comes to the ratios, FTE / Workstation and cost / workstation of the possible ratios are named significantly less number of times as being used as a main KPI.

None of the participants were using currently using any qualitative indicators like energy efficiency or workplace satisfaction as a KPI. Although two interviewees expressed an interest in doing this for energy efficiency, this had not yet been implemented. Generally interviewees were skeptical about qualitative benchmarks in general because of the complexity of it and usual low validity.

The data that is reported upward by real estate department is overwhelmingly financial or otherwise quantitative information. Almost all real estate departments report to finance and thus the information that they report upward is mostly financially orientated. Multiple departments indicate that the main indicator(s) they report upward is simply yearly savings in occupancy cost, space or both.

The participants are almost unanimously very skeptical about the current external benchmarking information to which they have access. In addition to the already big obstacles involved in internal benchmarking, with external benchmarking these problems are compounded.

<table>
<thead>
<tr>
<th>Named KPI's</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic indicators</td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>12</td>
</tr>
<tr>
<td>m2</td>
<td>12</td>
</tr>
<tr>
<td>FTE</td>
<td>10</td>
</tr>
<tr>
<td>Workplaces</td>
<td>9</td>
</tr>
<tr>
<td>Ratios</td>
<td></td>
</tr>
<tr>
<td>Cost / m2</td>
<td>9</td>
</tr>
<tr>
<td>m2 / FTE</td>
<td>9</td>
</tr>
<tr>
<td>m2 / workst</td>
<td>9</td>
</tr>
<tr>
<td>Cost / FTE</td>
<td>7</td>
</tr>
<tr>
<td>FTE / workst</td>
<td>4</td>
</tr>
<tr>
<td>Cost / workst</td>
<td>3</td>
</tr>
<tr>
<td>Other indicators</td>
<td></td>
</tr>
<tr>
<td>Occupancy rate</td>
<td>4</td>
</tr>
<tr>
<td>Cost / revenue</td>
<td>3</td>
</tr>
<tr>
<td>Space utilization</td>
<td>2</td>
</tr>
<tr>
<td>Leased / Owned per country</td>
<td>1</td>
</tr>
<tr>
<td>Average contr lengh /country</td>
<td>1</td>
</tr>
<tr>
<td>Rolling / Fixed leases</td>
<td>1</td>
</tr>
<tr>
<td>Qualitative</td>
<td></td>
</tr>
<tr>
<td>Workplace satisfaction</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 0.2: Benchmarks used
**Challenges during the benchmarking process**

A variety of different possible hurdles that real estate managers had encountered during the benchmarking process were shared by the interviewees. These could be differentiated into problems during the benchmarking process itself and problems in analyzing the resulting information.

During the benchmarking process, by far the biggest problems that are encountered are difficulties in gathering the data and secondly making the data comparable by using uniform definitions throughout the portfolio. The availability of the data might be hindered because the data is located across different databases and or platforms, because certain variables might be costly or difficult to measure and because there might be resistance from certain parties in supplying the information. The problem of having different definitions used throughout the portfolio was named almost unanimously by all managers as one of the biggest hurdles they face. A solid process of validating the data was said to be essential to avoid later on being challenged by low performing participants.

When it comes to the analysis of the data, the main problem is the possible heterogeneity of the underlying objects. The challenge here is to make comparable groups of objects which legitimately make sense to compare to each other. As each object is essentially unique, this heterogeneity might be across many different variables. The main dimensions that could be identified in which objects might differ from each other are: functional, regional or national and cultural. Finally some special or unique objects often also have to be filtered out of the benchmark.

**Benchmarking use**

It is essential to have a clear use for the benchmarking information specified before setting up a new benchmark. Multiple accounts were shared of benchmarks that were set up but for which eventually no real way in which to constructively to use the results were found. The main uses that could be distinguished are

- To aid portfolio optimization across various performance dimensions
- To enhance management reporting
- To raise support among business units for various projects or interventions
- As feedback on own management practice, to sharpen strategic performance
- To improve the quality of the benchmark itself

**Relationships:**

The most predominant influences on the selection of KPI’s by CREM departments were found to be the current economic crisis, pressure from above to focus on financial variables and the complexity of the benchmarking process itself.

The economic crisis cause an extra focus on cutting costs and financial data in every single organization that was studied. Some interviewees however mentioned that due to the fact that they manage a worldwide portfolio, this had to be nuanced with the fact that for some parts of their portfolio there was actually strong economic growth. The fact that almost all departments reported ultimately to finance was also a strong influencing factor. Multiple accounts were shared of managers that wanted to use a more integral focus in their performance measurement but simply saw little use for it because they themselves were judged solely on these financial or quantitative indicators.
While the aforementioned variables are all organizational or outside influences, it can be said that the main factor that influences the benchmarking practices without a doubt is the complexity of the benchmarking process itself. The multitude of challenges and hurdles that have been described in the preceding chapters make it very complex to produce truly meaningful results. As one expert mentioned, it can take years before you start to build even basic competency in this area.

There are strong indications that, once enough competency is built, there are other factors that influence the selection of indicators. For example the sector an organization operates in and its strategic focus might also be strong influences. However, due to the limited sample size and the fact that the sets of KPI’s that were found were so similar, more research is needed to draw more definitive conclusions.

Whether departments just use these basic indicators or have moved beyond this to more complex indicators, seems to be more dependent on how important they perceive benchmarking to be, their willingness to expend time and effort in this area and how much experience and competency they have already acquired in this area.

0.8 REFLECTION

Scientific relevance
When the findings of this study are compared to the theoretical exploration, there is a striking discrepancy between the idealistic picture of benchmarking that is advocated in many studies and what actually happens in practice.

Overall, it seems the complexity of benchmarking is still undervalued in the studied theory. In the literature, a lot of attention is given to the fact that indicators should be derived from organizational drivers and values and a lot of possible indicators are provided. The difficulties in actually implementing this is given less attention. During the discussions with real estate managers in the field, what often dominated the discussion was the difficulties that had in setting up the benchmarks and extracting meaningful data from it. So there is a discrepancy here in the focus of the theoretical research and the concerns of practitioners and thus a large opportunity for further study and possible gains.

When we compare the benchmarks that are used by the companies in this study to the possible KPI’s clustered by Riratanapong et al. (2012) according to the impacts of Jensen’s FM Value map, we see that the used KPI’s mostly fall into the category ‘cost’ and what Jensen calls ‘adaptation’.

In the conclusion, the overall status of benchmarking practice amongst participants was discussed. The focus was still mainly on quantitative, basic indicators and only a few companies expressed a moderately high amount of confidence in the completeness and validity of their data for the basic benchmarks, Srimai et al (2011), concluded that general performance measurement for businesses has had a steadily increasing focus on non-financial, value based indicators in order to provide balance against financial indicators.
If we contrast this with the performance measurement for real estate as found in the companies in this study, we can conclude that the sector still lags behind these general developments. Van der Voordt and Jensen (2014) in their discussion mention that the various frameworks on added value of FM and CREM that have been developed over the last decade are not yet ready to be implemented into practice. The findings of this study thus corroborate that conclusion.

**Practical application & Societal relevance**

As the study showed, there are still a lot of gains to be made when it comes to real estate benchmarking in practice. The findings show that a large number of corporate real estate departments are still working to implement the basic benchmarks of cost, space and FTE’s. A study was made of the main challenges most practitioners face in their benchmarking practice and compared with the practices of the participants who were relatively most competent in benchmarking. On the basis of this a number of models have been proposed which can help practitioners understand the complexity of the different types of benchmarks, understand where they stand with respect to current top performers and steps they should take to improve their benchmarks.

Finally as shown, it is crucial to have a clear use for the benchmark you are going to implement ahead of time. The list of possible uses gathered here can help companies specify the way they want to use the benchmark. In this way they can thus avoid wasting time and energy into misguided research.

Real Estate performance measurement in general is aimed at identifying inefficiencies in the portfolio. Any improvement in the practice of performance measurement itself might lead to these inefficiencies being identified more effectively. Real estate is an extremely resource intensive asset class. Therefore if these efficiencies are identified and can be corrected, this can free up a lot of resources that are currently tied up in it.

**Recommendations**

During the course of the study, a number of interesting areas in which further could be conducted could be identified. Firstly, now that there is an overview of which indicators are used the most, it could be interesting to do a larger scale, quantitative study in which these most common benchmarks would be looked at more in depth. These could be analyzed on how complete and valid the information is that managers have on them in a more quantifiable way for example. And the actual averages of the benchmarks could be analyzed.

This study shows that research on helping CREM departments setup the basic benchmarks in a well-structured manner might be an interesting area of study. Since many companies are still in the beginning stages and are often experiencing difficulty in implementing it, this might be of practical use. Specifically the way to ensure that the benchmarks are defined consistently throughout the whole portfolio, especially internationally is an area of great interest to real estate managers and is an interesting area to explore.

Finally, another interesting fact is that most managers express the desire to have better external benchmarking data. However currently this is problematic because of the problems of confidentiality and because the results are often mistrusted. Perhaps an independent entity like a university could have a role in starting to solve this problem.
The research for this paper was divided into four main parts. These parts, in turn, consisted of multiple smaller subsections. The report closely follows this structure. A schematic overview of this research design is shown in figure 0.3. In order to provide the reader with a brief overview of the report the subsequent parts of this design will be discussed below. A more in depth explanation of the research design and methodology will be provided in chapter 2.

**Part I - Introduction**
Part I consists of the introduction to the report (Chapter 1) and a description of the research methodology used in the study (Chapter 2). In the introduction the problem and motivation at the cause of this research are described and the research questions are specified. The methodology is divided into a description of the research design and the type of research used.

**Part II – Conceptual framework**
The second part is divided into three chapters. In chapter 3, the findings of the literature study thus the current theory on real estate performance measurement are presented. Chapter 4 describes the results of the series of explorative interviews that were done in order to gain a perspective from practice on the issue. These two chapters then result in a theoretical framework in which these findings are encompassed and lastly a number of hypotheses for the semi structured interviews are set forth.

**Part III – Semi-structured interviews**
Here the results of these semi structured interviews can be found. First the research design for these interviews is presented with more detail in chapter 6. Then the results will be presented along the lines of the theoretical model presented in chapter 5 and make up chapters 7 – 9.

**Part IV – Conclusions and reflections**
The final part consists of the conclusions (Chapter 10) and the reflections (Chapter 11). While the conclusions discuss the findings per topic, in the reflection a broader perspective is taken and the results are placed in the current theoretical, practical and societal context. Additionally recommendations for further research are made.
I – INTRODUCTION
1. INTRODUCTION

Real estate performance measurement is a very broad and complex subject. It is, however a crucial aspect of real estate management. In order to be able to effectively steer an organization toward its goals, it is important to have a clear view of current (and possible future) performance. Performance measurement can be grouped under the broader field of performance analytics, which can be defined as “the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions” (Davenport & Harris, 2007, p.7). If firms want to effectively align their real estate to support their strategic goals, performance measures are needed that reflect how property is being utilized in the business (Nourse, 1994, p.431). Waggoner, Neely, and Kennerley (1999) argued that performance measurement in business serves the purposes of monitoring performance, identifying the areas that need attention, enhancing motivation, improving communications and strengthening accountability. According to Scrimai et al. (2011, p.670), “an ultimate output goal of performance measurement systems is to align the strategy of the entire organization’s activities and processes”.

1.1 PROBLEM DESCRIPTION

Traditionally, corporate real estate managers have predominately focused on factors such as operating costs, costs per square foot and maintenance cost. These measures and indicators work well when the only purpose is to control costs and property is seen just as a cost of doing business rather than a value adding opportunity. When the corporate real estate manager needs to show and demonstrate the strategic potential of their real estate, more comprehensive and developed measures and methods are needed (Lindholm & Nenonen, 2006, p. 117). Krumm et al. state that an increasing number of corporations have been focusing on introducing performance metrics based on shareholder value. Although the popularity of value based management changed the corporate metrics, the contribution of real estate is often still measured by cost reductions or capital minimization (Krumm et al., 2003, p. 61). In order to measure these aspects of performance, specific indicators have to be developed or chosen. Multiple studies on real estate performance have aimed at making an inventory of metrics that are relevant to real estate and could be used to measure its performance (Lindholm & Levainen, 2006; Appel-Meulenbroek & Feits, 2007; Varcoe, 2001). This is done with the aim that managers can pick from these and create their personalized measurement system.

According to Duckworth (1993, p.497), the two fundamental problems affecting real estate performance measurement are that a significant proportion of organizations do not maintain sufficient information on their real property and secondly that they often only use select data to inform discrete decisions. While performance measurement is an important aspect of real estate management, presently many companies have limited resources available for it. This is confirmed by a more recent survey done by Jones Lang Lasalle. In it, one fourth of real estate managers reported their available information as ‘poor’ and three quarters consider it no better than ‘fair’ (Knapp et al. 2009, pp. 237-238) In the face of limited resources managers often have to choose on which aspects to measure. Neely (2005, p.1241) argues that while practitioners can often easily imagine a long list of aspects that should be measured, the real challenge lies in getting that list down to a manageable set that still considers all important aspects. This is confirmed by a survey performed by Towers Perrin, in which a large number of correspondents indicated that they believed that the large number of measures
weakened the effectiveness of the measurement system (Towers Perrin, 1996). Varcoe (2001, p.119) found that organizations often lack an objective assessment and rationale for the selection of indicators.

1.2 PROBLEM STATEMENT
Real estate performance measurement has developed from a predominately efficiency based approach, toward a more integral value based approach. However this is faced with a number of difficulties. As has been shown in the above analysis, real estate performance measurement is often constrained by the limited amount of available resources and information. Therefore, a choice has to be made on which aspects are to be measured. While a number of studies have been done on which indicators are available, only little information is available on how organizations can choose which indicators are best suited for their organization. If organizations are to effectively measure the performance of their real estate, more information is needed on how real estate managers can choose a limited set of key performance indicators that provide them with the information they need in order to make decisions.

1.3 RESEARCH QUESTIONS
Main research question:

- How do the context variables and hurdles influence the choice of KPI’s that are benchmarked by the Corporate Real Estate Management departments?

Sub questions:
- What is current best practice performance measurement and benchmarking for Corporate Real Estate Departments as presented in the current literature?
- What are the main characteristics of the CREM Departments that are studied and the organizations and context that they operate in?
- What are the current benchmarking practices of real estate departments?
- What are the main hurdles they face during the benchmarking of their real estate and how do they attempt to solve these?
- What is the relationship between the characteristics of an organization and its real estate benchmarking practices?

1.4 RELEVANCE
As indicated in the problem analysis, in real estate performance measurement it is advised to focus the number of used indicators down to a small number of key performance indicators. This is also often a necessity due to constraints on the time and resources available for measurement. Therefore, gaining more insight into the specific considerations that inform and should ideally inform the choice between the different available indicators is thus a very relevant topic, both theoretically and to practitioners. The topic of real estate performance measurement also has a strong relationship with the ways in which real estate can add value for an organization. This is a current research topic at the department of Real Estate & Housing at the TU Delft. Performance measurement has moved towards including more value based measurement, in order to provide balance against the traditional, more financially
oriented measures. Knowing in what ways real estate actually adds value for an organization can help focus the measurement system towards this goal and can aid in choosing the appropriate Key Performance Indicators.

1.5 MOTIVATION

The first time I encountered the subject of real estate performance measurement was with the paper by Jones Lang Lasalle “Are the myths of space utilization costing you more than you know?” (Knapp et al., 2009). This made me explore the topic of performance measurement as a possible graduation topic. When I delved deeper into the literature on the topic I became further intrigued by the intricacies and difficulties of measuring real estate performance. It turned out to be a very complex area with many difficulties and ambiguities. This makes it a very interesting area to do research in because there is a lot still unknown and uncertain about the topic. At the same time it is a very important aspect of real estate management. Having proper information about performance can help steer decisions and can help real estate management units to add value for its organization in an increasingly efficient and effective manner. Another very interesting aspect about the topic is that the available resources for measuring performance are limited and that some aspects of performance are very difficult to measure and quantify. This constrains what can actually be measured and raises questions about what measurements should get priority or more weight in the face of this uncertainty. All this makes it an important and very dynamic and interesting subject area.
2. METHODOLOGY

This section will discuss the research methodology for this study. It will first present the research design after which it will go into the type of research that is appropriate for this subject and in what research paradigm the study is performed.

2.1 RESEARCH DESIGN

The research that is conducted can be divided into four main sections. In figure 2.1 a schematic overview is shown of the structure of the research.

The first section is where the research is initiated, the main research questions are formulated and the scope of the research is demarcated. After this, a conceptual model is built through a study of the current relevant theory on the subject and by doing a series of explorative interviews.

The study on the current theory is divided into general and real estate performance measurement. From these, a number of hypotheses are drawn and the theoretical framework is constructed. This theoretical framework encapsulates the main findings of this first part of the research and can be used to structure the rest of the research.

The third part consists of the main empirical research. On the basis of the conceptual framework in the previous part, the questionnaire for the second, more structured series of interviews is constructed. This second interview series is conducted in a semi-structured fashion with 12 real estate management departments. The results of these interviews are analyzed using Atlas.TI and the results are then presented along the structure of the theoretical model.

The last part consists of the main conclusions that can be drawn from this research and a discussion on the scientific and practical relevance of these findings. Recommendations will be made on the basis of these findings for further research and interesting new areas. The next section will go more into depth on a number of these different parts.
Introduction

Problem diagnosis
Research Question: How do the context variables and hurdles influence the choice of KPI’s that are benchmarked by the Corporate Real Estate Management departments?

Research Problem: While a lot of information is available on KPI’s, little is known about the actual factors that influence the choice of KPI and the hurdles that might be encountered.

Research Design
Qualitative, explorative research performed in interpretivist research paradigm. Consist of literature review and two series of interviews with experts.

Literature review

General performance measurement
What are the historical development and current best practices in the general area of performance measurement?

Real Estate Performance Measurement
What are the specific characteristics and developments in current best practice real estate performance measurement?

Explorative interviews

Open interviews
In order to get a perspective on real estate performance measurement in actual practice against which the findings from theory could be contrasted, eight open interviews with various real estate managers, consultants and experts are conducted.

Conceptual Framework

Theoretical Model
The benchmarking process is divided into specification, implementation and use and placed in the contexts of the CREM department, the organization and the external context.

