‘JURIDICAL-FINANCIAL FLEXIBILITY OF REAL ESTATE’

A study to optimise the level of juridical-financial flexibility in real estate portfolios

Figure 1: Image (Yahoo, 2010)

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Preface
This report includes the final research proposal of my graduation research within the Master study Real Estate & Housing of the faculty of Architecture at Delft University of Technology. This report will serve as a basis to do a scientific research in the field of Real Estate Management.

The study targets for this research could be divided into general and personal targets. The main general goal is to be able to make an inspiring and innovative contribution at an academic level. To realise this contribution, academic methods and techniques will be used. With the acquired knowledge, understanding and skills, which were learned in the past, different disciplines will be integrated within real estate and housing. An important feature to take into account is the life cycle of real estate. To facilitate the research, it is necessary to have the ability to use appropriate communication, presentation skills and computer skills. The final target of the complete program of education is to work as a professional in practice in which the required knowledge, understanding and skills could be applied. (Prins, 2012)

The study program that has been followed started with the Bachelor of Architecture phase, which was completed in four years. During this program, free electives had to be chosen. In my opinion, the economy, in which we will all operate, is partly neglected. For this reason, I chose to do electives at the faculty of Technology, Policy and Management that could fill this gap. During the Master’s program in Real Estate and Housing, free electives also had to be chosen. After starting the Master’s, some students criticised my English writing style, so I decided to improve my English. I also chose an elective to improve my knowledge of real estate valuation and an elective that would improve my research methods. The total package of education should provide a solid basis for this research.

Within CREM, being a real estate manager of an organisation is a role in the industry that I aspire. To achieve that, a step-by-step process is required in which this research is the first step. In this research, a specific type of flexibility is chosen that intrigues me within CREM. But, just as it is difficult for real estate managers to predict future scenarios, so it is difficult to predict my personal future.

The main scientific domain of this research is real estate management. The second domain will be a financial domain, as a result of the fact that I will focus on juridical-financial flexibility. A third domain will be operations research, management science & engineering design to make a decision-model. This research will be supervised by a first and a second mentor. My first mentor is Monique Arkesteijn. She is specialised in the management and development of real estate. My second mentor is Ruud Binnekamp, who is specialized in both building economics and operation research.

To improve the quality of the empirical part of this research, I am looking for a construction company that can contribute to the research. There are special requirements for the choice of a corporate organisation that are strongly related to the research design. These requirements will be discussed in the introduction of the report.

11 January 2013,

Tim Verhoeff
Abstract
The subject of this research is juridical-financial flexibility, which is the ability to quickly dispose or vacate real estate when the quantitative demand for real estate changes (De Jonge & Den Heijer, 2004). This final research proposal consists of two parts. In the first part and introduction to the research is given and in the second part the theoretical phase is elaborated that resulted in a theoretical model to differentiate a portfolio and a conceptual analytical model to define the variables that influence the decision making process with respect to juridical-financial flexibility. Both models will be used in the empirical phase of the research.

Part 1
The social relevance
Gibson, who is researcher at the University of Reading and editorial board member of the Journal of Corporate Real Estate, researched the difference between the current real estate portfolio and the desired real estate portfolio in the UK (2000a). She concluded that there was a significant difference that she explained by the fact that real estate managers act as an inertial force to the development of new real estate products. What is this ratio today and, if desired, how can it be aligned into the future?

AT Osborne organised two seminars (2009) in which CEOs, real estate managers and facility managers of public and corporate organisations discussed the drivers for decision making with respect to real estate. It appeared that CFOs were mainly responsible for the real estate decision making process due to a lack of decision-models that integrate all aspects of real estate strategies, both financial and non-financial.

The fact that the current portfolio does not equals the desired portfolio and the role of the real estate manager is undervalues due to lacking convincing figures of revenues of change, a tool will be designed that will contribute to the real estate decision making process.

The scientific relevance
In former graduation researches, done by Volkers (2006) and Van Ussel (2010), models are designed to align the current portfolio with the desired portfolio. In this research, these models will partly be used and extended because it lacked the inclusion of variables, costs of change and scenarios. Another difference is the application of operations research methods. A decision-model will be designed that integrates positively evaluated elements of both models and missing components will be integrated.

The utilization potential
The usefulness of the model will be tested with a single-case study approach. The theoretical research will be integrated in the model with the aim to justify the variables. Subsequently, the optimal compilation of the real estate portfolio will be determined with respect to juridical-financial flexibility. After evaluation of the decision-model, it will be transformed into a generic model that can contribute to the decision making process with respect to a real estate strategy.

The main research question and its related sub-questions
Real estate managers have to deal with a lot of factors during the design of a real estate strategy in which they decide upon the level of juridical-financial flexibility of their portfolio. Each decision has to contribute to the overall performance of the organisation. The determination of the level of juridical-financial flexibility is part of a real estate strategy. Single or a combination of solutions may
be applied by real estate managers to realise a certain level of juridical-financial flexibility. The difficult part is to determine the optimal level. The main research question of this research is:

*How can real estate managers optimise the juridical-financial flexibility of their real estate?*

The related sub-questions are:

1. **What is juridical-financial flexibility and how to bring coherence in literature?**
2. **Which strategies could be used to adjust the juridical-financial flexibility level of real estate?**
3. **How to determine the optimal juridical-financial flexibility level in a real estate portfolio?**
4. **Is it possible to build a decision-model that can contribute to the real estate decision making process by defining the optimal level of juridical-financial flexibility within a single portfolio?**

The first two sub-questions will be answered in the theoretical phase and the other two sub-questions will be answered during the empirical phase.

**The objective and end result**

The objective of the research is to provide an understanding how real estate managers can optimise the juridical-financial flexibility of their portfolio in order to develop the knowledge for real estate management science and draw empirical lessons for real estate management practice.

The end result will be a generic model in which variables from the context could be translated into scenarios to find the optimal juridical-financial flexibility. Subsequently, strategies could be defined to transform the current portfolio into the optimal compilation of the real estate portfolio with respect to juridical-financial flexibility. This decision-model can help real estate managers to analyse the range of choices in the market and to determine the optimal level of juridical-financial flexibility.

To determine strategies, the decision-model will be constructed in Excel with the application of the What’sBest software (LINDO Systems, 2012) to apply operations research methods. The objective of this model is to switch a real estate strategy from reactive towards anticipating.

**The research design**
Part 2
The research field
Real estate has a static character, while the demand for real estate is dynamic. A dynamic context indicates uncertainty, which is the main driver of flexibility (Barlow, O’Sullivan, & Trimčev, 2011). Different kinds of flexibility could be distinguished, but the focus of this research will be on juridical-financial flexibility. Multiple strategies could be used to acquire the right to use an asset. The following juridical constructions could be distinguished (Hoendervanger, Van Der Voordt, & Wijnja, 2012; Regus, 2012): ownership, rent, financial lease, operational lease and flexible lease. Each type has its own juridical construction and its financial consequences.

Portfolio differentiation
Each asset within a portfolio accommodates a specific function that has a specific role within the business cycle. But these assets are not of equal importance to the core business of the organisation. Some assets may accommodate the core business while other assets support the core business. This influences the demand of these assets and requires different juridical-financial constructions. Gibson and Lizieri (1999) designed a model that differentiates the real estate portfolio into a core portfolio, 1st periphery and the 2nd periphery, which each requires a specific type of flexibility. The decision-model will partly be based upon this model.

Strategies
Multiple strategies could be identified that can contribute to the transformation of the current portfolio to the desired portfolio. Den Heijer and Vijverberg (2004) defined three main categories of strategies. These main strategies are: dispose space, retention space, and acquire space.

Having a higher level of flexibility is equivalent to having higher investment costs. How can one decide the appropriate balance between the level of flexibility and costs? Maximal flexibility is not profitable, because in a portfolio where all assets are flexible some parts of the portfolio will never be used in a flexible way.

Conceptual analytical model
The conceptual analytical model combines pieces of literature that are related to the variables that determine a real estate strategy. The variables that have an influence are: variables related to the organisational context; variables related to the generic context; other real estate strategies; and the added value to all stakeholders. These variables will be used as another component of the decision model and are dependent on the scenarios that will be defined during the single-case study. The model shows the role of juridical-financial flexibility within the real estate decision making process.