Hypotheses
Main hypotheses are formulated which can subsequently be tested in the series of interviews that follows.

Semi-Structured interviews

Methodology
14 interviews are conducted face to face in semi-structured form. Analysis is done using Excel and Atlas.Ti.

Results
Results are analyzed along the structure of the theoretical model. Specifically along the different stages of the benchmarking process and the different levels of context.

Conclusions and Reflection

Conclusions
The main conclusions are formulated as an answer to the main research question and formulated hypotheses.

Reflections
In this section the results are analyzed in a wider perspective. The scientific and societal relevance are discussed as well as the potential for practical application. Finally recommendations for further research is given.

Figure 2.1: Research Design overview
2.1.1 Conceptual framework
The literature study is divided into two main sections. It will first cover general performance measurement and its historical development and will then go more into depth on measuring real estate performance.

**General performance Management & Measurement theory**
What will be discussed in this part are concepts and definitions relevant to performance measurement (performance, added value, efficiency, performance indicators, etc.), general literature on performance management and measurement, a brief discussion of the historical development of performance measurement and finally a number of available performance measurement frameworks (like BSC).

**Real estate performance measurement theory (REPM)**
This section will go more into depth on the specifics of measuring real estate performance. It will start with a general discussion the aspects of CREM that are relevant to REPM. After this the current literature regarding REPM will be analyzed, as well as information on the specific indicators for RE. Finally it will discuss the already existing systems and norms for measuring real estate performance.

Together this will provide an in depth view of real estate performance measurement and on the indicators that are available to measure this performance. The information acquired in this section can then finally be integrated into a theoretical framework that can serve as the basis for further empirical research and case selection.

2.1.2 Explorative interviews
The first series of interviews are conducted with an open topic-interview structure. These interviews are conducted with a number of different practitioners including real estate managers and consultants working in the area of real estate performance measurement. The interviews have a consistent structure of topics that are derived from the theoretical framework and the literature study. The open nature of the interviews allows for in depth exploration of the different topics that are deemed relevant for the main research question. The interviews are aimed both at uncovering the interviewees general knowledge of the topic, as well at their practical experience gained working in the area.

**Topics**
While in this series there was no structured interview protocol there were a number of topics that steered the discussions with the interviewees. This list of topics was kept consistent throughout all the interviews in this part of the research. These were chosen based on the preceding literature study and logical reasoning regarding the factors that might be most important in answering the main research question. The topics were:

- Structure of the CREM department and its influence on KPI choice
- Most common benchmarks used and their relative importance
- Which benchmarks are reported upward
- The use of qualitative benchmarks
- The structure of the benchmarking process
- Possible hurdles & opportunities during this process
- What use the benchmarks ultimately serve to CREM departments
Case selection
The main goal of this interview series was to gather information with practical experience in the field in order to counterbalance the theoretical perspective. Interviewees were chosen in order to have a variety of different perspectives on the topic of real estate performance measurement. In order to achieve this, people with different types of positions were interviewed.

Procedure
All interviews were conducted face to face. Interviewees were approached via e-mail for an interview. All except one interview were conducted at the office of the interviewee. One was conducted in a café. The structure of the interview was kept as flexible as possible in order to leave as much room for a wide exploration of the subject area as possible. All topics were introduced in simple question form after which follow up questions were asked if deemed appropriate. Notes were taken during the interview and more integral report of the findings of the interview was written immediately after its ending to ensure as much collection of data as possible.

2.1.3 Second series of interviews
Semi-structured interviews
In the second series interviews are conducted with a number of real estate directors, real estate managers and facility managers. In this way the problem is explored from a number of perspectives and viewpoints and a more complete picture can be obtained. The questionnaire for the interview was constructed during the first interview series. The questions are based on the preceding literature study, the information obtained from the first series of expert interviews and on the basis of logical reasoning. This was an iterative process in which several versions of the questionnaire were produced and then discussed with practitioners.

Because the goal is to gain a deeper understanding of the subject matter the interviews are conducted in a semi-structured manner. The interview consists of roughly 20 questions of which about a third are of a closed nature. But even the closed questions usually resulted in deeper discussions on the topic which were also recorded and processed. Because of the complex nature of the subject and company structures, some room was reserved to deviate from the structure or to ask follow up questions if seemingly important or surprising facts are mentioned. A more extensive description of the methodology of this series of interviews will be included in the chapter itself.

2.1.4 Anonymity of participants
Benchmarking data or other real estate performance data can be considered confidential by many corporate real estate management departments. In order to gain the cooperation for this study from as much real estate executives as possible, possible participants were ensured the anominization of the data they would supply. Therefore, while the names of the companies and professionals that have participated are given, the link to them and the actual data that they have supplied has been anonimized.
2.2 TYPE OF RESEARCH

The study of real estate performance measurement is a very complex subject area. Research into this area is usually faced with a number of difficulties. Experiments can often not be controlled and it is often very hard to isolate the effects that one is trying to measure from the effects of context variables. De Vries mentions another problem, namely that in the real estate sector there often is a lack of large sets of data on the aspects that are to be researched. While research into correlations and causality could best be done using a large statistical analysis, this is complicated because of the lack of such large datasets and the fact that the context is often crucial in determining the results (De Vries, 2007, pp. 340-341).

Because of the aforementioned problems the research into this problem area will necessarily be of a more qualitative nature. The first part of this research be of an explorative nature and will try to gather the relevant information on the topic of performance measurement and integrate this into a coherent conceptual framework that can be used for further research. This will be done through means of exploring the relevant scientific literature, analyzing existing systems and through exploratory interviews.

The research will thus be conducted largely within an interpretivist research paradigm. According to Schultz et al. (1996) interpretivist research design evolves over time as features emerge from the research that the initial design did not cover. The interpretivist also explores first and then develops theory thus allowing deeper explanations and insights. Strauss and Corbin (1990) state that “Interpretivism, or the qualitative approach, is a way to gain insights through discovering meanings by improving our comprehension of the whole. Qualitative research explores the richness, depth, and complexity of phenomena. Qualitative research, broadly defined, means “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification”. Myers (2003, p.3) mentions the depth into which the intricacies of the topics are explored as one of the major strengths of the qualitative approach. While they are not generalizable in the traditional sense they thus have other redeeming qualities.
II – CONCEPTUAL FRAMEWORK
3. CURRENT RELEVANT THEORY

3.1 GENERAL PERFORMANCE MEASUREMENT THEORY

Before specific real estate performance measurement is discussed, this chapter will first go into general performance measurement. In order to adequately do research into performance measurement it is important to discuss the different definitions and concepts at the basis of this field of management. There are many different theories on what proper performance is, and the field is rife with differing and sometimes conflicting definitions. This chapter will also briefly discuss the development of general performance measurement theory and will discuss some of the more prevalent available systems.

3.1.1 Organizational Performance

In order to do research into real estate performance measurement, it is important to first discuss what is meant by the term ‘performance’. When exploring the relevant literature, it seems that there is not a clear cut definition of the performance of an organization. Tangen (2005) states: "Performance is a broad term that covers both overall economic and operational aspects. It can be described as an umbrella term for all concepts that consider the success of a company and its activities". Lindholm defines performance from a performance measurement point of view as “a measurement object’s ability to achieve desired results” (Lindholm, 2006).

Stakeholder theory vs value maximization

When it comes to performance, an important question to ask is: ‘performance for whom?’ The answer to this question leads to an interesting divide in the managerial world. On the one hand there is the theory that the goal of an organization should be to maximize value for the shareholders. Since it is not always clear in what way value can be maximized, a term that is also often used is ‘value seeking’ instead of ‘value maximization’ (Brealy et al., 2011; Jensen, 2010; Pinto, 2001). Two models that are often used to model this value are Economic Value Added (EVA) and Market Value Added (MVA). Economic Value Added measures the economic profit (or value creation) of a firm for a given period, while Market Value Added measures the present value of all future economic profits (Nappi-Choulet et al., 2009, pp. 83-84). Following Lindholm’s definition of performance in relation to value maximization, performance would then be the degree to which the measurement object creates value for the firm.

On the other hand according to stakeholder theory managers should make decisions that take into account the interests of all stakeholders in the firm. A stakeholder is then defined as ‘any group or individual who can affect or is affected by the achievement of an organization’s purpose’ (Freeman, 1984, p.53). De Vries et al. (2004) use a stakeholder approach to come to a more precise definition of performance. They define the performance of an organization as “the valuation of the output by the stakeholders in relation to the organizational goals”. Crocket (1992, p.41 in Srimai et al., 2011) states that information about stakeholders’ contributions and expectations are critical for the management of businesses. He argued that expectations and values of stakeholders should be included as critical success factors in any performance management system.

Brealy et al. (2011) discuss the stakeholder division and show that there is also a geographical divide between these theories. In the Anglo-Saxon countries, the shareholder theory is much more dominant while in social democracies like Germany
and France the stakeholder view seems to be more dominant. In the end after comparing overall financial results of the companies in these region they conclude that, at least regarding financial results, there does not seem to be much difference between the two goals in practice.

Figure 3.1: whose company is it? (Brealy et al., 2011, p.12)

Jensen (2010) however, is of a different opinion. He has two main criticisms of stakeholder theory. First he argues that efficient financial management for shareholders will lead to increased societal value in the long run through efficiency gains and competition. His other argument is that stakeholder theory fails to provide managers with a complete specification of the corporate function. He states that purposeful behaviour requires the existence of a single value objective function. In stakeholder theory there are multiple goals (the interests of the different stakeholders); therefore managers will have no basis for making decisions when having to balance conflicting interests of the different goals. He states "stakeholder theory politicizes the corporation and leaves its managers empowered to exercise their own preferences in spending the firm’s resources". He instead proposes the integration of what he calls 'enlightened stakeholder theory' and 'enlightened value maximization'. Wherein the former, while focusing on meeting the demands of all stakeholders, accepts value maximization as the firms’ objective and enlightened value maximization recognizes the fact that long term market value of an organization cannot be maximized if any important constituency is ignored (Jensen, 2010)

3.1.2 Dimensions of performance

There are many different aspects of performance. Srimai et al. (2011) describe this as the different ‘dimensions’ of performance. Many of these have been developed over the years, including (but not limited to) Quality, Time, Flexibility, Cost, Productivity, Efficiency, Effectiveness, Innovation, Customer value, Stakeholder value and many more. Some researchers seem to award a special place to effectiveness and efficiency. Neely (2005, p.1229) even defines performance measurement as “the process of quantifying the efficiency and effectiveness of action”. Other researchers simply place them among the other possible dimensions of performance. The next section will briefly discuss productivity, efficiency and effectiveness as dimensions of performance.

**Productivity** is a measure of how well resources are combined and used to accomplish specific, desirable results. It is conventionally defined as the ratio of total output to total input (Bain, 1982 in Neely et al., 2005, pp. 1238-1239; Shaw, 2009). Tangen (2005)
names a high productivity as one of the main sources of competitive advantage. There are multiple ways in which productivity can be increased:

- increasing the level of output faster than that of the input (managed growth);
- producing more output with the same level of input (working smarter);
- producing more output with a reduced level of input (the ideal);
- maintaining the level of output while reducing the input (greater efficiency); and
- decreasing the level of output, but decreasing the level of input more (managed decline).


Tangen (2005) states that despite its importance, productivity as a measure is often neglected by people in charge of the production process. As a possible reason for this he mentions a lack of understanding of what the term actual represents. Another problems related to the measurement of productivity that might influence this, is that is not only difficult to define the inputs and the outputs, but it can also be difficult to quantify them (Burgess, 1990 in Neely et al., 2005, p. 1239). The input and the output in the equation for productivity are sometimes replaced by costs and benefits. Costs in this sense then relate to input and benefits to output. This version of productivity thus measures how much benefits a process yields per unit of cost (Shaw, 2009). In figure 3.2, the factors affecting total productivity are depicted. This is then related to profitability through what Tangen calls price recovery through the market mechanism.

**Figure 3.2: Total productivity and profitability**  

**Effectiveness** can be defined as the degree to which action actually accomplishes its intended purpose (Roberts, 1994; Fisk, 1967). Kotarbinsky defines an effective action as one that moves an actor in the direction of achieving a goal (Kotarbinsky, 1965). An analogy that is often used in relation to effectiveness is that of a runner. A runner can try to run as fast as he possibly can, but if he is running in the wrong direction, he will never reach his goal. Effectiveness in this sense thus relates to 'running in the right direction'. The same concept was used by Simon, but he referred to this as 'Accuracy' instead of effectiveness (Simon, 1976, p.67).
**Efficiency** on the other hand points to the degree of economy with which the process consumes resources (Lon Roberts, 1994, p.19). It describes the relationship between the input and output and is often calculated with the formula: efficiency = output/input. This creates a problem in that, with this definition, efficiency overlaps with productivity. Because of this people have attempted to redefine the meaning of efficiency over the years. This has resulted in the fact that there are many different, often conflicting definitions of efficiency out there. Shaw states on this that “There have been several attempts at conceptually differentiating between productivity and efficiency but none of these attempts have gained much traction. Without a clear distinction, most authors, intentionally or not, use the terms efficiency and productivity as synonyms” (Shaw, 2009).

One differentiation that is made by multiple researchers is that efficiency is focused on the input side of the equation. Three main versions of this can be distinguished. First there is the definition by Neely (2005, p.1228) that “Efficiency is a measure of how economically the firm’s resources are utilized when providing a given level of customer satisfaction” Jackson on the other hand, relates the input to a theoretical level of minimum required input, he states: “Efficiency means how much cost is expended compared with the minimum cost level that is theoretically required to run the desired operations in a given system” (Jackson, 2000 in Tangen, 2005). Then finally, Sink and Tuttle relate it to expectation of consumed resources: “Efficiency is an input and transformation process question, defined as the ratio between resources expected to be consumed and actually consumed” (Sink & Turtle, 1989). This last definition might be argued to be problematic in some ways. For example under this definition, it would be possible to achieve a high efficiency if only the expectations are low enough. The second definition might face the problem that the theoretical minimum cost level might be hard to determine or that it might change over time due to technological advances or other causes.

Overall, a simple way to view the different concepts is that effectiveness concerns doing the right things, while efficiency and productivity concern doing things right (Tangen, 2005; Sink & Tuttle, 1989; Shaw, 2009). When comparing productivity, efficiency and effectiveness, it is often argued that acting effectively is probably of the most importance. Making sure that you are doing the right things should get priority over doing things the right way (Fisk, 1967; Shaw, 2009; Simon, 1976) Shaw observed that effectiveness concerns the relationship between the output and the organizational goals but that goals were absent in the traditional input-output models. In figure 3.3, he extends this model to include organizational goals. This helps to clarify the relationship between effectiveness and efficiency.

![Figure 3.3: Input-Output-Goal theoretical model (adapted from Shaw, 2009, p.860)](image-url)
3.1.3 Performance Indicators

The amount of possible indicators that can possibly be used to measure performance is not an exhaustive list. Basically anything that can be measured could potentially serve as an indicator. When talking about performance indicators, a number of different concepts can be differentiated. First there are Critical Success Factors (CSF). Critical Success Factors are those things that a company has to excel at to reach her strategic goals. While they are critical to attain, alone they are not necessarily a guarantee for success. Key Performance indicators (KPI) on the other hand, make the CSF’s measurable and show to what extent the goals of the organization are being reached (Buytendijk et al., 2000, pp. 12-13)

Different categories of indicators can be distinguished. A first difference is between indicators that concern long-term and short-term performance. Srimai et al. (2011, p.667) argues that “a critical aspect in designing performance measurement system is in the balance between the short and long term gains”. They advise including indicators for both categories. A second differentiation that can be made is between financial and non-financial indicators. Because of the shift toward value driven performance management, more non-financial measures have been introduced. These can range from customer satisfaction for example, to a range of different qualitative indicators. Another division is between lagging and leading indicators. Lagging indicators concern past performance. Most financial performance measures are lagging indicators since they concern performance over a past period. Leading indicators indicate what future performance might be. Often, non-financial indicators are leading indicators for financial indicators. For example, Customer satisfaction can be a leading indicator for financial performance. A final differentiation is between internal and external performance

It is often argued that a proper measurement system should include both financial and non-financial indicators and both lagging and leading indicators that consider both internal and external performance and both long term and short term gains (Buytendijk et al., 2000; Srimai et al., 2011; Kaplan & Norton, 1996, Neely, 2005).

When considering the choice between the different possible indicators. It is important to first discuss on what criteria these indicators can be judged. A set of criteria that is often referenced to for the critical success factors is SMART. The SMART principle means that a system must be:

**Specific**: Goals must be defined as specific and detailed as possible. People should be able to be held to account for them. Vagueness should be avoided.

**Measurable**: Each indicator should be measurable

**Attainable**: The goals set should be aggressive be attainable.

**Realistic**: Being realistic in the choice of goals is helpful in examining the availability of resources and selecting KPIs.

**Time sensitive**: Goals should have a time frame for completion.

(Buytendijk et al., 2000)
Shahin & Mahbod (2006) state that in choosing KPIs, managers should combine both the SMART criteria and a set of criteria specific to KPI’s, which they define as:

- tangible;
- reliability;
- responsiveness;
- assurance (competence, courtesy, credibility, security);
- and
- Empathy (access, communication, understanding the customer).

(Shahin & Mahbod, 2006)

Paramenter (2007) provides some additional criteria on which KPI’s can be judged. He argues that in order for KPIs to be useful in driving business performance, you need to have a standard for what constitutes a good KPI. Core principles that can help define this are:

- The metric is specific.
- The metric is clearly owned by a given department or group.
- The metric is measurable.
- The metric can be produced in a timely manner.
- The quantity of KPIs must be limited to a manageable few items for a given scorecard.
- KPIs must have targets.
- KPIs must be aligned with overall organizational goals.

Finally, Jordan et al. (2009) mention a number of pitfalls that should be avoided when designing key performance indicators. They argue that organizations should: resist favouring known data, should not only focus on input/output metrics but also focus on in-process metrics, should define them in a language that the relevant parties understand and finally should limit the set of metrics to 10 or less.

### 3.1.4 Development of Performance Measurement

The performance measurement revolution started in the late 1970s with the dissatisfaction of traditional backward looking accounting systems which focused merely on lagging financial indicators. Since then, a number of performance measurement frameworks, tools and techniques have been developed that include non-financial indicators such as Quality, Customer satisfaction, cycle time and innovation. These attempt to provide a more balanced view on performance and can be seen as leading indicators for the financial performance (Nudurupati et al., 2010, pp. 279-282).
Srimai et al. (2011) in their literature study on the development of performance measurement from the 1980’s until the present time, are able to distinguish four major evolutionary paths along which general performance measurement has developed. They are:

- from operations to strategy,
- measurement to management,
- static to dynamic, and
- increasing focus on stakeholders.

The first path, from operation to strategy, Srimai et al. argue, was brought about due to the highly uncertain and increasingly competitive environments that businesses had to operate in. In order to sustain a competitive advantage performance measurement systems shifted from a merely operational and financial focus, to a more strategic and customer based focus. This shift signifies the idea that performance measurement and strategy are closely linked. Performance measurement as a tool that translates strategy into a set of performance measures of a chosen strategy is often called strategic performance measurement. Secondly, because a performance management system is a central part of performance management, consideration of either of these separately should lead to an incomplete conclusion. The third shift, from a static to a dynamic perspective is argued to have occurred because of the need to respond to change in a rapidly changing external environment. Another cause of this shift might have been the developments in information technology that facilitated the storing, measuring, interpreting and visualizing of data on a larger scale. Finally an increasing focus on stakeholders in performance measurement emerged as a trend in the 1980’s. The fact that other groups of stakeholders, besides the professional managers, make significant contribution to the performance of a company has caused a number of performance measurement systems to broaden their focus towards including stakeholder requirements (Srimai et al., 2011, pp. 662-682).

3.1.5 Performance Measurement Systems
In general, performance measurement systems, which highlight inputs, provide predefined groupings of performance measures (Srimai et al, 2011, p.667-668). Since the 1980’s a larger number of performance measurement systems have been created. Srimai et al. listed some of the more well-known systems in chronological order (figure 3.6). On the right side of this list, an overview is given of the different dimensions of performance that the system focusses on. As can be seen in the list, all the discussed systems emphasize multiple dimensions of performance. The Skandia business navigator by Edvinsson and Malone and the Balanced Score Card by Kaplan and Norton focus largely on the same dimensions and were both developed in the early nineties. From the late nineties onward performance measurement systems also start to include stakeholder values as important dimensions of performance. While it would be too much to discuss all these systems in depth, a quick look will be taken into the workings of the balanced scorecard. In their study on real estate performance measurement, Lindholm & Nenonen (2006) found that the BSC system was the only one actually in use in practice among the firms they studied.
Balanced scorecard

The balanced scorecard was developed in the early nineties by Kaplan and Norton. Performance of the organization is viewed from multiple perspectives, namely the Financial, Customer, Internal processes and Learning and Growth perspectives. The evolution of BSC is regularly referred to as a cornerstone of the transformation from measurement toward management (Srimai et al., 2011, p. 672). Kaplan & Norton state that “the Balanced Scorecard translates an organization’s mission and strategy into a comprehensive set of performance measures and provides the framework for strategic measurement and management”. It was a response to the fact that “existing performance measurement approaches, primarily relying on financial accounting measures, were becoming obsolete” (Kaplan & Norton, 1996b). The “balanced” refers to the fact that both financial and non-financial measures are used, that it focusses on both long- and short-term objectives, that it uses lagging and leading indicators and considers external and internal performance perspectives (Hepworth, 1998, p. 559).

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**Table 3.6:** Performance measurement systems (Srimai et al, 2011, p.667-668)

<table>
<thead>
<tr>
<th>PERFORMANCE MEASUREMENT SYSTEMS</th>
<th>YEAR INTRODUCED</th>
<th>DIMENSIONS OF PERFORMANCE MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sink and Tuttle Performance Measurement model (S&amp;T) (Sink and Tuttle, 1989, 1990)</td>
<td>1985</td>
<td>Effectiveness, Efficiency, Quality, Productivity, Quality of work life, Innovation, and Profitability/Budgetability</td>
</tr>
<tr>
<td>World Class Manufacturing Performance Measurement system (WCMPM) (Maskell, 1989, 1991)</td>
<td>1989</td>
<td>Quality, Delivery, Production process</td>
</tr>
<tr>
<td>Balanced Scorecard (BSC) (Kaplan and Norton, 1992)</td>
<td>1992</td>
<td>Financial, Customer, Internal processes, and Learning and growth perspectives</td>
</tr>
<tr>
<td>Knowledge-based Measurement Model (KBM) (Sveiby, 1997)</td>
<td>1997</td>
<td>Three sets of measures: Growth and renewal, Efficiency, and Stability, for three intangible asset categories: Employee’s competences, Internal structure, and External Structure</td>
</tr>
<tr>
<td>Comparative Business Scorecard (CBS) (Kanji, 1998)</td>
<td>1998</td>
<td>Stakeholder values, Process excellence, Organizational learning, Delighting the stakeholders</td>
</tr>
<tr>
<td>Performance Prism (PP) (Neely et al., 2002)</td>
<td>2001</td>
<td>Stakeholder satisfaction, Strategies, Processes, Capabilities, Stakeholder contribution</td>
</tr>
<tr>
<td>Dynamic Multi-dimensional Performance framework (DMP) (Malz et al., 2003)</td>
<td>2003</td>
<td>Financial, Market, Process, People, and Future</td>
</tr>
</tbody>
</table>
The balanced scorecard, however, does not merely aim to be a measurement system. Kaplan and Norton (1996b, p.291) claim that the system can be a cornerstone of an organization’s management system since it aligns and supports the key processes of an organization. To do this they prescribe a feedback loop depicted in figure 3.7: in which subsequently critical success factors and key performance indicators are defined, goals are set and finally improvement actions are taken and implemented. With the prescriptive feedback loop the step is taken from measurement to management (Kaplan & Norton, 1996a; Buytendijk et al., 2000).

![The Balanced Scorecard](image)

Despite its critical acclaim, the balanced scorecard has not gone without some criticism. Norreklit (2000, p.82) claims to uncover two main problems. First, that the BSC does not necessarily signal causal relationships between the different areas, but merely logical relationships. An improved client satisfaction does not necessarily have to translate into better financial results. Secondly, she argues that the BSC management system does not ensure organizational and environmental rooting, resulting in a possible gap between planned strategy and undertaken actions.
3.2 REAL ESTATE PERFORMANCE MEASUREMENT

The previous chapter discusses some concepts, system and the development of performance measurement in general. This chapter will go more into depth of the specifics that have to be considered when measuring real estate performance as opposed to other parts of business performance.

The development of real estate performance measurement has followed largely the same path as has been described in the general performance measurement literature. As shown earlier by Krumm et al., while the popularity of value based metrics for real estate has risen, many companies are still focused mainly on cost reductions and financial indicators. In this sense, the development of real estate performance measurement has thus lagged behind the general developments. A possible explanation for this is, as Lindholm & Levainen (2006, p.40) state: “measuring the value of corporate real estate decisions is much more difficult than calculating the financial return on traditional investment real estate. Corporate real estate outputs are usually internal outputs to another part of an overall process”. Because of this, it can be much more difficult to relate the ‘soft’ outputs of real estate to the financial results of the organization. They argue that it is often not recognized that property can help to improve revenues, thereby contributing to the profitability and adding value to the firm. A second factor that might have influenced this is that information and data are scarcer in real estate management. Overall, Lindholm & Nenonen (2006, p. 117-118), comment on this that “the common understanding between the core business and corporate real estate still lacks both the quantity of relevant data and the common understanding of how to prove the value-adding elements”.

3.2.1 Added value of real estate

A frequently used dimension of real estate performance is its ‘added value’. However the relevant literature on the topic is ambiguous regarding the definition of this term. There are different interpretations of the term and these are often used interchangeably.

First added value is defined by some researchers as a relative term. An added value, in this way, describes an extra value relative to something else, something that is added. In economic literature, Brandenburger & Stewart, (1996, p.6) state that ‘a firm can come to have an added value by enjoying a favourable asymmetry between itself and other firms’. Another interpretation of this is made by Smit, who compares it to an earlier state: “Added value is the increase in worth of a product or service as a result of a particular activity” (Smit, 2008). Secondly, another way added value is defined in the economic literature is simply as the difference between the benefits and the costs of something. Kay (1993) describes added value as a measure of shareholder value as: \[ \text{Added value} = \text{Price that the good is sold at} - \text{the cost of producing the good}. \]

Applied to real estate this definition is problematic because there are no ‘goods’ to be sold. In other words, there is no positive monetary value from which the costs can be subtracted. The ‘positive effects’ that offset the costs are mostly internal benefits to the organization using the real estate object. It is therefore necessary to take a slightly more broad interpretation of this definition in order for it to be applicable to real estate. In order to capture the total added value of a real estate object or portfolio, one could simply take all the tangible and intangible benefits of it and then subtract the costs from it. The added value equation for real estate would then become: Added
Value of Real Estate = Benefits of a real estate object to an organization – costs of that real estate object.

Van der Voordt and Jensen (2014) discuss this when they state that: “Though the term added value is not always used explicitly, practice is always concerned about balancing between the benefits (...) and the costs of extra investments or higher running costs.” They add that in practice, added value depends very much on the client’s perception.

A Real Estate Management division aims, through conscious intervention to improve and/or maximize the added value of real estate. The effects of this necessarily take place over a certain time period. In the figure below, a conceptualization is shown of the added value of real estate plotted against time. Over a certain time period the added value of a real estate object or portfolio might change. However, not all of this change might be attributable to the REM activities. A part might instead be caused for example by changes in the market or other context variables (de Vries, 2007). It can be very difficult to isolate the effects of real estate management from these context variables. It is therefore very difficult to know which part of the change is attributable to the actions of the REM department. Secondly the added value that they are trying to improve is a compound variable that contains many intangible benefits. This makes it problematic to weigh these against the costs of REM which usually has a monetary value. Measuring the added value of real estate management thus contains at least two different levels of measurement problems influencing and possibly amplifying each other.

### Types of added value

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Use value</td>
<td>Stakeholder perception</td>
<td>Satisfaction</td>
</tr>
<tr>
<td>Customer user value</td>
<td>Financial health</td>
<td>Cost</td>
</tr>
<tr>
<td>Economic, financial or exchange value</td>
<td>Organizational development</td>
<td>Productivity</td>
</tr>
<tr>
<td>Social value</td>
<td>Environmental responsibility</td>
<td>Culture</td>
</tr>
<tr>
<td>Environmental value</td>
<td>Cost efficiency</td>
<td>Reliability</td>
</tr>
<tr>
<td>Relationship value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* in Riratanaphong (2012)

Table 3.9 Multiple views on types of added value

Multiple researchers have subdivided added value into various different types of added value. Jensen et al. (2012) documented 53 different definitions of added value in their literature survey. They classify these definitions according to six different value-types, namely: Use value, Customer user value, Economic, financial or exchange value, Social value, Environmental value and relationship value. Riratanaphong (2012) on the other hand, subdivided his inventory of KPI’s along the categories of Bradley (2002). If we
take the part of the FM Value Map by Jensen (2010) which relates to the core business,
6 categories can be found for what he calls ‘impacts’. However this strongly relates to
the subdivisions of added value by the other authors. Overall, the overview of these
categories shows that, while the FM value map core business categories and the
categories defined by Bradly take a more applied, business approach. The six categories
by Jensen et al include a more bird’s eye view and include categories more related to
the whole society.

3.2.2 Ways in which real estate management adds value
This added value can be subdivided into different classes and different ways can be
identified in which Crem can create this added value for the organization. Jensen et
al.(2012) classified the different definitions of added value they identified into six main
categories. Riratanaphong (2014) on the other hand clustered the different
performance criteria he found along the categories for added value as specified by
Bradley (2002). Den Heijer (2011), in her thesis on managing university campuses,
defined 12 ways in which real estate managers can add value to an organization. This is
an extension of the framework by de Jonge (1996 in Krumm, 1999, p. 66) and De Vries
Based on interviews with practitioners and a literature study, she identified seven main
strategies for adding value. If these different lists are compared to each other, it is clear
that they are very similar; however Den Heijer has identified three additional ways in
which CREM can add value as compared to Lindholm.

Lindholm then however uses her categories to construct a model for identifying the
added value of CREM (Figure 3.11). In this model she links
these strategies to shareholder
value in two ways. The first way
is through revenue growth and
the second is through
profitability growth. On the
right hand side the strategies
are split up into actual real
estate decisions on an
operational level. For choosing
leasing instead of owning can
be a way to increase flexibility.

![Figure 3.10 FM-Value map (Jensen, 2009 in Van der Voordt, 2009, p.57)](image-url)
Strongly related to this is the FM-Value map, by Jensen. This map visualizes how of facility management can add value in a wider context. It is based on inductive reasoning, a large number of case studies and the conceptual models of de Vries and Lindholm (Jensen, 2010; Van der Voordt, 2009).

Figure 3.11: Identifying the added value of CREM (Lindholm, 2006, p.48)
3.2.3 Real Estate Performance Indicators

There are many different indicators that can give an indication of a real estate object’s performance. A number of researchers have compiled lists of the most relevant indicators for real estate performance based on literature studies, interviews and case studies. Lindholm & Levainen (2006) make a large inventory of the different metrics that could be used to measure the costs and benefits of real estate and group them according to the seven different strategies that they have defined in their model. This is done so that real estate manager can pick from this list in order to create a personalized performance measurement system that fits the firm’s real estate strategies and information availability. They state that there is no one indicator of ‘good’ performance by real estate. Rather they advocate that the firm should develop a performance measurement system of valid and reliable measures that match their objectives and are reasonable considering available data and resources. In figure 3.12 an excerpt of this has been depicted.

![Figure 3.12: Potential real estate indicators – excerpt – (Lindholm & Levainen, 2006, p.43)](image1)

Another example of the large number of possible indicators is found in Riratanaphong et al. (2012) who gathered a large number of indicators that could be used to measure real estate or FM performance which he subsequently categorized according to the FM value map impacts as classified by Jensen. An excerpt of this can be seen in figure 3.13

![Figure 3.13 Selection of KPI (Riratanaphong et al., 2012)](image2)
Varcoe (2001) on the other hand proposed categorizing the real estate indicators to what he calls ‘the four E’s of measurement’, namely Efficiency, Effectiveness, Efficacy and Economy. He defines these simply as:

- Efficiency: making best use of resources
- Effectiveness: degree of achievement of outcome
- Efficacy: degree of relevance of outcome
- Economy: minimizing cost.

During a case study, 6 measures were chosen per category which the practitioners felt to be the most relevant. As an example, the measures for efficiency have been depicted below.

Figure 3.14: Efficiency measures (Varcoe, 2001, p.129)

These are some of the lists of relevant indicators for real estate performance that have been identified by previous research. As can be seen from the above examples the amount of possible relevant indicators is extremely large and there does not seem to be a consensus on which indicators are more relevant or important than others. Where there does seem to be a consensus however, is on the fact that organizations should choose a limited set of personalized indicators that are based on their own strategy and context (Lindholm, 2006; Knapp et al., 2009; Neely, 2005)

3.2.4 Real Estate Performance Measurement Systems

There are also a large number of systems already in existence that attempt to provide a framework for measuring real estate performance. Some of the more important systems are listed below:

- NEN 8021 - Gebruiksprestatie voor utiliteitsgebouwen
- OGC - Real estate performance framework (pilot study)
- ASTM
- REN – REN Bedrijfsgebouwen, REN Quick scan

The systems mentioned above vary widely in their approach, even using different definitions of performance. The OGC for example uses an efficiency and an effectiveness score which are benchmarked against a large database of buildings and then weighed against each other. The efficiency score is measured in occupancy cost / FTE and the effectiveness score is a compound variable consisting among others of Workplace productivity, environmental sustainability and operability (OGC, 2006). The NEN 8021 (in the draft proposal) on the other hand, tries to measure performance by weighing concrete building attributes against subjective user preferences. In this
way a list of scores is produced that depicts how a certain building performs on
different aspects like location or indoor climate. Besides these systems, there are also a
number of performance measurement systems that are specialized into a certain area
whose approach can be analyzed like the BREAAM for instance or the WODI toolkit
(Bosma & de Vos, 2011)

Lindholm & Nenonen (2006) have provided a classification of tools, techniques and
methodologies that can be used for real estate performance measurement. They
differentiate between measurement systems and tactical tools.

Overview of measurement systems:
- BSC (Only one found in use in practice in study)
- Performance pyramid
- Performance measurement system for service industries
- Skandia Business Navigator
- Intangible assets monitor

Overview of tactical tools
- Internal Benchmarking (most popular, almost all in study use it)
- Post Occupancy Evaluation (POE) (Also commonly used)
- Building in Use (BUI)
- Performance Map
- Microscan
- Apgar Real estate score

Figure 3.15: List of measurement systems & Tactical tools (Lindholm & Nenonen, 2006,
p.112)
3.3 CONCLUSIONS

There are many different theories on what proper performance is, and the field is rife with differing and sometimes conflicting definitions. The main findings on general performance measurement theory will be presented below.

**General performance measurement Theory**

There is not a clear cut definition of the performance of an organization. In this research, the main point of Tangen (2005) As much as possible, the definition of Lindholm (2006 is followed, which states that performance is “a measurement object’s ability to achieve desired results” (Lindholm, 2006). When the idea of performance is considered, an important question to ask is: ‘performance for whom?’ Here there are two main theories. The first is the idea that the ultimate goal is wealth creation for the shareholders and the second is that value should be maximized for all stakeholders within the company. There are many different aspects of performance. Srimai et al. (2011) describe this as the different ‘dimensions’ of performance. Many of these have been developed over the years, including (but not limited to) Quality, Time, Flexibility, Cost, Productivity, Efficiency, Effectiveness, Innovation, Customer value, Stakeholder value and many more.

The amount of indicators that can possibly be used to measure performance is not an exhaustive list; anything that can be measured could potentially serve as an indicator. It is often argued that a proper measurement system should include both financial and non-financial indicators and both lagging and leading indicators that consider both internal and external performance and both long term and short term gains (Buytendijk et al., 2000; Srimai et al., 2011; Kaplan & Norton, 1996, Neely, 2005). When implementing KPI’s, companies should resist favouring known data, should define them in a language that the relevant parties understand and finally should limit the set of metrics to 10 or less (Jordan et al, 2009).