The decisive costs
To justify the transformation of a portfolio, it is important that the revenues of change exceed the costs of change. Costs and revenues could be sub-divided into financial and non-financial costs, which both have to be quantified.

The decision-model
At the end of the theoretical phase, the theoretical model and the conceptual analytical model are integrated into the design of the decision-model. In this decision-model, multiple steps have to be
taken to define the desired portfolio that has an optimal level of juridical-financial flexibility. In this way, it can anticipate on changes in organisational and generic context instead of being reactive. The changes in context, the future scenarios and the current real estate portfolio will be used as variables in the generic decision-model. Van Ussel (2010) distinguishes four types of analytical moments to compile a portfolio. His steps are partly used and adjusted into the following step-by-step plan that should be integrated into the decision-model:

» Import the current portfolio of the organisation and distinguish peripheries with the theoretical model (see Table 3).
» Integrate all the properties of each asset with respect to the juridical-financial construction.
» Define the space requirements of the desired portfolio with respect to juridical-financial flexibility. This is compilation that has the optimal level of juridical-financial flexibility.
» Analyse differences with the current real estate portfolios.
» Define strategies to transform the current real estate portfolio into the desired portfolio.
» Integrating maximum growth and shrinking scenarios. These scenarios will be determined by variables that are dependent of the generic and organisational context. The costs of change will be integrated in this step. Also the natural attrition and other properties of the contracts are taken into account.
» Compare the ratio between disposal and maintainability into a lower periphery.

This step-by-step plan is a first approach that will be adjusted during the process of the empirical phase.

Reflection

In September 2012, I have started this research project. It was hard to determine the subject of the research due to the wide range of choices. The combination of lectures, provided research themes, and consultations with the LAB coordinator pushed me into the right direction. By reading the newspapers, magazines and former research projects, I defined the field of research and the other components of the start-up phase. These components were constantly improved during the P1-phase and P2-phase. My mentors helped me to delineate the research and steered during the process, which was necessary.

The pieces of literature that were required to start the theoretical phase were easily found. References in literature send me from research to research which gave me a good impression of current research in the field.

The draft research proposal that is presented in November was evaluated positively and this stimulated me to go forward without looking back. It was sometimes hard to combine different projects of the master Real Estate and Housing, especially because the other project had to be done in a group of five. I finally managed both projects, but I was glad that two weeks of holiday came in between. The theoretical phase is completed and I am looking forward to completely focus on the empirical part of the research, but the first important thing to do is to find a construction company to elaborate the single-case study approach in which the decision-model will be constructed.
1 Introduction

In this chapter, the final research proposal will be introduced. In the first paragraph, the scientific and societal relevance will be discussed. Also the utilization potential of the outcome of the research and my personal motivation will be discussed. In the second paragraph, the main research question and its related sub-questions will be introduced by a concise problem analysis. The objective and intended end product will be illustrated in the third paragraph. The research design, that will illustrate how the sub-questions will be answered, is the subject of the fourth paragraph. In the last paragraph, a reader’s guide will be illustrated.

1.1 Relevance and potential

The economy and change are inextricably linked with each other. The consequence for companies in different sectors is that they have to be able to respond to future change. Whether this change is positive or negative, it will negatively influence competitiveness if a company does not respond to those changes. The level of resource flexibility could be used as a means to react to changes in context. How to decide on the right flexibility level of resources is an interesting, but difficult challenge due to the many factors that have an influence. Real estate is currently seen as one of those resources, and real estate management has to assure the balance between the level of flexibility and the costs of increasing competitiveness. Gibson, who is researcher at the University of Reading and editorial board member of the Journal of Corporate Real Estate, researched the difference between the current portfolio and the desired portfolio in the UK (2000a). She conducted a questionnaire survey by telephone interview with individuals who were responsible for corporate real estate of 48 organisations. 63% of these organisations had more than 100,000 square meters of office space and it could be concluded that there was a significant difference between the current and the desired portfolio in 2000 (see Figure 2). Gibson’s argument for this difference is that real estate managers act as an inertial force to the development of new real estate products. What is this ratio today and, if desired, how can it be aligned into the future?

The desired portfolio is strongly influenced by changes in generic and organisational context. To increase the responsiveness to changes in context, a certain level of flexibility has to be integrated into the real estate portfolio. Flexibility enables opportunities to make spatial, technical, organisational and juridical adjustments in the real estate portfolio to transform the current portfolio into the desired portfolio or to meet an uncertain demand in the future. De Jonge & Den Heijer, professor and assistant professor of the department Real Estate & Housing of the TU Delft, distinguished the following types of real estate flexibility (2004): physical flexibility; functional flexibility; juridical-financial flexibility; and technical flexibility. To optimise the outcome of the
research, the focus will be on one specific kind of flexibility: the juridical-financial flexibility of real estate. This type of flexibility reflects the ability to quickly decrease the costs or increase revenues with respect to real estate at the moment that the quantitative demand for space is changing (De Jonge & Den Heijer, 2004). The contractual agreement is strongly related to the role of specific assets within the core business (Gibson, 2000b). Multiple models that distinguish different parts of a portfolio are already identified in literature, but they are not aligned with each other. This results in the difficulty to use multiple resources into the decision making process in practice. Some of these models, for example the three-tier approach (Gibson & Lizieri, 1999). These differentiation models are analysed in the literature review.

AT Osborne organised two seminars (2009) in which CEOs, real estate managers and facility managers of public and corporate organisations discussed the drivers for decision making with respect to real estate. During these seminars, it appeared that real estate decisions are motivated with business-oriented financial considerations. As a result, the main responsibility is at the desk of the CFO who prefers financial argument to decide between strategies. This indicates that there is a lack of decision models that also integrates non-financial arguments. Real estate managers should integrate both financial and non-financial revenues and costs to weigh different real estate strategies.

In former graduation researches, done by Volkers (2006) and Van Ussel (2010), models are designed to align the current portfolio with the desired portfolio. The goal of Volkers was to optimise the portfolio compilation of the ‘Rijksgebouwendienst’ in the city of The Hague with the use of a price-quality model and a scenario model. In this research, these models will partly be used and extended with variables from the context. The goal of Van Ussel was to optimise the portfolio compilation of ‘ING Nederland’ with the use of a model that integrates different moments of analysis to design strategies. These strategies could be grouped into the following main strategies: dispose of space; retention of space; and acquiring space (Den Heijer & Vijverberg, 2004). The best strategies were translated into decisions. The model of Van Ussel was more extended in comparison to the model of Volkers, but lacks the integration of scenarios and the costs of change. This creates opportunities to design a new model that included the positively evaluated elements of both models.

With previous research and available literature, a decision-model, in which operational research methods are applied, will be constructed. This will be done in Excel with the application of What’sBest software (LINDO Systems, 2012). The costs of strategies to become juridical-financial flexible are decisive. To add value to the core business, the revenues of a certain strategy must exceed the costs to justify change. This process of decision making will be tested with the decision model. To test the usefulness of the decision-model in defining the optimal level of juridical-financial flexibility, it will be tested in single corporate portfolio. The particular organisation is not found yet. Large portfolios could be organised well, but may be unclear to make juridical decisions. The aim of this research is to generate a generic model that can contribute to the decision making process with respect to a real estate strategy.

1.2 The main research question and sub-questions

The optimal level of juridical-financial flexibility is difficult to define, because it is related to multiple dynamic factors. Firstly, there is a negative correlation between the demand for products/services and the price of a product/service (Galbraith & Darity Jr, 2005). An increase in demand can result in a decrease in the price. The real estate costs are part of the total production costs that determine the
price of a particular product/service. Another relation could be identified between the demand for products/services and the required resources. If an organisation strives to maximise turnover, an increase in demand will positively influence the demand for resources to meet the increased demand (Galbraith & Darity Jr, 2005). Therefore, real estate may, together with other resources, be influenced by the demand for products/services. Secondly, the implementation of the new ways of working has a negative correlation with the demand for real estate. Among others, the new ways of working indicate that: employees are partly working at home; flexible working schedules; flexible working places; and teleworking. Thirdly, there is a negative relation between the costs for other resources. If other resources become more expensive, it can influence the demand for other resources. If for example the salary of employees increases, it will pressure the costs for real estate and other resources when supply remains unchanged. Fourthly, the fact that minimal and maximum scenarios change in time, requires that real estate managers have to review their level of juridical-financial flexibility frequently. In 2008, a financial crisis started that changed the balance of the minimal and maximum scenario which influenced the required level of juridical-financial flexibility. A fifth factor is the development of new real estate products, like the development of on-demand assets next to the ownership, leasing and renting possibilities to use real estate. A last relation could be identified between the business strategy and the real estate strategy, in which the level of juridical-financial flexibility is decided. These factors could all be subdivided into the following categories: generic context and organisational context.