**Real Estate Performance Measurement**

Lindholm & Nenonen (2006, p. 117–118), comment that “the common understanding between the core business and corporate real estate still lacks both the quantity of relevant data and the common understanding of how to prove the value-adding elements” Measuring this added value is a complicated ordeal however. Den Heijer (2011) Identified 12 distinct ways in which real estate might possibly add value to the organization.

When it comes specifically to real estate, there are many different indicators that can give an indication of an object’s performance. A number of researchers have compiled lists of the most relevant indicators for real estate performance based on literature studies, interviews and case studies. They state that there is no one indicator of ‘good’ performance by real estate. Rather they advocate that the firm should develop a performance measurement system of valid and reliable measures that match their objectives and are reasonable considering available data and resources (Lindholm & Levainen, 2006)

Overall, there seem to be a consensus on the fact that organizations should choose a limited set of personalized indicators that are based on their own strategy and context (Lindholm, 2006; Knapp et al., 2009; Neely, 2005)
4. EXPLORATIVE INTERVIEWS

Because there is still relatively little known about the area that is studied, besides the theoretical exploration, a number of practitioners were interviewed. These were done as explorative interviews with mostly open questions. The topics included the KPI's that are used in practice, the type of companies that can be studied, the benchmarking process and the possible hurdles encountered. In total 8 experts were interviewed. In this chapter, the followed methodology for these interviews is presented, followed by the results and finally the conclusions that can be drawn from this.

Interviewees

The main goal of this interview series was to gather information with practical experience in the field in order to counterbalance the theoretical perspective. Interviewees were chosen in order to have a variety of different perspectives on the topic of real estate performance measurement. In order to achieve this, people with different types of positions were interviewed. Four real estate consultants were interviewed. These had provided services to multiple different companies and all had done work on the performance measurement systems for different companies. Three currently practicing real estate managers were interviewed. Lastly two executives with between them more than 60 years of experience in the field were interviewed. These can reasonably be called experts in this area.

<table>
<thead>
<tr>
<th>Company</th>
<th>Interviewee</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twijnstra Gudde</td>
<td>Klaas Bosma</td>
<td>Corporate Real Estate advisor</td>
</tr>
<tr>
<td>AT Osborne</td>
<td>Stef Weekers</td>
<td>Consultant Corporate Real Estate</td>
</tr>
<tr>
<td>Stork Technical Services</td>
<td>Carel Fritsche</td>
<td>Manager Corporate Real Estate</td>
</tr>
<tr>
<td>Johnson Controls</td>
<td>Louis Jansen</td>
<td>Real Estate Account Director</td>
</tr>
<tr>
<td>Johnson Controls</td>
<td>John Suyker</td>
<td>Corporate Real Estate Executive</td>
</tr>
<tr>
<td>Johnson Controls</td>
<td>Gemma van Kessel</td>
<td>Real Estate Consultant</td>
</tr>
<tr>
<td>Johnson Controls</td>
<td>Alex Koenig</td>
<td>Real Estate Director</td>
</tr>
<tr>
<td>Johnson Controls</td>
<td>Vincent verheijdt</td>
<td>Account Manager Real Estate</td>
</tr>
</tbody>
</table>

As can be seen from the above table these interviewees came from four different companies namely Twijnstra Gudde, AT Osborne, Stork and Johnson Controls.

4.1 RESULTS

The results from the explorative interviews can be divided into three main parts, namely information on the selection of the KPI's, information on the process of collection an alaysis of the data and finally on the different ways this information can be used. The results concern a multitude of conclusions and lessons on the benchmarking process that interviewees have drawn from their experiences in their management and consulting practices.

Firstly, when it comes to the specification of the KPI's that are used, a number of important considerations were shared by the interviewees. Multiple interviewees confirmed the prescription often found in the theoretical exploration, that the KPI's should be derived from the mission, drivers and strategies of the organization and secondly that the number of KPI's that are used should be limited. An overabundance of indicators might deviate managers from their main goals and send them astray
instead of helping them. Another important consideration at this stage is to only start benchmarking if you have a clear view of the use the data will be put to. In other words it should be done with the end in mind. One important account was shared of a case in which an entire benchmark was setup, but when the results starting coming in they could not really do anything with that data. If you do start a benchmark, it should be reasonable considering the available time and resources. Benchmarking can come with considerable costs attached to it and careful deliberation is needed ahead of time of whether these costs will be worth the benefit gained from the benchmark.

When it comes to the benchmarking process itself, a number of important possible hurdles and considerations could be identified. By far the most important hurdle on the minds of the real estate managers was how to solve the problem that differing definitions are used throughout the portfolio. This could be caused by misunderstanding or, for example, by international differences. Another important factor is having the right IT infrastructure to support the benchmarking process. Because benchmarking is an iterative process, it is also important to establish a clear process for regularly updating the information. 6 week update intervals were seen as typically appropriate for real estate according to one interviewee. If process is set up, it is also important to raise enough support within the organization and from higher up. Benchmarking is a collaborative process between many parties and there should be enough support. Lastly another important factor according to multiple interviewees is that it is important to set up a process to ensure the validity of the data. The results of a benchmark might be challenged by managers or departments who score low and they might question the validity of the data.

Finally there can be a number of uses identified to which the Benchmark can be put. Naturally, possible opportunities can be distinguished for improving the efficiency of the portfolio. Also, a clearer picture might form about the performance of the portfolio. This performance might also be communicated upward more effectively because of the new benchmark. If certain outliers might be spotted, these can serve as the basis for further analysis. Finally one account was shared about a system in which best and worst performer would automatically be matched for a meeting to exchange solutions and thus try to improve the performance of the worst performer.
4.2 CONCLUSIONS
As a result of these explorative interviews, conclusions could be drawn about the structure of the benchmarking process. This culminated in the construction of a theoretical model, a questionnaire and a set of hypotheses that served as the basis for the next set of semi-structured interviews. The next three sections will describe these conclusions.

4.2.1 Theoretical model
On the basis of the preceding analysis, the benchmarking process has been divided into 5 main parts. While benchmarking can be done as a one-time event, truly meaningful results can only be achieved if it is implemented as an iterative process. In figure 5.1 this iterative process is depicted, divided into its five subsequent parts. Firstly a department has to define what the desired output and uses are that they want to get out of this process and select the KPI’s that would best support these aims. Once a specific set of indicators has been selected, the data for it has to be collected for the whole portfolio and this data has to be validated. Once all the data is collected, it then has to be dissected and analyzed in order to produce meaningful results and conclusion. The resulting management information then serves as the output of this whole process and can be used in various ways by the department in their real estate management activities. Finally, this whole process can then be reflected upon. This feedback can then serve to improve the benchmarking process for the next iteration.

Problems in the data collection might for example be identified and corrected or misunderstood questions by local managers can help identify where more knowledge on benchmarking is needed in the organization. This is also a good time to reflect on which KPI’s are used and to adjust or expand the selection if it is deemed appropriate to do so.

Input and output
We are interested not only in this process itself, but in the relationship with the organization in which it is performed. In order to analyze this, the model can be structured along the lines of the input/output model as described by Tangen (2005) and Shaw (2009). There are a certain number of variables that serve as input to this benchmarking process. As its output every iteration of the benchmarking process generates a certain amount of management information which can then be used in various ways by the corporate real estate management department. For the purposes of this research, we are not so much interested in all possible inputs to this process, but only in the variables that might influence the structure of the benchmarking process and the selection of KPI’s. The input output model is slightly altered here in order to reflect this fact. On the left, there are certain variables that exert influence on the benchmarking process and on the right of the model the benchmarking process produces management information which can be used in various ways. This is depicted in figure 5.2.
**Different levels of context**

The context in which this whole process takes place can be differentiated into separate layers. In order to more accurately analyze them, various influences and uses can be separated into these different context layers. Firstly, there is the corporate real estate department, which is doing the benchmarking. Some characteristics on which these departments might be analyzed are the size and characteristics of the real estate portfolio they manage, the size and position of the CREM departments, who they report to, what strategies they employ and finally what their main tasks are. This CREM department operates within a certain organization, which in this study, are all large multinational corporations. These corporations have a certain size and revenue and might have operations in one or more sectors. Another important variable might be the way the company is spread geographically around the world. This organization then again is located within a certain external context. Various economic and legal circumstances might influence its operations which in turn might influence the operations of the CREM department, which in turn might influence the way they benchmark. Lastly certain specific compelling events might play a role. The most significant which comes to mind of course is the financial crisis of 2008 of which many companies are still feeling the repercussions.

**Theoretical model**

All of the preceding layers are put together to construct the final theoretical model as can be seen in figure 5.3. Various influences and uses are filled in that are theorized to be some of the most significant on the basis of the interviews and literature survey. On the left hand side, the influences are depicted separated along the three different layers of context. These influence the benchmarking process depicted in the middle. And finally the resulting information is used for upward communication, communicated to other parties in the organization, or used in various ways by the corporate real estate management department itself. This model provides the structure that forms the basis for the subsequent questionnaire that will be used in the interviews with real estate managers in the next section.

![Figure 4.3: The full theoretical framework](image)
4.2.2 Questionnaire

The preceding hypothesis and theoretical model will be tested in the empirical part of this study. In order to do this, a questionnaire was constructed on the basis of the theoretical model, the explorative interviews and the theoretical exploration. This questionnaire can be found in Appendix A. All the questions and variables that could potentially be obtained as quantifiable data are asked as closed questions. The more qualitative data or data were room for interpretation and possible expansion by the interviewee is desirable, is gathered trough open questions. In total the questionnaire consists of 21 questions of which 6 are closed questions. An additional 4 questions were specified with a lower priority but which could be asked in case of additional time in the interview.

4.2.3 Hypotheses

On the basis of the theoretical exploration and the explorative interviews hypotheses were formulated that could subsequently be researched in the semi-structured interviews. The main hypothesis is that the type of benchmarks that are used will be influenced by a number of context variables. Innovative companies like google for example are suspected to have a different benchmarking focus than companies geared more towards efficiency. The main hypotheses are:

- The strategic focus of an organization will influence what type of benchmarks they have. More innovative companies will have a greater focus on qualitative KPI’s
- The economic crisis will have an effect in that companies will be more focused on cost reduction and efficiency since the crisis
- The type of sector an organization operates will influence the choice of KPI and the hurdles that are encountered
- Benchmarks that are used will vary along the type of tasks and strategies that the CREM department employs.
III – SEMI-STRUCTURED INTERVIEW RESULTS
This section will present the results of the second series of interviews grouped per topic. The first set of explorative interviews along with the results from theory resulted in a theoretical model that describes the possible variables influencing the benchmarking process and the structure of this process. Aside from this a number of hypotheses were formulated. The main hypothesis is that the KPI’s that are the most important for the CREM department will vary along a number of variables. Some of the main variables that are hypothesized to be of influence are the type of CREM department and their strategies, the sector they work in, who they report to and outside economic circumstances. In order to test these hypotheses, a total of 14 semi-structured interviews were conducted with 12 corporate real estate managers and 2 facility managers. This was done in a semi structured form. There was a mixed set of open and closed questions with room for deviations if interesting information came up.

The results are grouped into three sections. First there is information on the context in which real estate benchmarking takes place. This context is further divided into the organizations (Ch.6.1), characteristics of the real estate portfolios (Ch. 6.2) and the CREM departments (Ch.6.3). Secondly there is information on the benchmarking practice itself and hurdles encountered. Specifically what will be discussed are the benchmarks used (Ch. 7.1), the benchmarks reported upward (Ch.7.2), the intended use for these benchmarks (Ch.7.3), the perceived importance of benchmarking itself (Ch.7.4), the hurdles encountered (Ch. 7.5) and finally the relationships between the context and the benchmarking practices are explored (Ch. 7.6).
5. RESEARCH DESIGN

This section will present the methodology for the second round of interviews. The following sections will present the way the cases were selected, a description of the interviewees, the way the interviews were conducted and subsequently analyzed and finally the results of the interview. These results will be presented along the lines of the theoretical model. This starts with an analysis of the context in which the benchmarking is conducted, then following that the KPI's and the process and finally possible relationships that are found.

5.1 CASE SELECTION

Cases were selected along two main parameters for this series of interviews. The first is that only multinational corporations were selected that are large enough to have their own dedicated corporate real estate departments. The second is that a set of companies is desired that is varied along multiple variables. This is done in order to study the difference in benchmarking practices along these variables. The main variables along which variety was sought were the sector in which the core business of the firm operates, its strategic focus and the type of CRE department.

The number of firms that fit these constraints is limited in the Netherlands. Aside from this, access to high level real estate managers is also a limiting factor to some extent. Because of this the case selection unavoidably also contains an element of convenience sampling to a lesser extent. The desired list of companies to be interviewed on the basis of these variables was constructed during two brainstorming sessions, one with a set of practitioners and one with a set of academics.

5.2 DESCRIPTION OF THE INTERVIEWEES

14 interviews were conducted with a total of 16 people. 12 of these interviews formed the main set of interviews with corporate real estate managers. Two of these interviews were conducted with two people present. In both these cases the second interviewee was someone who specifically handled performance measurement for the CREM department. Aside from this, 2 interviews were conducted with facility managers. This was done in order to gain an overview of the entire chain of performance measurement.

<table>
<thead>
<tr>
<th>Company</th>
<th>Interviewee(s)</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akzo-Nobel</td>
<td>Hans Cijs</td>
<td>Real Estate Manager</td>
</tr>
<tr>
<td>BP</td>
<td>Tom van Duijn</td>
<td>European program manager</td>
</tr>
<tr>
<td>Canon</td>
<td>Tamar Bos</td>
<td>Real Estate Director</td>
</tr>
<tr>
<td>Ericsson</td>
<td>Jan vd Broek</td>
<td>Real Estate Manager</td>
</tr>
<tr>
<td>Ericsson</td>
<td>Willem Koning</td>
<td>Facility Manager</td>
</tr>
<tr>
<td>Hewlett-Packard</td>
<td>Marjolein Schotte</td>
<td>Global real estate country delivery manager</td>
</tr>
<tr>
<td>IBM</td>
<td>Paul Wittebrood</td>
<td>Real Estate Manager</td>
</tr>
<tr>
<td>JCI</td>
<td>Louis Jansen</td>
<td>Real Estate Director</td>
</tr>
<tr>
<td>KPN</td>
<td>Victor Huijboom</td>
<td>Real Estate Manager</td>
</tr>
<tr>
<td>Microsoft</td>
<td>Ed Folge</td>
<td>Real Estate Manager (Regional integration manager)</td>
</tr>
<tr>
<td>MSD</td>
<td>Jos Barnhoorn</td>
<td>Facility Manager</td>
</tr>
<tr>
<td>OCE</td>
<td>Jacques Brulot</td>
<td>Real Estate Director</td>
</tr>
<tr>
<td>Philips</td>
<td>Ronald Blanken</td>
<td>Real Estate Director</td>
</tr>
<tr>
<td>Wolters Kluwer</td>
<td>R. vd Burgt</td>
<td>Ac Manager Cons lifestyle / Global program manager</td>
</tr>
<tr>
<td></td>
<td>Martijn Westerink</td>
<td>Global Vice President Corporate Real Estate</td>
</tr>
</tbody>
</table>

Table 5.1: List of interviewees
5.3 PROCEDURE

All interviews were conducted face to face with the interviewees and all of them took place at the working location of the interviewee. Interviews were generally scheduled to last 45 minutes to an hour but some went on for up to an hour and a half.

The interviews were conducted in semi-structured form. A questionnaire was used that was constructed on the basis of the main research questions, the theoretical model, hypotheses and the theory studied in the previous section. This questionnaire contained both open and closed questions. This form was deemed to be the most appropriate method for this research because allowed some quantitative data to be obtained while at the same time leaving room for the new theories and data to emerge if possible. Also if new interesting theories came up, it allowed for the possibility to ask follow up question and to venture deeper into these topics.

Interviewees were approached by email with the request for an interview. There was an overwhelmingly positive response to these requests. Over 90% of the managers that were approached agreed to do the interviews. So the set of companies that has been studied is more or less the desired set constructed in the brainstorming sessions.

A couple of days before the interview would take place, the questionnaire would be sent to the interviewees to give them the opportunity to prepare for the interview and get any necessary quantitative data ready ahead of time. Interviews were audio-recorded with the interviewees consent. One interviewee objected to having the conversation recorded and thus here extensive notes were taken during the interview. These notes were then immediately written into a report when the interview was concluded in order to record the maximum amount of detail and information.

5.4 ANALYSIS

All interviews were fully transcribed on the basis of the audio-recordings. When the set of transcriptions was complete they were analyzed using Atlas.TI.

In Atlas TI, independent quotes and interesting data in the interviews was labeled according to their content. From these labels hierarchies were created. Subsequently all this data was printed grouped per Atlas.TI-label. In this way all the data that had been gathered about a certain subject was grouped together. In this way it could be very efficiently analyzed and different answers from the interviewees could be easily compared to one another.

The results of the interview questions that could be quantified were all put into excel. Subsequent analysis of these results revealed a couple of erroneous answers for which the question had obviously been misinterpreted by the interviewee. These were removed and the resulting database of information was then analyzed and summarized into tables for the report.
6. SAMPLE DESCRIPTION

The following will describe the context in which the real estate benchmarking takes place along three levels of analysis, namely the Organization, the CREM department and the overall environment in which the firm finds itself.