Real estate managers have to deal with all these factors during the design of a real estate strategy in which they decide upon the level of juridical-financial flexibility of their portfolio. Their decisions have to contribute to the overall performance of an organisation, but what are their main drivers? Single or a combination of solutions may be applied by real estate managers to realise a certain level of juridical-financial flexibility. The difficult part is to determine the optimal level. The main research question of this research is:

How can real estate managers optimise the juridical-financial flexibility of their real estate?

Figure 3 shows a quick overview of the problem analysis. It states the focus of the research; why and how it will be done; and in the end in which market the research will be done. The goal is to raise awareness of the possibilities that are provided in literature; to raise consistency in literature; and by designing a decision-model for real estate managers that could be applied to find the optimal level of juridical-financial flexibility in their portfolio.

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<thead>
<tr>
<th>What?</th>
<th>Juridical-financial flexibility of real estate in practice</th>
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<tr>
<td>Why?</td>
<td>To contribute to the real estate decision making process</td>
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<td>How?</td>
<td>By designing a decision-model</td>
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<td>Where?</td>
<td>The Dutch market (single case study)</td>
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<td>Who?</td>
<td>Unknown (inter)national organisation (CBRE, RoyalHaskoningDHV, ...)</td>
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Figure 3: Problem analysis
The following sub-questions are designed to divide the main research question:

5. **What is juridical-financial flexibility and how to bring coherence in literature?**

To start this research, the subject should be explored to and delineated. The definitions, approaches and models in literature have to be analysed, compared and linked with each other to make the existing pieces of literature useful for implementation into the empirical part of the research.

6. **Which strategies could be used to adjust the juridical-financial flexibility level of real estate?**

Different strategies could be distinguished that each have their own advantages and disadvantages. When all the strategies are identified, the appropriate strategy could be selected by linking strategies with different scenarios.

7. **How to determine the optimal juridical-financial flexibility level in a real estate portfolio?**

Real estate managers should take a lot dynamic factors into account, when making a decision for an appropriate level of juridical-financial flexibility. How can they do that when the available tools and solutions in literature are applied? How to define optimal? A goal is to design a generic decision-model that real estate managers can use in the decision making process.

8. **Is it possible to build a decision-model that can contribute to the real estate decision making process by defining the optimal level of juridical-financial flexibility within a single portfolio?**

By using the software What’sBest (LINDO Systems, 2012) into Excel, operations research methods will be applied to define the optimal compilation of the portfolio with respect to the juridical-financial flexibility.

To test the usefulness of the decision-model, an existing portfolio of an (inter)national corporate organisation that is operating in the Dutch market will be integrated into the decision model with all its properties. Subsequently, variables and strategies that are resulting from the literature study will be integrated to define the optimal level of juridical-financial flexibility by using multiple scenarios.

At the end, the application of the decision-model to a single organisation will be evaluated and adjusted into a generic decision-model that is applicable to real estate portfolios of other organisations.

**1.3 The objective and intended end product**

The objective of the research is to provide an understanding how real estate managers can optimise the juridical-financial flexibility of their portfolio in order to develop the knowledge for real estate management science and draw empirical lessons for real estate management practice.

A theoretical model will be presented that combines and develops existing pieces of literature and previous research with respect to juridical-financial flexibility. This theoretical model will be used in this research, but could also be relevant in future research.

With the end product, a decision-model in Excel with the application of the What’sBest software (LINDO Systems, 2012), real estate managers can determine the optimal level of juridical-financial flexibility for their real estate portfolio in order to optimally respond to changes in context with minimal flexibility costs. The usefulness of this decision-model will be tested in a single case study. The objective of this model is to switch a real estate strategy from reactive towards anticipating.
The end result will be a generic model in which variables from the context could be translated into scenarios to find the optimal juridical-financial flexibility. Subsequently, strategies could be defined to transform the current portfolio into the optimal compilation of the real estate portfolio with respect to juridical-financial flexibility. This decision-model can help real estate managers to analyse the range of choices in the market and to determine the optimal level of juridical-financial flexibility.

1.4 Hypothesis

A hypothesis is made because it defines specific aspects that should be investigated. It also helps in defining what data to collect and what data not to collect and it may add to the formulation of theory. In short, a hypothesis will bring clarity, specificity and provides a focus to the research problem.

When looking to the current implementation of juridical-financial flexibility in real estate, it is expected that the optimal level is not equalled based on research that is done by Gibson in 2000 (see sub-paragraph 1.1). It always takes time to implement new possibilities like on-demand assets. Contracts are concluded for multiple years, which results in the fact that real estate managers always flog a dead horse and it is difficult to design a real estate strategy that anticipates instead of being responsive. Volkers (2006) researched the juridical-financial flexibility in a municipal portfolio and concluded that the level of it was too high, which resulted in unnecessary expenses. This indicates that organisations with this unnecessary high level of juridical-financial flexibility exist.

It is expected that there will be a difference between the current end desired portfolios as a result of two factors. First, organisations struggle with exit costs of real estate. The revenues/costs ratio is too hard to measure. Secondly, other strategies are hard to quantify. Besides, there is an expected difference in the alignment between the goals of a real estate strategy and its execution. This could be concluded from the research by Gibler, Black & Moon (2002), who concluded that organisational structures vary. Some organisations treat their real estate as a cost center, while others use their real estate as a profit center. Organisations also use different time horizons for their real estate. For most companies, this time horizon is five years or less, with many using time horizon that are less than three years (Gibler, et al., 2002). These shorter time horizons resulted in a higher demand for short-term contract (Gibson, 2000a).

The effect of the level of juridical-financial flexibility on daily processes is that employees have a higher productivity, but could also have a negative impact. Employees have a higher focus and productivity, because they have the feeling that they are replaceable. It also has an impact on the social connections between employees. The social connections have a higher quantity, but a lower quality. This is the result of the fact that employees do not have their own desks in a corporation with a high level of flexibility (new ways of working). It could have a negative influence due the interruption of the business cycle. When contract are terminated, employees have to move to other buildings, which will cost time and energy.

Juridical-financial flexibility is possible in each organisation, but in some business is it more desirable than in others. In common, applications of flexibility are only desired in the right situation and at the right costs. In dynamic organisations for example, flexible work setting are desired to react on changing business conditions, changing product focus and production strategies, and fluid patterns of work (Joroff, Louargand, Lambert, & Becker, 1993).
The reason why organisations do not optimise the juridical-financial flexibility of their real estate is that the exact results are unknown by the managers. Besides, the results are mostly indirect and hard to quantify (Krumm & De Vries, 2003). The literature of flexibility in real estate is not consistent enough to take its results for granted. Part of the expected problem is that the process to become juridical-financial flexible is a long process. Real estate managers are scared to sell their buildings without being profitable, while sale-and-lease back could be seen as an investment for a longer period and a protection against an uncertain future.

In literature, it is expected that the ownership of real estate by organisations will decline and that the demand for on-demand assets will grow (CoreNet Global, 2012; Krumm & De Vries, 2003). The question is, if this is the appropriate strategy and how these decisions are evaluated. The list of possible strategies is becoming longer, which does not make it easier to make decisions. Real estate managers have to take multiple variables from the organisational and generic context into account when making real estate decisions (Hoendervanger, et al., 2012).

Organisations that supply these instant offices aiming at a market share of 15% of the office sector (Regus, 2012). This indicates that 15% of each real estate portfolio will be an instant office, which is a furnished office space that could be used on demand. By the introduction of this opportunity, real estate can become a dynamic resource. It will be delivered at the moment that it is required and exit costs are low. This will increase its price, but it will be worth the expense because the main risks are eliminated.

The generic tool that is designed could be used by real estate managers to optimise their juridical-financial flexibility in their real estate portfolio. It also increases coherence in literature, but the following elements should be integrated based on former research by Volkers (2006) and Van Ussel (2010): weighed strategies; scenarios; portfolio differentiation; the added value to all stakeholders; and the revenues/costs ratio.

1.5 The research design

In this research, which is done in an empirical cycle, a combination of two types of research, ‘the qualitative-quantitative-qualitative approach’, will be used to conduct the research. Figure 4 shows an overview of the research design. The start-up phase, in which a problem analysis resulted in the determination of the research question, the sub-questions and the objective of the research, started before the theoretical phase. It should be noted that these defined components of the research are constantly changing during the progress of the research. At the end of the start-up phase a hypothesis is made to increase the focus of the theoretical part of the research. The theoretical phase of the research, which is completed in the P2-phase of the research, was related to the following sub-questions:

1. *What is juridical-financial flexibility and how to bring coherence in literature?*

2. *Which strategies could be used to adjust the juridical-financial flexibility level of real estate?*

At the start of a research, it is important to get related with the subject and to have a grip on it. This is realised with the use of primary and secondary sources for data collection (Kumar, 2011). The primary sources consisted of conversations with different tutors that are related to real estate management. Conversations with the lab-coordinator of real estate management and with both mentors have created new insights during the theoretical phase. Also a conversation with Soeter, who was the second mentor of both the graduates Volkers and Van Ussel, resulted in a different view
to the subject. The secondary sources consisted of documents, which were publications and earlier research in the field. By searching on the web and in the library, the existing pieces of literature are analysed, compared and linked with each other to be able to answer the first two sub-questions (S1 and S2). The use of primary and secondary resources has occurred alternately, which improved the quality of the theoretical phase as a result of multiple views to the applied analysis. Two models are designed in these theoretical phases that are required to execute the empirical part. The first model is the theoretical model, in which literature is combined with respect to the differentiation of the portfolio. This model will be used to divide the portfolio into categories during the single-case study. The second model, a conceptual analytical model combines pieces of literature that are related to the variables that determine a real estate strategy and the added value of a certain strategy. These variables will be used as another component of the decision model and are dependent on the scenarios that will be defined during the single-case study.

After the theoretical phase, in which the body of knowledge is largely increased, the construction company should be selected to apply a single-case study. This single-case is selected to elaborate a decision-model, in which operations research methods will be used in combination with the results of the theoretical phase. The aim is to optimise the level of juridical-financial flexibility of the selected corporate real estate portfolio. The focus of the single-case study will be on answering the other sub-questions (S3 and S4):

3. **How to determine the optimal juridical-financial flexibility level in a real estate portfolio?**
4. **Is it possible to build a decision-model that can contribute to the real estate decision making process by defining the optimal level of juridical-financial flexibility within a single portfolio?**
The single-case study will increase the understanding of a larger class of similar units, wherein a unit connotes a spatially bounded phenomenon observed at a single point in time (Gerring, 2004). A cumulative case study focus is chosen due to the time constraint. In this way, former research by Volkers (2006) and Van Ussel (2010) is used that will allow for greater generalization without time being expended on repetitive studies. While applying the single-case study, the hypothesis will be tested.

Deductive reasoning is used to develop a theory model, which has been performed by the application of a top-down approach. In this top-down approach, the more general elements have been researched first by studying literature and by doing interviews. Throughout the theoretical phase, the focus was narrowed which increased the body of knowledge that is required to apply the empirical part of the research. This theoretical phase has ended after the completion of the P2 presentation. During the process the empirical phase of the process will start in February, after a construction company is found. To acquire the necessary financial and additional property data such as the current real estate contracts, the annual reports of the last five years and past portfolio decisions will be analysed to extract data direct from the company balance sheets. An amount of five years is chosen, because most organisations use five years as a time horizon for their real estate. Also an interview with the real estate manager will be taken. In this interview, the real estate strategy, if there is one, will be questioned to assess the role of corporate real estate in company policy. What are the drivers behind real estate decisions? A basis for the interview scheme could be founded in Appendix I – Interview scheme. The complete set of data will be compared with the results of the theoretical phase. Due to the application of triangulation by using interviews and annual reports as sources of data, it will increase the validity of data. During this phase, variables will be defined as input for the decision-model. After the observation phase the confirmation will take place, which will result in conclusions that will sharpen the variables that will be used in the decision-model.

The selection of case is a critical part of the process. It is important to find an appropriate case in which the decision-model can be used and subsequently, from which generalised conclusions could be drawn. The selected case will be the basis of a thorough, holistic and in-depth exploration of the juridical-financial flexibility of real estate (Kumar, 2011). Selection criteria are made in advance for the selection of the single-case study. The first criterion is that the organisation must operate in the Dutch economy to prevent the complexity of foreign juridical aspects. The organisation may operate international as well, but in that case, the Dutch part of the portfolio will be used. The second criterion is that the Dutch portfolio should be at least 100,000 m$^2$ to make the usefulness of the model significant. The third criterion is that the portfolio has a large amount of office space (>60%) to prevent that assets are analysed that accommodates special functions that are impossible to sell or transform. The sector in which the organisation is operating is of less importance. Besides the conceptual selection criteria for the single-case study, there are also some pragmatic considerations that should be covered with the selection of a construction company. These pragmatic considerations are the availability and accessibility of data in combination with the willingness to cooperate.
To determine the optimal level of juridical-financial flexibility, a decision-model in Excel in combination with the What’sBest software (LINDO Systems, 2012) and operations research methods will be used. In this decision-model, the focus will be on optimising the problem solving solutions using mathematics. This will be elaborated in a cyclic and iterative way by using data that results from theoretical and empirical research. In Appendix II, a first impression of the decision model could be seen. At the top of the model, the theoretical model is integrated. At the left, variables are included as an example. At the bottom, scenarios are defined to define different strategies.

It is expected that the required data to construct the model is confidential to prevent unauthorized use of data. If this is the case, virtual data will be used in the report to show the usefulness of the model. The confidential data will be included in the appendix that is only open to the supervisors.

After the empirical part, the decision-model that is used to optimise the level of juridical-financial flexibility will be evaluated and adjusted to a generic model that could be used to optimise the level of juridical-financial flexibility of other organisations. To complete the research, a relation between literature and practice for this particular field of study will be concluded. Also recommendations for further research will be provided.

The research could be defined from three perspectives (see Figure 5), which are the number of contacts, the reference period and the nature of the investigation (Kumar, 2011). From the perspective of number of contacts, cross-sectional study will be implemented, because the focus is on a particular phenomenon. From the perspective of the reference period, a retrospective-prospective study will be applied in which the applied level of juridical-financial flexibility is measured and it will be studied into the future. From the perspective of the nature of the investigations, an experimental study is used that starts with the cause to establish the effects. Figure 5, that is based on a model presented in the book of Kumar (2011) shows a quick overview of the study design.

1.6 A reader’s guide
The report will have a chronological structure which is visualised in Figure 6. The research starts with the problem statement that the level of juridical-financial flexibility could still be optimised. In chapter two, the problem will be further analysed and a research design will be constructed in chapter three. The elaboration phase starts with a theoretical research in chapter four, five and six. In these chapters, the literature is used to make a theoretical model and a conceptual analytical model. The theoretical research is followed by the empirical research in chapter seven and eight. The single case study to study the subject into the future will be elaborated in these two chapters. In chapter nine, which is the start of the final phase, a generic model will be presented that could be used to optimise the juridical-financial flexibility of other real estate portfolios. In the last two chapters, conclusions and recommendations will be the main subject.
2 The theoretical phase

Corporate companies are finding themselves in a market where changes are occurring at an ever-increasing pace. This market could be characterised by the following elements: the political uncertainty that is affecting the business; social and economic trends that cannot be denied; the increasing impact of ICT; and organisational changes within companies. Managers have to manoeuvre within this uncertain context to be able to compete with other companies. A guideline for managers is to have business strategy that states the main goal and strategy of the company. It is important that all processes within a company are aligned with this strategy if they are to be effective and efficient. One of those processes is the management of real estate.