6.1 THE ORGANIZATIONS

**General data**

<table>
<thead>
<tr>
<th>Company</th>
<th>Revenue (2012) (Millions)</th>
<th># of countries located in</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akzo-Nobel</td>
<td>15.390</td>
<td>80+</td>
<td>50.600</td>
</tr>
<tr>
<td>BP</td>
<td>370.870</td>
<td>80+</td>
<td>85.700</td>
</tr>
<tr>
<td>Canon</td>
<td>29.635</td>
<td>50+</td>
<td>196.968</td>
</tr>
<tr>
<td>Ericsson</td>
<td>26.478</td>
<td>180+</td>
<td>110.000</td>
</tr>
<tr>
<td>Hewlet Packard</td>
<td>89.201</td>
<td>170+</td>
<td>331.800</td>
</tr>
<tr>
<td>IBM</td>
<td>77.510</td>
<td>170+</td>
<td>434.246</td>
</tr>
<tr>
<td>JCI</td>
<td>31.083</td>
<td>150+</td>
<td>170.000</td>
</tr>
<tr>
<td>KPN</td>
<td>12.409</td>
<td>3+</td>
<td>27.165</td>
</tr>
<tr>
<td>Microsoft</td>
<td>54.619</td>
<td>100+</td>
<td>94.000</td>
</tr>
<tr>
<td>OCE</td>
<td>2.648</td>
<td>30+</td>
<td>21.635</td>
</tr>
<tr>
<td>Philips</td>
<td>24.788</td>
<td>100+</td>
<td>118.087</td>
</tr>
<tr>
<td>Wolters Kluwer</td>
<td>3.603</td>
<td>25+</td>
<td>19.112</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>78.577</strong></td>
<td><strong>109</strong></td>
<td><strong>166.720</strong></td>
</tr>
</tbody>
</table>

Table 6.1: Company data (Information obtained from 2012 annual reports and websites)

To give a different indication of the size of the companies that are interviewed, their annual revenue, employees and the number of countries they are located in are depicted in table 7.1. The 12 companies that are interviewed have an average revenue of 78.577 million euros with a range of 2,648 – 370,870 million euros. Nine of the twelve companies had a revenue between 12 and 90 billion euros. Two companies had a significantly smaller yearly revenue of respectively 2.6 and 3.6 billion euros and there was one larger exception with a yearly revenue of about 371 billion euros. In other words the companies consisted of two mid-cap companies, 9 large-cap companies and one mega-cap.

So while all the companies are large corporations, the aforementioned analysis shows that there is still a very large size difference between the companies. The two mid-cap companies are more than a 100 times as small (if judged by revenue) than the largest company in the list.

**Sectors**

The following provides an overview of the sector in which the companies that were interviewed reside. The companies are classified according to the standaard bedrijfsindeling 2008 (SBI 2008). This is a classification designed by the Dutch central bureau of statistics and divides all economic activity up into 21 categories. Each of these is then further divided into multiple categories.
Because almost all companies that were interviewed are large corporations that have expanded their operating activities into many different sectors over time, or are vertically integrated within a certain market, this classification might be difficult. In these cases the sector that most closely relates to their original core business is chosen.

Below a list is presented of all the companies that were interviewed in the second series of interviews ordered according to their sectors. As can be seen below more than half the companies are from the industrial sector. And four are from the information and communication sector. However both these sectors are very broad and contain a wide variety of different subsectors. If the list is subdivided into subsector it can be seen that a wide variety of different types of companies are included.

<table>
<thead>
<tr>
<th>SBI Code</th>
<th>Sector</th>
<th>Subcategory</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.06</td>
<td>Mining</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>C.20</td>
<td>Industrial</td>
<td>Chemical</td>
</tr>
<tr>
<td>C.26</td>
<td>Industrial</td>
<td>Electronics</td>
</tr>
<tr>
<td>C.26</td>
<td>Industrial</td>
<td>Electronics: Optics</td>
</tr>
<tr>
<td>C.26</td>
<td>Industrial</td>
<td>Electronics: Computer</td>
</tr>
<tr>
<td>C.26</td>
<td>Industrial</td>
<td>Electronics: Computer</td>
</tr>
<tr>
<td>C.26</td>
<td>Industrial</td>
<td>Communication Equipment</td>
</tr>
<tr>
<td>C.28</td>
<td>Industrial</td>
<td>Automotive &amp; Other</td>
</tr>
<tr>
<td>J.58</td>
<td>Information &amp; Communication</td>
<td>Publishing</td>
</tr>
<tr>
<td>J.61</td>
<td>Information &amp; Communication</td>
<td>Telecommunication</td>
</tr>
<tr>
<td>J.62</td>
<td>Information &amp; Communication</td>
<td>Services ICT</td>
</tr>
<tr>
<td>J.63</td>
<td>Information &amp; Communication</td>
<td>Other services</td>
</tr>
</tbody>
</table>

Table 6.2: Sectors that partaking companies are a part of.

Events
At the time of the interview the economic recession is still ongoing and as a result all organizations that are interviewed are under pressure to cut costs and scale back. However, due to the global nature of many of these companies, it is possible that they face a shrinking market at some areas of their portfolio while having other objects located in areas where there is currently an economic expansion. One interviewee for example stated that his primary focus here in Europe is cutting costs but in Asia he is predominantly focused on supporting the expanding business there. Another important influence seems to be the fact that many of the organizations were in the process of a merger or acquisition or had recently undergone one. This often had a large influence on the activities of the real estate departments and could temporarily shift their focus.
6.2 PORTFOLIOS MANAGED BY INTERVIEWEES

In the previous section the context in which the CREM departments operate has been discussed. In order to provide further, more specific context we now turn to the characteristics of the CREM department itself. These departments are analyzed according to a number of characteristics. Firstly they are analyzed on the characteristics of the real estate portfolio for which the interviewee is responsible. Secondly on the position of the CREM department within the overall organization and lastly on the tasks that the department performs and the strategies they employ. In this way an overview is given of the type of CREM departments that were interviewed, the results can be better placed into context and relationships can later possibly uncovered between the type of CREM department and their benchmarking activities.

The following data concerns metrics on the portfolio for which the interviewee bears responsibility, which is not always the whole real estate portfolio of the organization. The interviewees were asked to answer the questions with respect to the part of the portfolio that they bear responsibility for. This is done in order to ensure the availability and the accuracy of the data that is obtained. It also provides a picture of different levels within the corporate real estate management department.

Area of responsibility

The interviewees in the study have a wide variety of different positions in the Corporate Real Estate Department. This ranged from local real estate managers responsible solely for a number of properties at a local level to real estate directors responsible for a very large worldwide portfolio. Since the focus of this study is benchmarking on portfolio level, most real estate managers chosen to be interviewed are responsible for a significantly large portfolio. Beside the size of the portfolio there was a difference in the area for which they are responsible.

Out of twelve interviewees, five were responsible solely for the Netherlands or Benelux area. One managed the whole of Europe. Then there are two who have the combination Europe, Middle East & Africa (EMEA), one is responsible for both Europe and Asia. The final three interviewees are responsible for the whole, worldwide real estate portfolio. Besides being able to put the other results into context, this is also an important variable to take into account because managers operating at a national level might not encounter some difficulties during the benchmarking process that might be encountered due to international or cultural differences when you benchmark on a more global scale.
**Portfolio size**

In table 6.3 a number of metrics are presented describing the real estate portfolios for which the interviewees are responsible. The first thing that is noticeable is again the large range of the data. The number of objects range from 4 to 1300, the number of countries from 1 to 80 and the number of square meters from 20.000 to 6.000.000. This again is to be expected due to the difference in position of the interviewees and the difference in geographical responsibilities. There is one very large outlier, which is the only large cap company for which the interviewee also has a worldwide responsibility. This real estate director manages a portfolio of 6.000.000 square meters while the second largest portfolio managed is only 533.000 square meters.

<table>
<thead>
<tr>
<th></th>
<th>m2 (n = 10)</th>
<th>Objects (n = 11)</th>
<th>Countries (n = 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average</strong></td>
<td>796.873</td>
<td>288</td>
<td>31</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>20.000 - 6.000.000</td>
<td>4 - 1300</td>
<td>1 - 80</td>
</tr>
</tbody>
</table>

Table 6.3: portfolio data.

**Composition of Real Estate Portfolios**

Graphs 6.1 and 6.2 depict the composition of the Real Estate portfolio for which the interviewees were responsible. In graph 6.1 the compositions of all the different companies are averaged. As can be seen, about two thirds of the average portfolio consists of office space. 23% is production, 9% logistics and finally 2% devoted to R&D Centers.

If we look at the individual compositions, as depicted in graph 7.2 we see that the compositions of the different portfolios vary widely. They are pretty evenly distributed, with some companies have a larger share of office space while others a larger share of production space. Overall we can see that 6 companies have predominantly office space (>70% office space) in their portfolio, 2 companies predominantly space devoted to production (>70% production space) and 3 companies have an even mix.
6.3 SIZE AND POSITION OF THE CREM DEPARTMENTS

The analysis of the characteristics of the CREM departments themselves is modeled into a number of variables. First the sizes of the departments are analyzed. The second variable is the position of the CREM department within the organization. In order to analyze this, a model was used that was first built by O’Mara et al (2002). In this study they specified a number of variables that could be used to model the position and power of a real estate department within the overall organization. For the sake of simplicity and due to time constraints in the interviews, only two of these variables are used in this study. The first one is to which party (finance, operations, etc.) the department ultimately reports to. The second is how many levels there are between the top CRE official and the board. Besides this the mandate that the departments operate with and how they can exert their influence within the organization is analyzed.

**Size**
The CREM departments in the study consist on average of 4 people with a range of 1-6 (n = 11). So they consist of relatively small groups of skilled managers. They are often supported by a decentralized network of local real estate managers, property managers and facility managers. This network can often consist of dozens or even hundreds of people depending on the scale of the company and the area of responsibility. They also sometimes rely heavily on outsourcing to aid them in the management of the portfolio. In one of the companies, the interviewee was the only person in the CREM department and acted as real estate director for the entire worldwide portfolio. The rest consisted of three or more people.

**Reports to**
When looking at who the real estate departments reported to, it was found that almost all the real estate departments report to Finance. This was either directly to the CFO or indirectly. Because some of the organizations are structured as matrix organizations they sometimes had more than one reporting line. Two of the companies also reported to operations through this other reporting line in addition to reporting to finance.

One organization purely reported to operations. However this was something that had only recently gone into effect and before it they reported to finance. When asked about this change, the respondent answered that the change was made because they found that a reporting line to finance cause the real estate management activities to be too much centered merely on managing and cutting cost. Because they wanted to aim for a more integral management of their real estate, the CREM department had now been grouped under operations.

**Levels between top CRE official and the executive board**
In general the CREM departments are very close to the board. Interviewees were asked how many levels there are in their organization between the highest ranking CREM official and the board. 6 out of 12 CREM departments report directly to the board and 4 had only 1 level in between them and the board. The other two were further away and are three or more levels of reporting away from the board. However for one of these companies this is only a recent development because of restructuring. Before this change they reported directly to the board. So overall the CREM departments selected for this study are high up in the organization.
Mandate
In the interviews, each interviewee was asked, as an open question, to describe the mandate that was in place for the corporate real estate department and the specific approval procedures that are followed for major real estate decisions. The types of approval procedures that are in place are very much varied between organizations. Every company has basically its own unique structure of approval procedures. This makes it hard to form generalizations about the approval procedures that are in place for the interviewed CRE departments. However, after careful analysis of the results some patterns could be distinguished.

The first observation is that the specific mandate or approval procedure often varies according to the type of decision that has to be made. If an acquisition of a new building is made, the procedure is often very different than for example when a rental contract is renewed. Another issue is that of how much awareness the CRE department has of the real estate decisions that are made throughout the entire organization and how much control they have over those decisions. A number of different versions of this can be distinguished, ranging on the one hand from a strictly advisory role on a voluntary basis, to on the other end of the spectrum a formal mandate for all real estate decisions.

Only one case was encountered in which the department had a strictly advisory role. Their advice and help with real estate projects could be acquired by the business units in question on a voluntary basis. This was not required but acquiring this help might substantially improve the chances that the project in question would be approved by the executive board. What was more common was the situation that the real estate department did not have a formal mandate but a more indirect one. Often, without it being formally specified, it would be known within the organization that the board would not sign off on big real estate projects if the real estate department had not been consulted and had given their approval for the project. Another version of this that was encountered was that the corporate real estate department could not outright say no to a project but could only give their advice and suggestions but consulting them was mandatory. Finally, there are a number of cases in where it is formally specified as a mandate that all real estate decisions (above a certain level) need approval from the corporate real estate department.

Finally, the procedure often differs according to the amount of money involved in the transaction or for example according to the length of the lease term. The companies in which a more formalized set of approval procedures are in place often have a complex set of guidelines that determine how the approval procedure takes place. Usually the managers in question can approve projects below a certain (financial) level. Above that, as the height of the transaction amount increases, the number of signatures that are required increases and people higher up in the organization have to give their approval. The biggest type of real estate transactions invariably required the approval of the board for all interviewed organizations.
6.4 TASKS AND STRATEGIES OF CREM DEPARTMENTS

Task Priorities
The interviewees were given a list with 10 options and were asked to specify the importance of these tasks for the CREM group on a scale of 1 to 5 with 5 being most important. The following table shows the list of options, the currently processed results and the average. This list was based on a slightly modified model of Suyker (2003).

<table>
<thead>
<tr>
<th>Task priority</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio planning, Strategy &amp; Budget review</td>
<td>4.5</td>
</tr>
<tr>
<td>Occupancy cost monitoring &amp; directions on savings</td>
<td>4.1</td>
</tr>
<tr>
<td>Decision support and financial investment review</td>
<td>3.9</td>
</tr>
<tr>
<td>RE-negotiations on contract terms &amp; conditions</td>
<td>3.5</td>
</tr>
<tr>
<td>Management reporting on CRE-initiatives &amp; results</td>
<td>3.0</td>
</tr>
<tr>
<td>Project Management &amp; control on budget &amp; standards</td>
<td>2.9</td>
</tr>
<tr>
<td>Space planning policy and workplace design</td>
<td>2.9</td>
</tr>
<tr>
<td>RE-administration and database management</td>
<td>2.8</td>
</tr>
<tr>
<td>Facilitate services &amp; contracting</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Table 6.4: Importance of tasks for CREM groups. 1(low) to 5(high). (n = 9)

Graph 6.3: Average of importance of tasks for CREM groups. 1(low) to 5(high). (n = 9)

Graph 6.3 again shows the average importance of the tasks for the CREM groups. This result shows that the answers are pretty evenly dispersed among the different tasks. However, this average result hides the fact that the CREM groups that were interviewed were very diverse in their task priorities as can be seen in the table with the individual results.

Some CREM had mainly an advisory role, they would give their advice to the RE plans of the different business units and would give or withhold their approval for the project in order to facilitate the board in making an adequate decision. Others had a strong focus on project management. Others again had their primary tasks in portfolio management and strategy. There were also groups that performed wide variety of tasks.
Strategies
Another important aspect of the way CRE departments manage their real estate is which specific strategies they employ and which they consider most important. This might influence the benchmarking process and the choice of benchmarks used. Interviewees were given a list of possible strategies to choose from and were asked to indicate the four strategies that they considered to be most important in their management activities. This list is also based on a model of Suyker (2003). Graph 6.5 shows a count of the number times the different strategies were indicated as being important.

The first, most noticeable result is that all of the 12 interviewees mentioned ‘minimizing occupancy cost’ as one of the four most important strategies they employ. For some of the departments this has always been the case while for others this is more of a result of the current economic crisis or other outside influences. Behind this, ‘supporting production, operations and service delivery’ and ‘maximizing space use and financial flexibility’ are also mentioned in a majority of cases as being one of the most important strategies.

Another noticeable fact is that quite a few companies have recently undergone a merger or acquisition or are in this process at the moment. A substantial amount of their time is spent on supporting the process of integrating the portfolios of the merged companies and dealing with the possible restructuring of their own department. As can be seen 5 out of 12 companies named supporting mergers and/or acquisitions as one of their most important strategies. As one interviewee mentioned, real estate can play a large role during such a merger. According to him, integrating the real estate portfolios can help the integration of the companies and the mindset that they have really been integrated. For the individual employees it might seem that nothing has changed if the buildings stay separate. This is opposed to them going through the same door every day with the people from the other company if the separate real estate portfolios are merged into one.

When it comes to supporting the brand or identity of the organization through its real estate, none of the interviewees mentioned this as among the most important strategies they employ. Although some interviewees did say that this was an important factor for some specific projects. One company for example had just completed an important project that served as a showcase of their new working strategies. On a portfolio level however the interviewees did not consider it to be one of their most important or dominant strategies.
7. BENCHMARKING

The previous parts have provided insight into the structure and characteristics of the organizations and CREM departments that have been interviewed. Now we turn to the actual benchmarks that they are collecting and using in their day to day management practice.

**Demarcation**

We define real estate portfolio benchmarks here as information about real estate objects collected for the entire portfolio or a subsection of the portfolio that serves to make comparisons between these objects or to other sets of real estate objects.

An example of what is considered to be a real estate portfolio benchmark under this definition is the KPI: 'occupancy cost / m²'. If this KPI is collected for the entire portfolio and then analyzed it might for example provide information on which objects are much more expensive per square meter than the rest of the portfolio and might serve as a call to action by the real estate department to correct this.

This demarcation can be understood even better if we briefly discuss what does not fall under this definition. Specifically two types information have to be differentiated from this, namely project variables and general real estate management information. Firstly there is information that is collected in order to inform decisions concerning real estate projects. For example the real estate department might be looking to build a new office building or to move to a new rental building. In order to make informed decisions in this project, all kinds of information is collected ahead of time. For example they might collect information on the rental price of the building, of other nearby buildings, of its energy efficiency, the public transport situation and many more variables. This is information concerning this specific object and thus is not a ‘portfolio’ benchmark. However, if any of these variables would be available for a large enough set of objects and would be used to compare them to one another then it would be considered a portfolio benchmark.

The second main type of information that has to be distinguished is general management information. These are variables that might be collected for the whole portfolio but this information does not serve to make comparisons between objects or sets of objects. A good example here is that departments often keep records of the notice date for all the rental properties they own. In this way, they know when the contracts of their objects come up for renewal and they can anticipate this ahead of time. Now while this is very useful information and is often collected for the entire portfolio, it is not used to compare objects to one another and make decisions based on that comparison. Therefore it also falls outside of the scope of this research.

**Interview style**

It was chosen to not use a predefined list of metrics to confront interviewees with. This was done for a number of reasons. Firstly, if you use a list of metrics, this list needs to be exhaustive. If asked if they are measuring anything that is not on the list, the danger is that they will be less likely to be able to think about it on the spot because their mind is preoccupied with the list items. Because the list needs to be exhaustive, it will contain a relatively large number of items and thus going over all of these items will take up a lot of time in the interview. Another reason to take this approach was that, in one of the pilot interviews it was found that the use of such a list forced the
interviewee to say no to a lot of questions in a row, which put him in a somewhat negative state of mind and put a negative slant on the rest of the interview. Because of these reasons, and because the time available for each interview was limited, a different approach was chosen. Instead, interviewees were simply asked the questions:

- “What are the most important portfolio benchmarks you currently measure and are using in your management activities?”
- “What are the most important portfolio benchmarks that are reported upward to upper management or to the executive board?”