Since the late 1990s, it has become largely recognised that a change in corporate real estate requirements is strongly related to organisational and environmental change. The need for any corporate real estate strategy to be responsive, for example to technological change, is what influences the management of work processes. New technologies have changed the work process and have influenced the design and management of the workplace. The new technologies that were introduced in the workplace environment also had a major impact on the demand for space within the portfolio. The literature focus also switched from survey-based work to a closer examination of change in demand for space resulting from business change. (Gibson & Luck, 2006)

Real estate has a static character, which implies that real estate management is a complex matter. The following characteristics are attributable to real estate: high investments; high periodic costs; illiquidity; intensive management; immobility; inflexible; long life cycle; and shorter economic life cycle. (Beukering, 2008)

Joroff et al. (1993) stated that real estate could be seen as a fifth resource, alongside the four traditional resources, to support the core business. The traditional resources that are: referred to are people; technology; information; and capital. The main difference between real estate and the other resources is the fact that real estate is an inherently inflexible asset and static in terms of supply, while the other types have a more dynamic character. If real estate had a more dynamic character it
would give real estate managers the ability to react more accurately to changes in context. Despite the fact that since the 1990s real estate management has become a recognised profession and has been seen as a fifth resource, the contribution of real estate to corporate strategy can still be significantly improved (Scheffer, Singer, & Van Meerwijk, 2006). The task for real estate managers is to establish how space can optimally support the business processes in a changing context.

Different strategies could be distinguished to align the business processes to corporate strategy. An example of such a strategy is by steering added values. To quantify all added value of real estate different added values of real estate are defined. De Jonge (1996) defined seven added values of corporate real estate which could support corporate strategy. These added values are: productivity; costs; risk; value; flexibility; culture; and PR & Marketing. Previous research (Scheffer, et al., 2006) indicated that, when looking to the strategic driving forces ‘market’ and ‘growth’, the focus in corporate real estate should be on ‘flexibility’, ‘PR & Marketing’ and ‘risk control’, because these added values offer the greatest potential for stronger positioning. Further focus in this research will be placed on the added value of flexibility.

The main driver of flexibility is uncertainty (Barlow, et al., 2011). A higher uncertainty is associated with a higher flexibility demand by organisations, which will increase the responsiveness to change. The need for flexible real estate solutions is driven, on the one hand, by the necessity to support business change at a strategic level and, on the other hand, by the desire to make staff more productive at the operational level (Gibson, 2003). The main effect of optimising flexibility is that it postpones obsolescence for physical and financial corporate real estate aspects (Heywood, 2011). Applying a flexibility strategy also prevents hidden vacancy (Bruins, 2010). Every organisation should be triggered by its effects, but it is expected that organisations have different ideas about flexibility in their portfolios. Another effect of optimising the flexibility of real estate is that it minimises risk by creating the ability to adopt different future scenarios (De Jonge & Den Heijer, 2004). Thus, flexible real estate makes it easier to change the supply of real estate to meet uncertain demand in the future by being able to make spatial, technical, organisational and juridical adjustments. What is the vision, if there is one, of real estate managers towards flexibility in real estate? Is it integrated into the real estate portfolio? What are their drivers for decision making?

Within a real estate strategy, Gibson (2001) defined three types of flexibility. The first type of flexibility is physical flexibility, which reflects the aspects of design (building level) and the possibility of acquiring or disposing of space (portfolio level). The second type of flexibility is functional flexibility, which reflects the activities that can actually be undertaken inside a building. The last type of flexibility is financial flexibility, which reflects the types of contract that indicates the rights of use. De Jonge and Den Heijer (2004) add another type of flexibility: technical flexibility, which involves the flexibility of the construction and all the installations to change the shape and the layout of a building. De Jonge and Den Heijer distinguish the internal and external space of an asset, while Gibson combines them. Therefore, this type of flexibility could be identified as the physical flexibility of Gibson. Another difference is the financial flexibility of Gibson and the juridical-financial flexibility of De Jonge and Den Heijer. This has a relation with the year of the research. Gibson defined financial flexibility, but also explains a lack of literature of this particular flexibility type. Only freehold ownership has been seen as flexible, while since 2001, new contract types were introduces with defined contract terms and the ability to terminate an obligation. This transformed the financial flexibility into juridical-financial flexibility. During the seminar of AT Osborne, the participants defined five different types of flexibility. Three types of flexibility are identical to the types of flexibilities that
are indicated by De Jonge and Den Heijer, but the juridical-financial flexibility is subdivided into financial flexibility and disposal flexibility. They defined the financial flexibility as the liquidity to invest in the core business, which indicates a low rate of real estate ownership. Disposal flexibility is defined as the ability to dispose parts of the building without harming the core business. Table 1 gives an overview of all types of flexibility in relation with each other and Figure 7 gives an overview of all the flexibility types that are identified by De Jonge and Den Heijer (De Jonge & Den Heijer, 2004).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical flexibility</td>
<td>Functional flexibility</td>
<td>Juridical-financial flexibility</td>
<td></td>
</tr>
<tr>
<td>Technical flexibility</td>
<td>Functional flexibility</td>
<td>Disposal flexibility</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Flexibility types

2.1 The delineating of the research

This thesis will be an in-depth study into the juridical-financial flexibility in real estate portfolios. This type of flexibility reflects the ability to quickly dispose or vacate space when the quantitative demand for space changes (De Jonge & Den Heijer, 2004). The juridical aspect of this type of flexibility is related to the legal structure of the contract that has been concluded for the use of real estate that supports the core business. The financial part of this type of flexibility is related to the liquidity, which concerns the financial consequences of different contracts. Financial flexibility is related to the degree of liquidity that enables an organisation to invest into the core business instead into real estate (AT Osborne, 2009). These two types are combined because they are inextricably linked.

Figure 8 is an overview of the essential parts of juridical-financial flexibility within real estate. Basically, the legal structure of the contract influences the financial consequences. Five different legal structures could be identified (Hoendervanger, et al., 2012; Regus, 2012), which are freehold ownership, rent, financial lease, operational lease and flexible lease. Each type of contract has different properties which could be seen in Error! Reference source not found.. The properties of a specific contract type are resulting in advantages and disadvantages of a specific type.
Ownership
Ownership of a building will give possessions rights to the user, which creates the ability to dispose, retain or transform the building to align it to the corporate strategy. If the long term use of the building is assured, ownership has economic advantages because the building could be sold at the end of its use. The costs of capital and the risk of a decreasing value of the property should be taken into account. It could be seen as a type of contract that is in line with the current market, because the value is strongly influenced by market conditions. For the short term, ownership is disadvantaged due to the period of selling. If the property is financed with borrowed capital, the taxes could be lowered with the interest rate. Besides, it is possible to amortise. Another disadvantage is the fact that capital needs to be reserved for maintenance. In practice, it occurs that real estate is capitalized during bad times. By using a restructuring strategy, shareholder value is created or the balance sheet is improved during bad times (Buijssen, 2000).

Rent
The main advantage of lease is its flexibility to exit the contract and the independency to the real estate market, but it will only generate the right to use the building. The flexibility is bounded by contract terms of 5 year (plus additional periods of 5). The rent will be increased due to inflation. The rent could be paid with a monthly income, so investment costs are not required. The rent is not shown on the balance, which makes the return on invested capital attractive. Only the small maintenance costs have to be paid by the lessee. So, the risk for unexpected investments and the risk of a changing market are eliminated.

Lease
In a lease contract, the complete costs for all years are known in front, which indicates that there will not be unknown increases of the rent. Two types of leases could be distinguished. The financial lease indicates that the investment costs are made by the lessor. The property can be used by the lessee with only paying a monthly amount that represents the investments costs inclusive interest rate. At the end of the lease, the lessee becomes owner of the property. This particular lease indicates that liquidity is assured and the risks are low, but the monthly amount that has to be paid is relatively high. The operational lease is exactly the same as the financial lease, but at the end of the lease, the
lessee will not become owner of the property. Just like a rent contract, this type of contract is not shown on the balance. An advantage in comparison to the financial lease is that maintenance costs have to be paid by the lessor.

**Flexible lease**
This contract could be used if office space is needed for a short term (<1 year). The main advantage is that is paid for its use on a daily, weekly or monthly basis. The offices are furniture and maintenance costs are included. The costs of capital are eliminated and the flexibility is high.

Due to the limited capacity of organisations to borrow capital, they have an off-balance strategy. It generates financial advantages, but it is expected that a new IFRS standard will result in the elimination of off-balance-sheet accounting for operational leases (PricewaterhouseCoopers, 2013). This is an important fact, because it will eliminate the advantage that an operational lease could be off-balance. If real estate is listed on the balance, it will decrease market risk, but it increases the operational leverage. This is resulting in a higher volatility of the business results (Buijssen, 2000).

CoreNet Global (2012) stated that the demand for owned real estate is decreasing and that the demand for on-demand assets will grow. Third parties should, as readily, provide these on-demand models of office space, in which assets outside the portfolio are leveraged as they provide owned assets to meet the dynamic demand. An example of a third party is Regus, which is the world’s largest provider of flexible workspace and is represented in 95 countries. They can provide offices with a capacity of 1 to 500 persons that are directly available and are fully serviced. These on demand offices could be leased from day-to-day, from week-to-week or from year-to-year. The following products and services could be distinguished: office space on your terms, for days, months or years; virtual offices; meeting rooms, bookable by the hour; video communications; business lounges; business world, which is on-demand access to business environment independent on time and place; and workplace recovery, when workplace disruption occurs. Regus (2012) advertise with flexible leases for services office space that could save up to 60% on office costs as a result of the elimination of capital costs and the flexible contract that is based on a pay-as-you-use concept.

In line with the expectation of CoreNet Global, Krumm and De Vries (2003) concluded in their research into value creation through the management of real estate that corporate users should liquefy their current ownership positions, because there is a consistent negative relationship between the firm’s return and the degree of real estate ownership (Deng and Gyourko, 1999, in Krumm & De Vries, 2003). The direct added value is often considered to be of no value, but real estate can play a pivotal role in business success (Duffy, 1997, in Krumm & De Vries, 2003). This role has indirect revenue and is hard to quantify, which makes it difficult to implement.

In practice, it is common that different types of contracts are concluded within a single real estate portfolio. To decide what type of contract is recommended is dependent of the fact which part of the business is accommodated in a particular asset. In the next paragraph, portfolio differentiation will be further explored.

### 2.2 Portfolio differentiation
In literature, different models are designed to divide portfolios into different types of real estate in order to link each type with a specific strategy with respect to juridical-financial flexibility. The idea behind these models that it is more attractive to own or lease the building with a long contract term.
It has financial advantages if the occupancy of the building is assured. Short term contracts with low exit costs have the advantages that they could easily be terminated if space is not needed anymore.

Gibson and Lizieri (1999) have developed a three-tiered approach in order to examine a corporate office portfolio (see Figure 9). They are reasoning from a HRM point of view and want that real estate needs to support the organisation. Therefore, real estate needs to respond to fluctuations of employees in the organisation. In doing so, they differentiated between core real estate and periphery real estate that supports core real estate. The core real estate preferably has a high level of functional flexibility and the peripheral real estate should have a high level of numerical/short-term flexibility.

The core portfolio, which is needed by an organisation for the long term, includes facilities which are strategically located (manufacturing), landmark properties (headquarters) and space that relates to the source of competitive advantage (research and development). As a result of the fact that these properties will be part of the organisation’s portfolio for a long time (>10 years), these properties should be owned on a freehold or long leasehold basis to assure a physical and functional flexibility.

The first level of the periphery portfolio, requiring numerical flexibility, is introduced to respond to changes in demand that occur during the business cycle. From a financial point of view, it is preferable to exit the financial contract at an unknown point in time (3-5 years). It is attractive to make a rent contract or define an operational lease to assure a level of juridical-financial flexibility.

At the second periphery portfolio level, in which short-term flexibility is required, speed of exit is paramount (<1 year). There it is financial flexibility that is most important. Two different types of space could be identified. The first type are ‘specialist spaces’, like conference centres, which are infrequently used throughout the year. Secondly, there is generic office space, like serviced office provision, which is needed to house overflow activities on a short-term basis. To assure a high level of juridical-financial flexibility in this periphery, flexible lease should be concluded.

Adema (2006, in Bruins, 2010) has developed a real estate model in which business critical real estate is linked with the time horizon (see Figure 11). Subsequently all assets will be divided into flexible or ownership assets. Assets that are less critical for the core business and are needed for a short term will have a flexible juridical character.
Mather, who President of Critical Core, a corporation that strives to workplace resource optimization, presented a resource classification model during the CoreNet Global Executive Development Program (2007). In this model, both business variability and the extent of tenant specific improvements are reflected (see Figure 11). Captive is real estate that has a low strategic value, but significant financial, geographic, political or pre-existing risk obligation. Core is real estate for the long term that is essential to the business and is not easily replaced. Key is real estate that is currently strategic but may be disposable in the longer term. Fluid is real estate that has a low strategic value and no significant duration.

Van Ussel (2010) differentiates three types of portfolio types in his research to determine associated possible real estate decisions. These three categories on portfolio level are: the disposable space; the retention space; and the acquired space.

Gibson & Lizieri and Adema both include a time horizon in their models. The portfolio differentiation of Mather is comparable to the model of Gibson & Lizieri, but she also included the option to quickly dispose an asset. In all models, except for the model of Van Ussel, a difference in core business and secondary businesses is included. Just as Mather, Van Ussel also differentiates a category of disposable assets. Table 2 gives an overview of all important aspects of these different models.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Origin</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>To examine a corporate office portfolio.</td>
<td>New business practices and the corporate property portfolio.</td>
<td>Core portfolio 1st Periphery 2nd Periphery</td>
</tr>
<tr>
<td>To link business critical real estate with the time horizon.</td>
<td>Innovative concepts</td>
<td>Flexible Flexible/Conventional Conventional</td>
</tr>
<tr>
<td>To divide the real estate portfolio into four types in relation with different ways of financing.</td>
<td>Adding value through portfolio management</td>
<td>Captive Core Fluid Captive</td>
</tr>
<tr>
<td>Divide the portfolio into three categories to determine possible real estate decisions.</td>
<td>Based on strategies (Den Heijer &amp; Vijverberg, 2004)</td>
<td>Dispose Retention Acquire</td>
</tr>
</tbody>
</table>

Table 2: Different models to differentiate the real estate portfolio
During the single-case study in the empirical phase of the research, a real estate portfolio will be analysed and subsequently, the objective is to determine the optimal level of juridical-financial flexibility. For this purpose, a theoretical model is designed that combines different element of scientific models that are applicable in the research. In this model (see Table 3), the portfolio could be differentiated into three components. This differentiation of the portfolio has a lot in common with the three-approach of Gibson & Lizieri (1999), but the description is adjusted by integrating the other models. When a portfolio is analysed it could be concluded that a specific asset of a particular periphery needs to be transformed due to the expected future scenarios. The real estate decisions could be subdivided into the three categories of Den Heijer & Vijverberg (2004).

<table>
<thead>
<tr>
<th>Portfolio components</th>
<th>Description</th>
<th>Juridical-financial flexibility</th>
<th>Sub-division (Den Heijer &amp; Vijverberg, 2004)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core portfolio, based on:</td>
<td>Strategic real estate that accommodates the core business of the organisation and will be needed for the long term (&gt;10 years).</td>
<td>Ability to change use; Freehold ownership/financial lease</td>
<td>Dispose, retention or acquire core portfolio assets</td>
</tr>
<tr>
<td>= (Gibson &amp; Lizieri, 1999)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Conventional (Adema, 2006 in Bruins, 2010)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Core and Captive (Mather, 2007)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Periphery, based on:</td>
<td>Currently strategic real estate that supports the core business of the organisation and may be needed for the medium term (3-5 years).</td>
<td>Ability to exit; Operational lease or rental contract</td>
<td>Dispose, retention or acquire 1st periphery assets</td>
</tr>
<tr>
<td>= (Gibson &amp; Lizieri, 1999)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Flexible/Conventional (Adema, 2006 in Bruins, 2010)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Key (Mather, 2007)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd Periphery, based on:</td>
<td>Real estate that supports the core business of the organisation, but that has a low strategic value and may only be needed on the short term (&lt;1 year).</td>
<td>Short flexible use; Pay as you use/on-demand assets</td>
<td>Dispose, retention or acquire 2nd Periphery assets</td>
</tr>
<tr>
<td>= (Gibson &amp; Lizieri, 1999)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Flexible (Adema, 2006 in Bruins, 2010)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Fluid (Mather, 2007)</td>
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</table>

Table 3: Theoretical model

2.3 Strategies

A real estate strategy is required to be able to respond to changes in context. A component of a real estate strategy could be the implementation of juridical-financial flexibility, which is a proactive and emergent strategy. In this research, the optimal level of juridical-financial flexibility in a real estate is researched. The term ‘optimal’ should be further defined to draw conclusions. The optimal level is achieved at the moment when the costs and level of juridical-financial flexibility are perfectly balanced in which unnecessary flexibility is prevented. This indicates that the revenues of a certain level are higher than the costs, which will enhance the productivity, profitability and distinctiveness of an organisation in the market.