Advantages and limitations of this approach
This line of questioning has a number of advantages, firstly, the open nature of the questions allows for more interesting information to come to the fore that might not have been acquired in a more rigid structure. Also, it gives some insight into which indicators they find more important or use more, since these are the ones that will come to mind first. However, the downside of course is that they might not remember everything they measure. So what they did mention obviously is being measured, but if they do not mention certain indicators, that does not definitively mean that these indicators are not being measured. The following results have to be seen in this light.

7.1 BENCHMARKS USED
When asked about which benchmarks they are using to inform their management practices, a remarkable similarity was found between the indicators that are used by each department.

Container categories, definition differences neglected.
In order to make reasonable comparisons, the benchmarks that are used have been grouped under certain container categories. The specific definitions companies use for these variables varies from company to company. This will be ignored however since it is not the main focus of this study. As an example, the occupancy cost for real estate can be measured in many different ways. As a simple initial way the occupancy cost might simply be measured through taking contract rents. As more effort is put into creating thorough benchmarks the real estate departments might move to collecting the information for more integral measurements of costs like total cost of occupancy or total cost of ownership for owned objects. For occupancy cost these differences will be discussed later. For now these will all be grouped simply under ‘occupancy cost’. The same goes for space which might be measured using different definitions but will all be grouped under ‘space’ or ‘m2’.

All parties benchmark
All parties that were interviewed are using or have used benchmarks to a certain extent although they ascribe different levels of importance to it.

<table>
<thead>
<tr>
<th>Named KPI's</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic indicators</strong></td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>12</td>
</tr>
<tr>
<td>m2</td>
<td>12</td>
</tr>
<tr>
<td>FTE</td>
<td>10</td>
</tr>
<tr>
<td>Workplaces</td>
<td>9</td>
</tr>
<tr>
<td><strong>Ratios</strong></td>
<td></td>
</tr>
<tr>
<td>Cost / m2</td>
<td>9</td>
</tr>
<tr>
<td>m2 / FTE</td>
<td>9</td>
</tr>
<tr>
<td>m2 / workst</td>
<td>9</td>
</tr>
<tr>
<td>Cost / FTE</td>
<td>7</td>
</tr>
<tr>
<td>FTE / workst</td>
<td>4</td>
</tr>
<tr>
<td>Cost / workst</td>
<td>3</td>
</tr>
<tr>
<td><strong>Other indicators</strong></td>
<td></td>
</tr>
<tr>
<td>Occupancy rate</td>
<td>4</td>
</tr>
<tr>
<td>Cost / revenue</td>
<td>3</td>
</tr>
<tr>
<td>Space utilization</td>
<td>2</td>
</tr>
<tr>
<td>Leased / Owned per country</td>
<td>1</td>
</tr>
<tr>
<td>Average contr lengh /country</td>
<td>1</td>
</tr>
<tr>
<td>Rolling / Fixed leases</td>
<td>1</td>
</tr>
<tr>
<td><strong>Qualitative</strong></td>
<td></td>
</tr>
<tr>
<td>Workplace satisfaction</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 7.1: Frequency of benchmarks
Count
In figure 8.1, an overview is given of how often each benchmark is used by the companies that were interviewed. This count is limited only to the second set of interviews, which consists of the 12 structured interviews with real estate managers. They have been grouped into different categories. The first is the group of basic indicators that were used the most. The second group is made up of the six possible ratios that you get when you divide these indicators against each other. Then there are other indicators that were found and finally the qualitative indicators.

Basic indicators
The basic real estate indicators that most companies are measuring can be grouped into four basic categories. These are information on the occupancy cost, the amount of m², the amount of FTE and the number of workplaces housed.

As can be expected every real estate department is using some sort of indicator in order to measure the occupancy cost of the portfolio and the amount of square meters it comprises of. The amount of FTE and the amount of workplaces that are housed in these objects are mentioned a slightly less number of times but still by a significant number of parties.

Other ratios and indicators
Outside of these basic metric there is a steep drop off and any other metrics were only occasionally used as a KPI. A differentiation for these metrics that were sporadically mentioned can be made in that some were metrics that were very specific to a particular company or type of company.

On the other hand some of the CREM department that seemed the most competent in benchmarking had begun to tackle some of the more sophisticated, complicated benchmarks on top of the basic metrics. These included RE cost / company revenue and one company even structurally measured employee workplace satisfaction as a portfolio wide benchmark. Because there were only a few of these companies in the interview set, these benchmarks were mentioned only a few times.

Qualitative indicators
None of the participants were currently using any qualitative indicators like energy efficiency or workplace satisfaction as a KPI. Although two interviewees expressed an interest in doing this for energy efficiency, this had not yet been implemented. One of the departments actually is measuring workplace satisfaction as a portfolio wide benchmark. However, due to the current financial situation the importance of this has shifted more to the background and it no longer serves as one of their main key performance indicators. Because this was a somewhat surprising result, interviewees were asked about the reason why they did not measure any qualitative indicators like workplace satisfaction and if they would be interested in that. Generally interviewees were skeptical about this proposition. They criticized the amount of resources required to collect such data and questioned the usability of the resulting information. Because these indicators are of a more soft nature, they also come with much more problems in ensuring the results are truly valid and meaningful. Interviewees generally were of the opinion that the effort expended to collect this information is not worth it considering their limited validity and the multitude of hurdles involved in benchmarking these qualitative indicators.
External Benchmarking
The participants are almost unanimously very skeptical about the current external benchmarking information to which they have access. In addition to the already big obstacles involved in internal benchmarking, with external benchmarking these problems are compounded. There is often ambiguity about the definitions that are used and how reliable these figures are. In addition there is a trust issue in that most interviewees had no reliable way to tell if they could trust that the figures their competitors were providing would be accurate. There is also a conflict between the desire to keep some figures confidential and the desire to have external benchmarks to measure their portfolio against.

7.2 BENCHMARKS REPORTED UPWARD
The data that is reported upward by real estate department is overwhelmingly financial or otherwise quantitative information. Almost all real estate departments report to finance and thus the information that they report upward is mostly financially orientated. Multiple departments indicate that the main indicator(s) they report upward is simply yearly savings in occupancy cost, space or both.

Multiple interviewees expressed the desire to report in a more integral way but stated that upper management simply was less interested in that kind of information and that the focus thus naturally drifted towards more financial reporting.

7.3 INTENDED USE OF BENCHMARKS
Once one or more benchmarks have been set up for the organization and the results of this process are coming in, the next question to be asked is how this data is being put to use by the real estate departments. The interviewees were simply asked, as an open question, what the main ways are in which they currently using the information obtained by benchmarking. From this a relatively consistent list of different uses emerged. Below the main ways in which the interviewees use the benchmarking information are discussed.

Portfolio optimization
Through a consistent benchmarking process information can be obtained that can be used to make optimization gains for the real estate portfolio. Optimally the data can be gathered in in such a homogeneous way that the different objects can adequately be compared to one another. From this all kinds of interesting information can emerge.

First off as one expert mentioned there will always be a certain performance spread in any KPI for the portfolio. If for example a cost KPI is plotted, the resulting graph from worst to best performers will form a certain curve. The larger the spread in performance, the steeper this curve will be. The objective will be to lower the slope of this curve by attempting to raise the performance of the lowest performing objects or business units. Of course there can be many strategies to achieve this. An interesting example was one case in which the managers for low performers in the benchmark would be automatically be matched for meetings with the high performers in order to facilitate an exchange of knowledge.

Also, certain outliers in the data might be identified. These might be significantly higher or lower than the norm or stand out in some other way. These might signal an
opportunity to increase the efficiency of the portfolio or might for example be caused by erroneous data, belong to certain special objects, offering the opportunity to raise the validity of the benchmark.

Because of the complex nature of the real estate management process the benchmarking data alone will usually not be sufficient by itself alone in order to make decisions. Rather information of this kind can serve as a trigger for further analysis by the responsible managers.

**Support projects / business cases**
Another use is that the benchmarks can be used in any future projects that are set up. They can be used to set certain standards or guidelines on the different variables on which the portfolio has already been benchmarked. The price and efficiency of buildings that will possibly be acquired can be judged more effectively and it will also be easier to judge whether a certain building will suffice for its intended use.

**Management reporting**
Besides using the information for management purposes it can also be used in order to convey information to other stakeholders within the organization. One very important benefit is that the information can be used in order to more effectively be able to report the performance of the RE portfolio upward to upper management. This can be done in order to generally report the performance of the portfolio upward, in order to prove that certain targets or standards have been met or to raise support for the department and possibly make upper management more aware of the significance and importance of proper real estate management. This is mentioned by many interviewees in the study as one of the most important uses.

One company, who had recently won an internal performance award even explicitly stated that benchmarking had been instrumental in winning this award because it made them more able to clearly convey the performance of the department to the board.

**Raising support among business units**
Often when a new real estate department is set up, they are initially met with skepticism by many of the business units. The information from the benchmarking process can be used in order to raise awareness of the real estate costs and possible efficiency gains and in doing so, raise support for the activities of the CREM department. Multiple interviewees provided anecdotes in which uncooperative business units had been won over in this way.

Besides this CRE managers can be met with resistance from business units that are lagging in performance and have to implement reforms. Being able to clearly and explicitly show the fact that they are underperforming compared to other departments or regions can go a long way in order to break this resistance according to multiple interviewees.

**Feedback, sharpen strategic priorities**
Besides informing others, the CRE department might also use the benchmarks in order to reflect on their own policies and strategic priorities. An ongoing benchmarking process can serve as a feedback mechanism through which the policies and strategies of the department can be continuously refined.
**Improve the benchmark itself**
Finally the information obtained through the benchmark can be used to improve the quality of the benchmark itself. Analysis of outliers or general information might lead to the conclusion that some information is being incorrectly filled in, that certain information is missing or wrong definitions are being used. By subsequently fixing these problems the consistency and thus the quality of the benchmark itself can be brought to a higher level. Only one company in the interview series had implemented a system to structurally do this and thus this seems to be somewhat of a more advanced activity. Although before this is done in a structural manner it is usually already being done on an ad-hoc basis.

**7.4 PERCEIVED IMPORTANCE OF BENCHMARKING**
Another interesting question to ask is how important the managers consider benchmarking itself to be in their management activities. Whether it is an instrumental part or whether they ascribe only relatively low importance to it. The answers for this question are found to be actually very diverse. The answers range from being totally uninterested in benchmarking to it forming an integral and instrumental part of the management cycle.

Only one of the interviewees is totally uninterested in benchmarking above the collection of basic data on costs on a portfolio level. They had performed a more elaborate onetime benchmark but had found insufficient use for the obtained information. According to the interviewee this is caused mostly by the fact that the heterogeneity of the portfolio and the mixing of different functions (office and industrial) at most locations. However another factor might be that the department in question has an advisory role and works mostly on project to project basis.

Then there are a number of organizations that do structurally use several benchmarks but indicate that this is just a side activity. They do appreciate having this information but it is not a crucial part of their management activities.

Another group indicates that currently benchmarking is a side activity but they express the desire to expand on this and make it more important. These companies are all still in the process of setting up and improving the benchmarking process. They have relatively little experience with it yet and the benchmarks are often still of low quality. For example information might be missing or they do not trust the validity of the data. They express the desire to improve this in the future, to invest time and resources in improving the quality of the benchmarks and to give it a more important role in the management process.

Then finally there are number of companies that indicate that benchmarking forms an instrumental tool for them. They use it not only to inform their decisions but for instance to communicate their performance to top management. One of the companies who had recently won an internal award for their department even indicated that having these well-structured benchmarks had been instrumental in this achievement because it allowed them to clearly show the gains that they had been able to produce for the business as a CREM department.
7.5 CHALLENGES DURING THE BM’ING PROCESS

Benchmarking is an activity wrought with more difficulties and challenges that one would suspect at first. During the second series of interviews, the interviewees were asked as an open question simply: ‘what are the main challenges or hurdles you have encountered while benchmarking your real estate portfolio?’ Almost unanimously they name discrepancies in the definitions of KPI’s used throughout an international portfolio as one of their biggest challenges to overcome. Other important challenges are the complete collection of the data in the first place, ensuring the validity of the information and how such a heterogeneous set of objects are to be compared. The challenges can roughly be divided into challenges faced during the setup of the benchmark, during the benchmarking process and finally during the analysis and use of the collected information. The most important challenges will be discussed in that order below.

7.5.1 During the selection of indicators

One of the things that was mentioned as being very important before starting the benchmarking process is to have a clear specified purpose for the data you are going to collect. Multiple interviewees mentioned that it can be a danger to start benchmarking just for the sake of doing benchmarking. One of the interviewees recounted an experience where they had set up a benchmark, analyzed the results but then later realized that they could not really do anything with the results. If they would have thought this through more thoroughly ahead of time they could have saved themselves the time and resourced invested in this benchmark.

In the literature study, one of the main dangers of benchmarking that was mentioned is the danger of collecting to much information which actually can cause managers to miss the forest for the trees. Without being specifically asked for it, three of the interviewees affirmed this idea and spontaneously mentioned collecting an overkill of information as one the dangers involved in benchmarking and thus one of the things to keep in mind when starting out. In order prevent this it is important to specify a limited number of KPI’s which have a clear purpose specified ahead of time.

7.5.2 During the collection of the data

Availability

The first main hurdle to overcome is to actually gather the data you need for the benchmarking process and to have the complete set of data available for the entire portfolio. While this seems straightforward, many companies actually still have difficulty to get this to a satisfactory level. There are a number of factors that complicate the gathering of the required data.

Firstly, for large corporations, the data is often spread across many different databases. Large corporations are often formed through mergers and acquisitions of several smaller firms and all these firms might have had their own way to gather and store real estate data or might not have done so at all. Collecting and integrating the data from all these different databases can often be a significant challenge as indicated by multiple interviewees. Because of these issues, it takes often a while for organizations to set up structured and ongoing processes for gathering this data.
The second issue is the measurability of the data. Some things can be relatively hard to measure correctly. For example, multiple interviewees mentioned difficulty in correctly measuring the amount of FTE’s per location. The amount of people that are registered at a certain location might not actually work there but in a different location. Some people switch between multiple locations and also there might be employees from different companies working in the office. The fact that many are implementing the new ways of working often further complicates this problem.

Then there is the fact that some data might be very costly to gather. This problem arises especially for more qualitative data. In fact, when asked why they didn’t use more qualitative real estate KPI’s, the most common answer was that, when considering the often limited validity of the data gathered and its use, the costs of gathering that type of data usually just was not worth it. However, even for some quantitative data, the time and resources required to reliably gather this data in an ongoing process might be significant and has to be considered beforehand.

Also, some BU might not want to supply some of the data, or might give the gathering of this data a low priority. When a real estate director requests certain data, he might get it in a reasonable time-frame. However, the individuals that were interviewed that had a lower ranking position within the real estate department expressed as a concern that it was sometimes difficult to get the other parties to cooperate. Their requests might be given a much lower priority and the data might not be returned to them at all.

Finally, while this is not often a concern with internal benchmarking, when externally benchmarking, there might be problems with the confidentiality of the data. Organizations might not be willing to share certain metrics and therefore this kind of information might be difficult to obtain.

**Validity**

The second main hurdle to overcome is to make sure that the data gathered in the benchmarking process is valid and accepted as such by all relevant parties. This is one of the main answers given by many of the interviewees to the question of what the main hurdles are they have to overcome in the benchmarking process. Even the ones who did not mention this as either a problem they face or an important factor, when pressed on it, agree that it is important. The reason they did not mention it is simply that they already have a well-structured process for dealing with this and have it under control.

There are a number of factors that can cause problems for the validity of the data that is gathered. First, there are simple human errors made in the gathering and processing of the data. These can either be simple mistakes or misunderstandings. As one of the interviewees in the expert interviews mentions, many recipients might misunderstand one or more of the questions send out in the survey and measure incorrectly. Many of these small mistakes can add up to large deviations in the benchmark.

Earlier the problem of the data being spread over multiple databases was discussed as giving problems with regards to making sure the data is complete. Another problem arises from this, namely that this can lead to extra errors. Inconsistencies between the different databases and ledgers or mistakes when transferring data might become a problem. One of the interviewees even mentioned that they do not have a dedicated
database program for the real estate database but instead use excel. This situation he describes as being 'very prone to errors'.

Because of the organizational complexity within the large corporations in which real estate departments operate they might sometimes run into resistance from other parties. Multiple interviewees mention that they sometimes run into resistance from other stakeholders when they present them with negative results of the benchmark. When for example a business unit is confronted with the fact that they underperform when it comes to real estate, they might question the validity of this result. Because of this it is very important to have a well-structured process in which the data is properly validated. One of the interviewees from the expert interviews even mentioned that 'If you don’t have a proper process set up for validating your results, the entire process may be for nothing'.

Two main solutions to this problem emerge from the answers given in the interview. The first is to have the relevant parties sign off on the data before you present them with the results. So an intermediate step is taken in which the raw data is send back to the business units with the simple request if they can check and/or sign off on the correctness of this data. Only when they have done this are they presented with the results and have thus already agreed to the correctness of the results. The other solution is to structure the process in such a way that the decentralized parties supply the data themselves. In this way, if they challenge the results, they are in fact challenging their own work.

Finally there are two other questions to be asked, that came up less often in the interviews but were still deemed to be possibly significant. The first is whether the data that is received can be trusted. While this might be a bigger issue when it comes to external benchmarking and less internally, two interviewees still mentioned this as a (minor) concern. And a final questions is whether the information gathered is still up to date. Data being outdated might also be an issue that can lower the validity of the benchmarking results.

**Comparability**

The challenge of having clearly defined and precise KPI’s for certain metrics that are consistent throughout the entire portfolio was perhaps the single greatest hurdle mentioned by all of the interviewees. Not one interviewee expressed complete confidence in this matter. Nearly all interviewees, both expert interviews and later interviews, mentioned this as one of them main hurdles they faced in the benchmarking process. This problem can also be grouped under the validity of the information (whether the tool actually measures what it claims to measure) but it is such an important issue in the benchmarking process that it will be discussed here separately.