In the late 1990s, corporate real estate managers in the UK argued that financial flexibility was only possible to achieve through freehold ownership. The result of freehold ownership is that a real estate manager is in total control over what could happen to the property. He had the ability to sell, mothball or sub-let the property. When a property was leased, it resulted in both contractual and financial constraints. (Gibson, 2000b) The disadvantage of ownership is the dependence to the economic situation during the selling process. This economic situation can make this type of contract...
inflexible at the moment that the building is prolonged vacant. Besides, the risk of a decrease in book value is the risk of an owner instead of the risk of the investor when real estate is rented.

Within an organisation, different activities occur, some of which may require the ability to demand space on a short-term basis. For these activities the cost of occupation may be high, but they are worth the expense (Gibson, 2000b). The extra expense may satisfy the consumer and could even prevent customers moving to the competition.

As illustrated in paragraph 1.1 (see Figure 2), Gibson (2000a) researched the difference between the desired portfolio with the current portfolio. It was concluded that there was a significant difference between these two. To transform the current into the desired portfolio, multiple strategies could be identified that can realise this desire. Bruins (2010) has researched the responsiveness of real estate portfolios in which he made an overview of all strategies (see Table 4). Four different strategies are added to this list. A single or a combination of strategies could be chosen to realise a certain level of flexibility. It should be noted that in the application of a strategy, one is dependent of supplier of real estate and the business cycle (Bruins, 2010).

<table>
<thead>
<tr>
<th>Juridical-financial strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruins (2010), based on:</td>
</tr>
<tr>
<td>- Gibson &amp; Lizieri (1999)</td>
</tr>
<tr>
<td>- Mather (2007)</td>
</tr>
<tr>
<td>Deliberate choice between freehold ownership, lease and rent</td>
</tr>
<tr>
<td>Diversification in contracts</td>
</tr>
<tr>
<td>Strategic contract terms (&lt;3 years; 3-10 years; or &gt;10 years)</td>
</tr>
<tr>
<td>Break clauses</td>
</tr>
<tr>
<td>Different contracts within a single building</td>
</tr>
<tr>
<td>Break clauses with a predetermined penalty</td>
</tr>
<tr>
<td>Contract extension per year</td>
</tr>
<tr>
<td>Ability to dispose building parts to the owner</td>
</tr>
<tr>
<td>Ownership of marketable buildings that could quickly be sold or leased in the real estate market</td>
</tr>
<tr>
<td>Regus (2012)</td>
</tr>
<tr>
<td>Use of serviced office providers</td>
</tr>
<tr>
<td>Mather (2007)</td>
</tr>
<tr>
<td>Options to quickly acquire space</td>
</tr>
<tr>
<td>Dispose, retention or acquire space (see Table 5)</td>
</tr>
</tbody>
</table>

Table 4: Juridical-financial strategies

As stated in paragraph 2.2 and in Table 4, Van Ussel combined different mutations on building level into a quick overview of all opportunities. Each of the three main strategies could be sub-divided into single strategies. Table 5 gives an overview of all mutations. Each mutation has its own characteristics that result in advantages and disadvantages. The mutation should be weighed per object and in relation to each other.

<table>
<thead>
<tr>
<th>Disposal</th>
<th>Sale</th>
<th>Leave</th>
<th>Sub-let</th>
<th>Demolish and redevelop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td>Maintain</td>
<td>Transform</td>
<td>Vacancy</td>
<td>Rearrange</td>
</tr>
<tr>
<td>Acquire</td>
<td>Buy</td>
<td>Rent</td>
<td>Build</td>
<td>Operational / financial lease</td>
</tr>
</tbody>
</table>

Table 5: Possible mutations of real estate (Van Ussel, 2010, supplemented with information in paragraph 2.1)
Having a higher level of flexibility is equivalent to having higher investment costs. How can one decide the appropriate balance between the level of flexibility and costs? Maximal flexibility is not profitable, because in a portfolio where all assets are flexible some parts of the portfolio will never be used in a flexible way. Volkers (2006) designed a schematic overview that is based on a model that is designed by Arkesteijn (2005). This schematic overview could be seen in Figure 12 and represents the relationship between the current level of flexibility and the required level flexibility in a portfolio that consists of owned real estate and real estate that is rented.

In this schematic overview the current level of flexibility (2) is equal to part of the portfolio that is leased. It depends on the contractual agreement, but this could be questioned because a recently concluded contract for five years is not flexible. The current level of flexibility is in any case equal to the abilities to dispose real estate due to expiration of the contract. This indicates that the level of flexibility changes in time due to its dependence on contract terms. In addition, the ability to acquire space is also part of the flexibility, because an organisation is dependent on the supplier of real estate for its product. So, the required flexibility should be equal to the difference between the minimal and maximal scenario to be able to respond to these scenarios. The included maximal growth scenario and minimal shrinking scenario researches the consequences of possible or expected future scenarios with respect to the demand of real estate by the organisation. Hoendervaner et al. (2012) distinguishes three types of scenarios. These types are: extrapolative scenarios that explore the future by extrapolate current trends; explorative scenarios that explore the main trends and uncertainties; and normative scenarios that try to reach a desired future scenario. Dewulf stated (cited by De Jonge & Arkesteijn, 2008) that scenarios with a low predictability and large impacts should be included after defining strategies that have much steering opportunity and a large impact. These strategies must be confronted with the various scenarios to determine the optimal real estate strategy.

Van Ussel (2010) distinguishes four types of analytical moments to compile a portfolio. First, it is researched what the desired by comparing the current portfolio to the qualitative demand. Secondly, the space requirements are researched by comparing the selected buildings to the space requirements with respect to the qualitative standards. Third, the possibilities are explored by identifying to which extent the desired portfolio compilation that is based on the first two analytical
moments could be realised within natural attrition of rent and lease contracts. Fourth, it will be identified what is necessary by comparing the ratio between maintainability and disposal of real estate. The role of scenarios is not fully elaborated in the research of Van Ussel, which creates opportunities for this research. These analytical moments that are described by Van Ussel will be used in determining the optimal level of real estate flexibility.

### 2.4 Conceptual analytical model

Prior to the focus on decision modelling, the role of juridical-financial flexibility within a real estate strategy should be further identified. Figure 13 gives an overview of its role. The aim of a real estate strategy is to anticipate on a changing context. This context could be subdivided into an organisational context and a generic context. Both are influenced by multiple variables that cannot be influenced. As written in the previous paragraph, scenarios could be used to anticipate on these variables. By taking into account different scenarios, and weigh the revenues to the costs, the appropriate strategy could be chosen. Next to other sub-strategies, the level of juridical-financial flexibility is part of such a strategy. It is important that sub-strategies are not conflicting to each other. The sub-strategies have to be responsive to changes in organisational and generic context. If this responsiveness is decreasing, the real estate strategy should be reformulated. At the moment that the responsiveness is maintained, the sub-strategies will increase the added value of a real estate strategy. These added values could be divided into productivity, profitability and distinctiveness. The main goal of a real estate strategy is to add value to the core business of an organisation. The added value will have consequences for internal and external stakeholders. It is important to identify the consequences for each stakeholder before a real estate strategy is concluded.

![Figure 13: Conceptual analytical model (based on Hoendervanger, et al., 2012)](image-url)
For example, suppose that in determining the juridical-financial flexibility is concluded that meetings with clients are part of the 2nd periphery portfolio in which external office space is rented at a short term. This will have an influence on the users, because travel time is related to their productivity. It may also have an influence on the identity of the organisation if clients are invited into meeting rooms that is rented per day. It could create a trust issue. Therefore, real estate strategies need to be weighed carefully.