Many different definitions might be used for a single KPI throughout the portfolio. While these differences might be small individually, collectively they can add up to large deviations in the final benchmark. The main KPI’s that were mentioned with regard to this problem are those concerning space and cost. When measuring the space for each objects, the first problem is that different definitions might be used. So for example the real estate manager might ask for the NFA (Net floor area) but the data he gets in return is the GFA (Gross floor area). When this is done correctly and GFA is used for example by all parties, there still can be differences in the definition of the GFA. This can be a problem nationally if a specific GFA definition is not specified in
advance by the real estate manager but it is compounded many times over when the objects are spread out internationally. From country to country the space definitions can vary greatly. Therefore the data on space the CRE manager has available on an international real estate portfolio might contain data measured according many different definitions and this might lead to large deviations in the final benchmark.

Cost definitions face similar problems, possibly even more significant than those concerning space definitions. The costs of a real estate object can be differentiated into many different items. Therefore, specific and logical specifications of which cost lines will be included into which KPI’s are very important when gathering the data. Another additional problem for cost KPI’s are those that arise from the organizational complexity of large corporations. Some departments might use space charging and thus these internal costs have to be separated from the actual real estate costs. This might not be so easy to do and was mentioned as a significant problem in gaining a clear view on the costs of certain real estate objects.

Different approaches were found with which the real estate department tried to handle and solve these issues. One of the interviewees was of the opinion that, when analyzing on a portfolio level, the deviations caused by different definitions are negligible. However multiple other real estate managers disputed this opinion, stating that these small differences throughout the entire portfolio could add up to significant deviations in the benchmark. One other interviewee had the same approach of neglecting the international differences in space definitions. They would just take the space as defined in the contract for all countries. He agreed however that this lead to inaccuracies in the benchmark but stated that this was simply the best available solution they had under present circumstances. Another approach to handle this problem that was mentioned was the use of the 80/20 or Pareto principle. The idea here is that often 80% of the effect is caused by only 20% of the objects. By trying to single out these objects, analyzing them and making sure that consistent definitions have been used for these objects, large gains for the consistency of the entire benchmark can be made. However due to constraints in the resources available for this kind of specific analysis, even this solution remained problematic.

In conclusion, when the portfolio consists of a large, complex set of objects, spread out across different countries, the inconsistencies in the definitions used throughout the portfolio, especially for space and cost, are a significant problem for which none of the actors have currently found a real satisfying solution. The solutions currently found, namely to simply neglect the differences or to try to independently verify the definitions for the most important objects remain patchwork solutions. Most interviewees expressed dissatisfaction with this current state and expressed the desire to improve upon this.

7.5.3 During the analysis and use of the benchmarking results

**Homogeneity**

When all the data that has been gathered has to be analyzed and certain conclusions have to be drawn from this data, a new set of challenges arises. The main question here becomes ‘Is it reasonable to compare these objects’. Certain objects might differ from each other in the way they score on certain KPI’s but this might be perfectly legitimate due to a range of differing variables. There might be different regional or international circumstances, they might have a different function, and some are special or unique objects along with many other possible factors. As one of the interviewees stated ‘for
internal benchmarking, the challenge is to make correct divisions in the data and compare only comparable groups’. The main variables that interviewees indicated that can complicate this process are discussed below.

Firstly, there is the possible functional heterogeneity of the dataset. It is usually not of much use to compare industrial real estate to office real estate for example. Space measurement of industrial objects is very different and they also usually have a very different cost breakdown. Separating the data into groups with a more or less homogeneous function is an imperative step in the benchmarking process. A complicating factor here can be that in some objects multiple functions might be combined. This will often have to be dealt with on a case to case basis.

Secondly, there is the problem that some of the objects will be owned, and some are freehold or leasehold. This can create problems in being able to compare the costs of the different buildings against each other. Then, there might be regional and/or national factors that explain certain differences. When it comes to the cost of certain objects, an object located on the Zuid-as in Amsterdam for example will have a much higher price than one located in a more rural location. There might however be perfectly reasonable other considerations which underlie the choice for each of these locations. When analyzing an international portfolio there is the added difficulty that price levels may vary greatly from country to country. The question arises for example whether it makes sense to compare an office building in a more rural area in Eastern Europe to an office building located in the Netherlands on the Zuid-As.

When it comes to space use, another factor comes into play, namely that of cultural differences. It might be culturally acceptable to have a certain amount of m² per FTE in one country while in other countries this would lead to large scale dissatisfaction among employees. For example in the United states a much smaller amount of space per person would be acceptable then in the Netherlands. In the Scandinavian countries, as mentioned by one interviewee, there is also usually a larger space requirement per person in order to compensate for the more depressing light conditions that they sometimes face.

Finally there might be other unique or special objects that also have to be filtered out of the analysis. These can be objects with historical value for the company for example, objects that cannot easily be disposed (for example due to pollution) or be special in some other way.

As can be seen from the aforementioned set of difficulties, making correct comparisons and divisions can be a difficult task for real estate managers and it is something that they almost universally indicate as being a significant challenge in the benchmarking process. Drawing conclusions from the data that has been gathered might thus not be as straightforward as one might think initially. Often, the data cannot be taken at face value but instead has to serve as the basis for further analysis, special objects will have to be excluded and the data has to be divided into groups that are as comparable as possible.
7.6 INFLUENCES ON KPI CHOICE

When it comes to the question of the relationships between the types of benchmarks encountered and the types of organizations, the results are different than was initially expected. The original hypothesis was that the strategic focus of companies, their sector and other variables would influence which benchmarks these companies would be mainly interested in. However, the companies included in this research are, for the most part, mainly interested in the same set of basic metrics that are described in the previous section. One interviewee even explicitly mentioned that ‘if you look at the CREM departments here in Holland that are using benchmarks to analyze their portfolio, you see that they basically are all more or less doing the same thing’.

Most companies just benchmark the most basic KPI’s. The main influence as to why this is the case is the fact that benchmarking itself is such a complex undertaking. The challenges and hurdles described in the previous sections make building true competency in benchmarking a complex undertaking. The fact that many companies still have built limited experience and competency in benchmarking might very well explain why most of them are still focusing just on the 4 most basic indicators.

*Economic crisis and pressure from superiors*

However, aside from this, there were 2 other clear influences that could be distinguished, namely the fact that CREM departments experience strong pressure to focus on financial aspects and the current economic crisis.

There is a strong focus on quantitative data and especially financial data by the entities real estate departments report to. Almost all real estate departments report to finance, either directly to the CFO or indirectly. This puts a strong emphasis on the financial side of the equation. The only department that reported to operations had recently switched to this. This had been with the explicit aim to get able to get to a more integral management of the real estate portfolio and to get away from the purely financial focus. As the upward reporting is so financially focused, this most likely also factors into the choice of indicators that the departments use for themselves. A strong indication for this is the fact that multiple departments simply had yearly savings in cost and/or in space as their most important KPI’s.

Nearly all interviewees also explained that part of their financial focus was due to a strong influence of the current economic crisis. However, this was slightly more complex for the executives that managed a worldwide portfolio. Their portfolio would be in areas in which a financial crisis was raging but also many parts of their portfolio would be in places, like China, in which the business was actually expanding.

*Perceived use / importance of benchmarking*

Another possible explanatory influence for some of the interviewees on why they had not built more benchmarking experience and competence is that, due to their specific circumstances, they simply were less interested in benchmarking or perceived it to have less use for them.

When it comes to the factors that might cause a department to ascribe a lower importance to benchmarking and/or it having a lower perceived use for them, a number of cases was found. First there were two interviewees that operated in a CREM department that did not have strategic portfolio management as their main activity but were operating more as a project management or development team on a case to case
basis. Naturally they had a lower interest in portfolio benchmarks since operating such a portfolio was not their main task. While they could still possibly benefit from the information provided by such benchmarks, setting them up did not fit their current role.

Secondly, organizations that had a more qualitative strategic focus tended to ascribe a lower importance to benchmarking. A possible explanation for this might be that, since with qualitative factors it is much harder to get meaningful results, using portfolio benchmarks to inform their decisions for these qualitative benchmarks might not be the best approach. They tended to take these matters more on a case by case basis. In these projects or cases they would measure a lot of qualitative factors, but thus not as a portfolio wide benchmark.

Lastly the heterogeneity of the real estate portfolio might play factor. This is another factor that might complicate the ability of real estate managers to produce meaningful information from their benchmarks and thus make these benchmarks less useful for them. One of the industrials that were interviewed expressed a very low interest in benchmarking. He had a lot of locations in which industrial, office and R&D functions were mixed. This made it difficult for him to be able to separate these functions in the benchmark.

Other influences
While most companies are thus still only focused on the basic benchmarks, there are three companies in the study that have been benchmarking for a longer time span and hence have acquired more competence in this area. These companies actually are using some of the more complex benchmarks like affordability for example. The additional benchmarks these companies are measuring actually did vary in type from company to company. One of the companies that is a more efficiency focused company and in which there is a lot of pressure from upper management on financial matters, was still using only purely quantitative benchmarks but had started to make more complex analyses. For example they were analyzing the real estate costs per company revenue per region or business unit. While another company had a slightly more qualitative focus and was measuring workplace satisfaction on a portfolio level benchmark. This was the only company to do so. When asked they acknowledged the complexity of it but felt they had acquired enough competency in the collection of this type of information that they started to be able to extract meaningful information from it.

So it might very well be possible that the differentiation in the benchmarks used by different types of organizations only comes in to play once the CREM department reaches a certain level of competence in benchmarking. Once benchmarks on the space, cost, FTE’s and workplaces and the ratios resulting from these are brought to a certain level of completeness and validity, only then does it become feasible to venture into the more complex or strategic benchmarks. And only then does the differentiation along organizational characteristics of which benchmarks are interesting begin. However more research is required here to draw more definitive conclusions.
IV – CONCLUSIONS & REFLECTION
The question at the heart of this study is what the factors are that influence an organization to choose certain specific KPI's to benchmark their real estate. As a general conclusion, it can be posited that two of the strongest influences that were found are the current financial crisis and the fact that CREM departments report to finance. These two factors both cause a strong focus on quantitative and especially financial KPI's. However, what influences benchmarking practices above all is the fact that benchmarking is a very complex process and producing meaningful results requires competence, experience and a well-structured process. Because organizations on average have still built relatively little experience and competence in this area, in general only the most basic kpi's are used as portfolio-wide benchmarks and the kpi's that are used are very similar across the different organizations.

The first of the sub questions was about best practice performance measurement as described by current theory. The major trends and systems in both general and real estate performance measurement were identified and described. In general there seemed to be an overall consensus that organizations should choose a limited set of personalized indicators that are based on their own strategy and context. This set of indicators should include indicators across all performance dimensions and fields and should include both financial and non-financial indicators.

The second sub question related to the context in which this benchmarking process takes place and served to be able to draw relationships between this context and the actual benchmarking practices found later on. The sample description in chapter 7 gives a structured description of this context. The organizations consist of large multinationals operating in a variety of sectors. The crem departments are varied in the tasks they perform. Most of the departments are responsible for steering a large real estate portfolio spanning across multiple nations or even continents. All but one departments report to finance.

The other three sub questions were on the actual current benchmarking practices of CREM departments, the main hurdles they face during this process and finally on the main factors that can influence this process and the choice for specific KPI's. The conclusions for these three questions will be discussed more in depth in the next three sections.

8.1 CURRENT BENCHMARKING PRACTICES

One of the most noticeable things that emerged from this study is that benchmarking is a much more complex activity then initially suspected based on the literature survey. While some data might be easily collected, extracting meaningful information from even the most basic benchmarks is usually wrought with difficulties. Benchmarking is thus best set up as an iterative process in which successive improvements to the process are made. It can take years to build enough competency in this area to get truly meaningful results.
The overall level of benchmarking experience and competency of the participants in the study is still relatively low. Out of all the participants there are only some which have built considerable competency. The majority however, are still in the beginning stages of this process. They are using only the most basic of benchmarks which are often still incomplete and the validity of which is still low. Interviewees, on average, express low confidence in the completeness and the validity of the benchmarks they use.

In addition to this, some companies mainly focus on the data that is most readily available instead of moving towards more integral, precise definitions of cost and space and purposefully designing and implementing the collection processes required for these.

### 8.2 MAIN KPI’S USED BY PARTICIPANTS

Through the inventory done in the semi-structured interview series, four core benchmarks could be identified that are used by the majority of participants. While the precise implementation and chosen definitions differ from company to company, these indicators can be grouped under occupancy cost, m², FTE and workplaces.

When these benchmarks are collected, they can be divided against each other to form 6 ratios which are also widely used to analyze the portfolio performance. When it comes to these ratios, FTE/Workstation and cost/workstation are named significantly less number of times as being used as a main KPI.

After this, there is a steep drop off. Other indicators, like affordability, % leased/owned or space utilization, were mentioned only sporadically by participants as being used as a portfolio-wide benchmark.

Interviewees were found to be unanimously very skeptical about qualitative indicators and none were currently being used as a core KPI by any of the participants. Although one department had used workplace satisfaction as a KPI in the past. When it comes to external benchmarking, a similar level of skepticism was found. The accuracy and reliability of the figures to which participants had access were generally not trusted to be very accurate.

Out of all these benchmarks, what CRE managers generally reported upward to their superior were the financial KPI’s. Almost all departments report to finance and there was said to be a strong focus on financial information.

<table>
<thead>
<tr>
<th>Core indicators</th>
<th>Cost</th>
<th>m²</th>
<th>FTE</th>
<th>Workstation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core ratios</td>
<td>Cost / m²</td>
<td>m² / FTE</td>
<td>Cost / FTE</td>
<td>m² / Workstation</td>
</tr>
</tbody>
</table>

Table 8.1 Core indicators
8.3 CHALLENGES DURING THE BENCHMARKING PROCESS

When it comes to the benchmarking process itself, there are a number of clear challenges in each stage of the benchmarking process. On the basis of the answers of the a clear list could be constructed of the main challenges. These challenges could be differentiated into three main phases, namely during the selection of indicators, during the collection of the data and finally during the analysis of the resulting information.

When selecting the data, the main success factors that were named were that it is essential to have a clear use for the benchmarking information specified ahead of time and secondly to base this selection as much as possible on the organizational drivers and mission. Multiple accounts were shared of benchmarks that were set up but for which eventually no real way in which to constructively to use the results were found.

During the collection of the data, by one of the biggest challenges is the fact that often different definitions are used for specific indicators throughout the portfolio. It was named almost unanimously by all managers as one of the biggest hurdles they face. Makeshift solutions that were encountered were simply ignoring the differences or applying the 80/20 rule to analyze and correct the definitions used in the more important objects. The second main challenge is the availability of the data. This availability might be hindered because the data is located across different databases and or platforms, because certain variables might be costly or difficult to measure and because there might be resistance from certain parties in supplying the information. Finally, ensuring the validity of the data is also deemed to be crucial. Here, a solid process of validating the data was said to be essential to avoid later on being challenged on the correctness of the results by low performing participants.

When it comes to the analysis of the data, the main problem is the possible heterogeneity of the underlying objects. As each object is essentially unique, this heterogeneity might occur across many different dimensions. Objects can differ in an unlimited amount of different ways. However, five main dimensions were identified that are the biggest challenges:

- Ownership,
- Functional,
- Regional or national,
- Cultural,
- Unique or special objects

In order to draw sensible conclusions from the analysis, the main challenge lies in making correct divisions in the data along these dimensions and to compare only comparable groups.
8.4 BENCHMARKING USE

Once the analysis of the benchmarking information starts producing results, this information is then put to use in various ways by the departments. A number of core ways in which the resulting management information was used could be identified. Three of these related to their own management activities and two concerned the communication with other stakeholders within the organization. The main ways that can be distinguished for own use of the CREM departments are:

- To aid in portfolio optimization across various performance dimensions
- As feedback on own management practice, to sharpen and adjust strategic priorities.
- As a benchmark for decision-making in various projects and business cases.

Secondly when it comes to the communication with other stakeholders within the organization two other essential uses for the information are identified:

- To enhance reporting to upper management, prove performance of CREM
- To raise support amongst business units

8.5 INFLUENCES ON KPI CHOICE:

The most predominant influences on the selection of KPI’s by CREM departments were found to be the current economic crisis, pressure from above to focus on financial variables and the complexity of the benchmarking process itself.

The economic crisis cause an extra focus on cutting costs and financial data in every single organization that was studied. Some interviewees however mentioned that due to the fact that they manage a worldwide portfolio, this had to be nuanced with the fact that for some parts of their portfolio there was actually strong economic growth. The fact that almost all departments reported ultimately to finance was also a strong influencing factor. Multiple accounts were shared of managers that wanted to use a more integral focus in their performance measurement but simply saw little use for it because they themselves were judged solely on these financial or quantitative indicators.

While the aforementioned variables are all organizational or outside influences, it can be said that the main factor that influences the benchmarking practices without a doubt is the complexity of the benchmarking process itself. The multitude of challenges and hurdles that have been described in the preceding chapters make it very complex to produce truly meaningful results. As one expert mentioned, it can take years before you start to build even basic competency in this area.

There are strong indications that, once enough competency is built, there are other factors that influence the selection of indicators. For example the sector an organization operates in and its strategic focus might also be strong influences. However, due to the limited sample size and the fact that the sets of KPI’s that were found were so similar, more research is needed to draw more definitive conclusions.

Whether departments just use these basic indicators or have moved beyond this to more complex indicators, seems to be more dependent on how important they perceive benchmarking to be, their willingness to expend time and effort in this area and how much experience and competency they have already acquired in this area.
8.6 PRESCRIPTIVE MODELS

During each stage of the benchmarking process there are a number of factors that influence whether the desired results will be achieved and meaningful management information can be extracted from the benchmark. In the previous conclusions, a core set of benchmarks has been identified and an inventory was made of the main challenges for each of the different stages of the benchmarking process. As a final addition this can now be used to construct a prescriptive model on which indicators could be used and what the main success factors are at various levels of benchmarking competence of the department. This is done both as an aid to try to formalize the lessons learned in the preceding research and to possibly help organizations determine at what level of competency they currently are and how they can make the next step.

**Complexity of various benchmarks**

One of the main conclusions that can be drawn, is that the different possible benchmarks and types of benchmarking all come with their own balance of costs and benefits and their own challenges and complexity to get right. Some types of benchmarks, or some ways of benchmarking are more difficult to turn into a success than others. Figure 4 shows a schematic overview of levels of complexity of the different KPI’s and the different types of benchmarking. This model is not meant to be a complete or precise list, but aims to give an indication of the different levels of complexity to be expected.

![Figure 8.1: Complexity of various benchmarking types and kpis](image)

If we look at the KPI’s themselves we can see that the simple, quantitative core set of KPI’s that was identified seems to be the least complex to benchmark. M2, FTE’s, occupancy cost and workstations all have their respective difficulties but are relatively straightforward compared to the other possible KPI’s. The next step up in complexity are the ratios that can be created from these. These are more complex simply because 2 indicators are required to produce and thus the possible challenges in both of these need to be solved. The next level of complexity comes in the form of other strategic benchmarks that can be measured quantitatively like affordability for example. Finally the qualitative indicators are deemed to be the most complex out of these. This is mainly due to the fact that the information, often gathered through surveys, is usually costly to gather and their inherent ambiguity can make it difficult to extract meaningful data out of them.
Secondly, the area which is being benchmarked can cause an additional dimension of complexity. Benchmarking regionally should reasonably be the most straightforward. Once the benchmark is set up nationally, possible regional differences might come into play and complicate the comparison of the results. Internationally this problem is compounded. National and cultural differences can cause discrepancies in definitions or standards used for example.

External benchmarking was generally seen to be a difficult endeavor. Issues of trust in the reliability and validity of the figures, confidentiality and possible difference in the definitions that are used in different companies cause this to be ranked at the most complex end of the spectrum.

Finally, while not an element of the benchmarking process itself, the functional homogeneity of the portfolio is also an important variable that can cause problems during the analysis of the data. A portfolio that contains only office objects is easier to compare than one with a mixed set of functions. Having different functions placed in the same object is especially problematic because it can often be very difficult to separate the data for these functions.

**Levels of benchmarking competency**
The CREM departments that were studied had acquired different levels of competency in benchmarking. On the basis of the characteristics of the benchmarking practices of the departments with varying competency this could be grouped into different levels of benchmarking competency. These are presented in Table 8.2

<table>
<thead>
<tr>
<th>Levels of competency</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Early stages</strong></td>
<td>Only basic benchmarks and ratios are used.</td>
</tr>
<tr>
<td></td>
<td>Collection of information that is readily available.</td>
</tr>
<tr>
<td></td>
<td>Definitions will most likely differ throughout the portfolio but are neglected in analysis.</td>
</tr>
<tr>
<td></td>
<td>Completeness of the data is low for most benchmarks.</td>
</tr>
<tr>
<td></td>
<td>Validity of the data is relatively low and no structured validation process is in place.</td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>More integral definitions used basic KPI’s like total cost of occupancy instead of simple contract rents.</td>
</tr>
<tr>
<td></td>
<td>Move towards uniform and enforced definitions for the KPI’s.</td>
</tr>
<tr>
<td></td>
<td>Structural collection process of desired data is in place.</td>
</tr>
<tr>
<td></td>
<td>Start of a structured validation process.</td>
</tr>
<tr>
<td><strong>Current top performers</strong></td>
<td>Additional KPI’s chosen according to own strategy and context.</td>
</tr>
<tr>
<td></td>
<td>Own set of enforced definitions for the benchmarks that are used.</td>
</tr>
<tr>
<td></td>
<td>Reasonably complete and valid databases for basic KPI’s.</td>
</tr>
<tr>
<td></td>
<td>Department is actively trying to fix the remaining errors and outliers in the data.</td>
</tr>
<tr>
<td></td>
<td>Organizational knowledge has been built over time causing less errors in the data.</td>
</tr>
</tbody>
</table>

Table 8.2: Levels of benchmarking competency
Succes factors during each stage of the benchmarking process

Organizations can use the two models on the relative complexity of different benchmarks and the levels of benchmarking competence to set up their own benchmarking practice in a way that is appropriate for their own level of expertise. Finally, a number of succes factors are presented below for each stage of the benchmarking process. These have been derived from the most common challenges and opportunities during the benchmarking process as shared by the participants throughout this whole study.

Selection of KPI’s

- Select KPI’s that are appropriate for your own strategy and context, that are derived from organizational drivers and are appropriate for your level of benchmarking competence and experience.
- When starting out, avoid being too ambitious too early on and start with a limited set of basic KPI’s.
- Contemplate ahead of time on the ways in which the management information resulting from these benchmarks will be put to use later on in order to avoid wasting time and resources.

Collection and validation of the data

- Specify precise definitions for each KPI and communicate this clearly to the parties that will supply the information.
- Possibly use the 80/20 rule to signal out the most important objects and make sure the KPI’s are correctly defined here.
- Establish a clear process for validating the data that is obtained.
- Either have the business units supply the data themselves, or have them sign off on the correctness of the data before they are confronted with the results.

Analysis of the data

- The main challenge here is to make sure that you make correct divisions in the data and compare only comparable groups.
- Consider the possible heterogeneity of the dataset across different dimensions, namely
  - Ownership,
  - Function,
  - Area.
- Identify and remove possible outliers from the data or special or unique objects that should be analyzed separately.
Possible uses for the results

- Communicate the performance of the CREM department more successfully and to raise support for CREM interventions amongst various stakeholders,
- To raise the efficiency of the portfolio, for example by helping to identify possible outliers in performance, both positive and negative
- To reflect on and sharpen the strategic priorities of the department
- And to inform decisions in possible projects and business cases.

Feedback

- Use every iteration of the benchmarking process to reflect on and improve the data collection, and validation processes
- Strengthen organizational knowledge, for example by using misunderstood questions in a survey to signal areas or departments where more knowledge is needed.
- Continuously work to get the entire portfolio measured by a uniform set of definitions.
- Reflect on the KPI’s that are used and consider expanding the set of benchmarks if this is deemed appropriate.
9. REFLECTION

In the previous chapter, generalized conclusions have been drawn from the data. In this chapter, these conclusions will be put in a broader perspective. Specifically they will be discussed along their scientific relevance, the validity of the findings, the practical application and the societal relevance. Finally some recommendations for future research will be made.

Scientific relevance
When the findings of this study are compared to the theoretical exploration, there is a discrepancy between the idealistic picture of benchmarking that is advocated in many studies and what actually happens in practice.

Overall, it seems the complexity of benchmarking is still undervalued in the studied theory. In the literature, a lot of attention is given to the fact that indicators should be derived from organizational drivers and values and a lot of possible indicators are provided. The difficulties in actually implementing this is given less attention. During the discussions with real estate managers in the field, what often dominated the discussion was the difficulties that had in setting up the benchmarks and extracting meaningful data from it. So there is a discrepancy here in the focus of the theoretical research and the concerns of practitioners and thus a large opportunity for further study and possible gains.

When we compare the benchmarks that are used by the companies in this study to the possible KPI’s clustered by Riratanapong et al. (2012) according to the impacts of Jensen’s FM Value map, we see that the used KPI’s mostly fall into the category ‘cost’ and what Jensen calls ‘adaptation’. None of the KPI’s from the surroundings cluster were benchmarked by any of the companies. There was one company however for whom contaminated site management was an important factor. However this was not used as a portfolio wide benchmark.

Also, the study mentions a large amount of specialized KPI’s while the benchmarks found to be used here were predominantly very basic. This discrepancy might be explained by the difference between theory and practice as discussed earlier. The KPI’s that were clustered by Riratanaphong et al. were all taken from theoretical research papers. Another factor however might be that both FM and CREM kpis are included in Riratanaphong et al (2012), which differs from this study, which focusses solely on portfolio KPI’s for CREM.

In the conclusion, the overall status of benchmarking practice amongst participants was discussed. The focus was still mainly on quantitative, basic indicators and only a few companies expressed a moderately high amount of confidence in the completeness and validity of their data for the basic benchmarks. If we look at the study done by Jones Lang Lasalle in which one fourth of real estate managers reported their available information as ‘poor’ and three quarters consider it no better than ‘fair’. This seems to indicate that there has been no significant improvement since the study done by JLL.

In the theoretical exploration, Srimai et al (2011), concluded that general performance measurement for businesses has had a steadily increasing focus on non-financial, value based indicators in order to provide balance against financial indicators.
If we contrast this with the performance measurement for real estate as found in the companies in this study, we can conclude that the sector still lags behind these general developments. Van der Voordt and Jensen (2014) in their discussion mention that the various frameworks on added value of FM and CREM that have been developed over the last decade are not yet ready to be implemented into practice. The findings of this study thus corroborate that conclusion.

When we look at the way the benchmarks are put to use in practice, five main uses were found. These uses strongly concur with the uses mentioned in the theoretical exploration. Waggoner, Neely, and Kennerley (1999) argued that performance measurement in business serves the purposes of monitoring performance, identifying the areas that need attention, enhancing motivation, improving communications and strengthening accountability.

Validity of the findings
This study consisted of mainly qualitative, interpretive research and the results should be seen in this light. The conclusions that are drawn from these however have to be seen in the light of the type of research that is conducted. As explained by De Vries, real estate research is often hindered by the fact that the environment is so complex, with many influencing variables and that sample sizes are usually small. In this study this was certainly the case. The amount of variables that can have an impact on the benchmarking practices of real estate management departments is significant. Additionally, CREM departments operate in a complex corporate environment and often have multiple reporting lines. The conclusions on relationship between these variables thus are only preliminary and should be seen more as possible hypotheses for further research. However, as this was a qualitative study, the topics were explored in depth and the conclusions that are drawn are plausible when seen in the context of the preceding research and expectations.

One possible factor that could have influenced the research is that employees of Johnson Controls make up a above average share of the respondents and thus a certain bias could be introduced here. Care was taken as much as possible to prevent any possible bias this may have caused by taking this into account when analyzing the data and by including companies in the study with a profoundly different structure and focus than Johnson Controls.

Practical application
As the study showed, there are still a lot of gains to be made when it comes to real estate benchmarking in practice. The findings show that a large number of corporate real estate departments are still working to implement the basic benchmarks of cost, space and FTE’s. A study was made of the main challenges most practitioners face in their benchmarking practice and compared with the practices of the participants who were relatively most competent in benchmarking. On the basis of this a number of models have been proposed which can help practitioners understand the complexity of the different types of benchmarks, understand where they stand with respect to current top performers and steps they should take to improve their benchmarks.
Finally as shown, it is crucial to have a clear use for the benchmark you are going to implement ahead of time. The list of possible uses gathered here can help companies specify the way they want to use the benchmark. In this way they can thus avoid wasting time and energy into misguided research.

**Societal Relevance**

Real Estate performance measurement in general is aimed at identifying inefficiencies in the portfolio. Any improvement in the practice of performance measurement itself might lead to these inefficiencies being identified more effectively. Real estate is an extremely resource intensive asset class. Therefore if these efficiencies are identified and can be corrected, this can free up a lot of resources that are currently tied up in it.

Firstly this can obviously help to create shareholder value. By generating these savings and freeing up this capital, this can then be used in the company’s core business at a potentially higher return or might just be returned to the shareholders. In an environment of efficient competition this might also improve the opportunity for the company to compete on price and thus drive the price of the products they market to the consumers down. In this way this can ultimately aid the consumer. Since resources are getting increasingly scarce, any efficiency gains in a resource intensive sector as real estate thus also can have a substantial impact on the environment and the sustainability of the sector.

A different societal advantage that may arise could come from a shift towards a more integral approach to performance measurement. Upper management in most companies is currently mainly focused on reducing the cost instead of seeing real estate as a means to create value. If for example workplace satisfaction would emerge as a more common benchmark in the near future, this focus might shift and this could potentially lead to an improvement in working conditions and work satisfaction for the employees.

**Recommendations for further research**

During the course of the study, a number of interesting areas in which further research could be conducted could be identified. Firstly, while organizations currently do not use any qualitative indicators, they do often measure workplace satisfaction in corporate surveys. However this information is then not used by CREM in a structural way. Managers do in general feel that they need a counterweight against the financially dominated reporting structure. Turning this information on workplace satisfaction into a portfolio-wide benchmark could yield interesting results at relatively low cost. This could be a very interesting subject for further study.

Secondly, now that there is an overview of which indicators are used the most in practice, it could be interesting to do a larger scale, quantitative study in which these most common benchmarks would be looked at more in depth. These could be analyzed on how complete and valid the information is that managers have on them in a more quantifiable way for example. And the actual averages of the benchmarks could be analyzed.
This study shows that research on helping CREM departments setup the basic benchmarks in a well-structured manner might be an interesting area of study. Since many companies are still in the beginning stages and are often experiencing difficulty in implementing it, this might be of practical use. Specifically the way to ensure that the benchmarks are defined consistently throughout the whole portfolio, especially internationally is an area of great interest to real estate managers and is an interesting area to explore.

The new ways of working often complicates the use of certain benchmarks. Because people no longer work in a specific location and workstations are shared, the relationship between variables are changed. This is an area in which multiple managers indicated they would like to see more research about the ways to handle this problem.

Another interesting fact is that most managers express the desire to have better external benchmarking data. However currently this is problematic because of the problems of confidentiality and because the results are often mistrusted. Perhaps an independent entity like a university could have a role in starting to solve this problem.

In conclusion, the gap between research and practice in this area opens a lot of new interest areas to explore. Especially the possible workplace satisfaction benchmark could prove to be a relatively easy bridge towards a more integral, value based measurement for corporate real estate.
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90


INTERVIEW PROTOCOL

Introduction
Thank you for taking the time to participate in this research. This research is done as a graduation project for the Corporate Real Estate laboratory of the TU Delft. The topic for this interview will be the relationship between the characteristics of an organization and its real estate benchmarking practices. The goal is to create insight into which types of benchmarks are appropriate for certain types of companies or in certain situations. The interview itself will cover a number of topics including the size and structure of the real estate portfolio, the structure, tasks and strategies of the CREM department, the use of certain key performance indicators and finally the specific benchmarking processes used.

If at any time you have questions along the way or feel it is important to elaborate on an issue feel free to interrupt.

Name:

Title:

Geographical responsibilities:

RE Portfolio in your area of responsibility
1. Portfolio Size (m²)?

2. What are the # of Buildings currently in use?

3. How many countries are you currently located in?

4. Composition of RE portfolio (Estimate of size in percentages)
   - Office
   - Non office
     i. Production
     ii. Logistics
   - R&D center
CREM Department
5. What is the number of people in the CREM department?
   - Centralized
   - Decentralized (indirectly responsible)

6. How many levels are there between the board of directors and the highest ranking CREM official

7. How often does CREM meet with the board?
   - Monthly
   - Quarterly
   - Annual
   - Sporadic / Ad-Hoc / As needed

8. Which department does the CREM department report to?
   - Finance / Treasury
   - Operations
   - Sales / Strategic Business Unit
   - HR
   - Other, Namely:

9. What kind of approval procedure do you have for capital investments and real estate commitments?
   - All Capital Expenditures need Business Case approval
   - Some Capital Expenditures above a certain level need Business Case approval
   - Also at budgeting and planning phase
10. Specify the importance on a scale of 1-5 of the following tasks of the CREM group

- Portfolio planning strategy & budget review
- RE-negotiations on contract terms & conditions
- Decision support and financial investment review
- Project Mgmt & control on budget & standards
- Occupancy Cost monitoring & directions on savings
- Management reporting on CRE-initiatives & results
- RE-administration and database management
- Space planning policy and workplace design
- Facilitate services & contracting
- Other, please specify

11. Specify the top four of the following real estate strategies for the CREM group

- Minimise occupancy cost
- Minimise balance sheet impact
- Maximise space use and financial flexibility
- Support production, operations, service delivery
- Support brand/identity/marketing message
- Support employee recruitment/retention strategy
- Support knowledge/innovation strategy
- Support Merger, acquisitions, organizational integration, closures & consolidation
- Other, please specify

Data collection

12. Indicate which of the following KPI’s you monitor and specify their importance on a scale of 1-5

A. Sqm per employee (FTE)
B. Sqm per workpoint/occupied desk
C. No. of employees per workpoint (i.e. vacancy and/or desk-sharing ratio)
D. Space utilisation (i.e. % vacant/unused/growth space)
E. Sublet space (% sublet and vacant for lease)
F. Ratio of leased to owned sqm (%)
G. Total occupancy cost/sqm (NLA)
H. Rental cost per sqm (NLA)
I. Total occupancy cost/employee (FTE)
J. Total occupancy costs to revenue ratio (%)
K. Total occupancy costs to total operating expenses (%)
L. Churn-rate % pa (number of moves/number of occupants)
M. Construction Cost per sqm.
N. Leasehold/Fit-out Cost per sqm.
O. Ratio of retail properties (% of sqm)
Q. Revenue per sqm (for retail-space only)
R. Energy efficiency/greenhouse gas emissions ratings etc
S. Market Value to Book Value variance % (owned real estate)
T. Property & Equipment Assets to Total Assets (%)
U. Employee satisfaction survey (corporate and/or HR)
V. Occupier/end user satisfaction survey (CRE/FM)
W. Other, please specify
13. Indicate the five most important KPI’s that you report upward and rank them in
the order of their importance.
- 
- 
- 
- 
- 

14. What are in your view the most important factors that influence which KPI’s you
use?

**Benchmarking process**

15. Do you have uniform space and cost definitions throughout your entire RE
portfolio?
Are these definitions based on a known standard benchmark?

16. Do you have a specific process and/or tool to validate or crosscheck the data for
these KPI’s? If so, what is it?

17. What are the main hurdles you have encountered in your benchmarking practices

**Purpose of the benchmarks**

18. What is the main use these indicators are put to?

19. Do you have plans to extend your current benchmarking practices?

20. Do you feel benchmarking has contributed to your performance?

21. Has benchmarking contributed to your CREM units performance and/or
recognition?
   - Better reporting / speed / accuracy
   - Business case Decision Support
   - Budgeting and Planning
   - CREM savings and Improved programming
   - Realistic target setting
   - Other, namely:

**Conclusion**

Thank you very much. One final question: Are there any other important topics or
questions that I might have missed but you feel should be included for this research?

Then this concludes the interview. Thank you for taking the time to participate. When
the final research is concluded you will of course receive a copy of the final report. If
you think of any additional questions or remarks feel free to email or call.