2.5 The costs are decisive
The costs of strategies to become juridical-financial flexible are decisive. To add value to the core business, the revenues of a certain strategy must exceed the costs to justify change. In many organisations, the responsibility for the real estate portfolio is mainly for the CFO who prefers financial arguments to decide between strategies (AT Osborne, 2009). Hoendervanger et al. (2012) subdivided revenues and costs into monetary and non-monetary. The monetary revenues/costs are related to the financial revenues/costs. The non-monetary revenues/costs are non-financial revenues/costs that are difficult to quantify. Figure 14 gives an overview of the revenues and costs that are related to the level of juridical-financial flexibility.

![Figure 14: Revenues versus costs (Hoendervanger, et al., 2012; Mather, 2007)](image)

2.6 Decision-model
This objective of the decision-model is to increase the ability to anticipate on changes in demand for real estate by supporting the decision making process with respect to juridical-financial flexibility. It therefore will minimise financial risks and the continuity of the organisation will be secured, because the quantitative and qualitative demand to perform the core business will be aligned with the supply. It is significant to apply periodical review of the real estate portfolio due to the dynamic context. Organisations have different time horizons to forecast components of office space demand (Gibson, 2000a). In 2000, the equal division among organisation was between a time horizon less than 1 year and a time horizon between 1 and 3 years. In 2013, in a stagnant economy, it is expected that most organisation re-evaluate their components of office space demand in a time horizon less than 1 year. In this research (without prejudice), the focus will be on quarterly time horizon, because each organisation will present their business results each quarter. This is a moment when the added value of business strategies could be evaluated.

At the start of this research (paragraph 1.1), the desired portfolio was compared with the current portfolio. A desired portfolio is a portfolio that can react on changes in organisational and generic context. The context variables are processed into scenarios that determine the optimal level of juridical-financial flexibility. So, the desired portfolio could be seen as a portfolio in which the level of juridical-financial flexibility is optimal to react on changes in context.
Figure 15 represents a schematic overview of the decision-model, in which multiple models are integrated. First, the new theoretical model is integrated that is mainly based on the model that is designed by Gibson and Lizieri (1999). There is a clear division between Core Portfolio, 1st Periphery and 2nd Periphery. The combination of contract termination and contract expiration could be seen as the disposable portfolio. The new contracts could be seen as the acquire category, and the middle line plus the reallocation may be identified as the retention category. In practice, the lines are not linear, so it may occur that peripheries become smaller and the core portfolio remains equal. If a growth scenario occurs, new contracts in each differentiated portfolio will be concluded. It depends on the analytical moment, which new contract will be concluded. If a shrinking scenario occurs, contracts in the 2nd Periphery that could easily be terminated are terminated. Contracts in the 1st Periphery are not extended after expiration. This indicates that it is important to have contracts with different expiration dates within a real estate portfolio. Assets from the Core Portfolio need to be reallocated into the 1st Periphery. By determining the maximum growth and shrinking scenario, the optimal level of juridical-financial flexibility is determined. A result is that the real estate portfolio could anticipate on all scenarios within the maximum growth and shrinking scenario.

As stated before, the analytical moments of Van Ussel (2010) will be used into this decision-model. His step-by-step plan will be adjusted if necessary to optimise the quality of the end result.

» Import the current portfolio of the organisation and distinguish peripheries with the theoretical model (see Table 3).
» Integrate all the properties of each asset with respect to the juridical-financial construction.
» Define the space requirements of the desired portfolio with respect to juridical-financial flexibility. This is compilation that has the optimal level of juridical-financial flexibility.
» Analyse differences with the current real estate portfolios.
» Define strategies to transform the current real estate portfolio into the desired portfolio.
Integrating maximum growth and shrinking scenarios. These scenarios will be determined by variables that are dependent of the generic and organisational context. The costs of change will be integrated in this step. Also the natural attrition and other properties of the contracts are taken into account.

Compare the ratio between disposal and maintainability into a lower periphery.

This step-by-step plan is a first approach that will be adjusted during the process of the empirical phase.

In Appendix II, a first impression of the model is included that is based on Table 6 (Barendse, Binnekamp, De Graaf, Van Gunsteren, & Van Loon, 2012). At the top of the model, the endogenous variables are defined. These are divided into core portfolio, 1st periphery and 2nd periphery, which are subdivided into dispose, retain and acquire. This indicated that 9 different endogenous variables are defined. On the second line, the adjustable cells that are related to the endogenous variables are identified. The program What’sBest (LINDO Systems, 2012) will adjust these cells in its quest for a solution. The fourth line of the standard LP form represents the result Z of the objective function. This cell (Z) could be maximized or minimized. The objective function represents the mathematically expression of the research. In the decision-model, this cell is maximised to find the best compilation of the portfolio. On the rest of the lines, the constraints are specified, which represents all limitations. These limitations represent all variables that have an influence on the real estate decision making process. These are the representations of the restrictions to which the objective function is subject. The negotiable constraints have to be defined with maximum or minimum variables. In the decision-model, different scenarios are defined that each has different influences on the demand for space in a specific periphery. By weighing the outcomes of different scenarios, the best strategy to transform the current portfolio to the desired portfolio could be identified.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<td>...</td>
<td>xₙ</td>
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<td>c₂</td>
<td>...</td>
<td>cₙ</td>
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<td>Constraint m</td>
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<td>aₘ₂</td>
<td>...</td>
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<td>&lt;=</td>
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</table>

Table 6: The standard LP form represented in Excel (Barendse, et al., 2012)

3 Provisional table of contents

Abstract
An abstract will give an overview of the research with its overall conclusions. The problem, research question, the theoretical framework and the elaboration of the model will be discussed.

Introduction
The subject of the research will be introduced in this introduction. At the end of the introduction, the scientific and societal relevance will be stated together with the utilization potential.
Chapter 1 – Problem Statement
In this chapter, the problem statement is elaborated. It will describe what the objective of the research is by describing the expected findings related to the subject. The main research question and the sub-questions will be stated. Also the target group and objectives of the research will be described.

Chapter 2 – Problem Analysis
The problem analysis is the subject of this chapter. An in-depth analysis of the problem will be described together with the delineation of the research.

Chapter 3 – Research Design
This chapter will state how the knowledge will be acquired that is required to answer the sub-questions. The research will be done in an empirical cycle.

Chapter 4 – Theoretical Framework
The end result of this chapter, which is a theoretical model, will bring coherence in literature. All different approaches to the subject will be combined into a single model.

Chapter 5 – Conceptual Analytical Model
The end result of this chapter, which is a conceptual analytical model, will give clarity about what variables are important in determining the juridical-financial flexibility of a real estate portfolio and how these variables are related to each other. The role of juridical-financial flexibility within a real estate strategy will be clarified.

Chapter 6 – Strategies and Scenarios
To study the subject into the future, strategies and scenarios are required to minimise risks. These strategies and scenarios will be illustrated in this chapter.

Chapter 7 and 8 – Single Case Study
The single case study approach will be elaborated in these chapters. This approach is chosen to analyse a single portfolio to build a decision-model in which the optimal level of juridical-financial flexibility is determined. It will show the usefulness of the decision-model. Also an evaluation of the model will be included.

Chapter 9 – Generic model
In this chapter, the decision model that is used in the single case study is evaluated. Subsequently, a generic decision model is presented that could be used by other organisations.

Chapter 10 – Conclusion
In this chapter, the main findings of the research will be presented and evaluated

Chapter 11 – Recommendations
In this final chapter recommendations for further research will be provided.

Literature
This chapter will give an overview of the sources that are used during the research.

Appendices
This will include data that is too large to present in the thesis itself.
4 Planning
To research the juridical-financial flexibility in real estate portfolios, a research plan is made that is visualised in Figure 16. This research planning could be divided into five phases that each has their own end products. Each of these phases will be covered in the following subparagraphs.

P1 The goal of the first phase was to make a draft research proposal that is reviewed in November. The end product of this particular phase was a draft research proposal that firsts stated the personal motivation for choosing the specific research subject. After this introduction the research proposal was stated. This proposal included the following elements: a problem analysis in which the main research question was defined; the most relevant research questions; a research planning and a research design; the expected results of the research; a literature study to acquaint the available body of knowledge; and the relation with a specific research theme. The last part of the report outlined the research organisation. The start-up phase and the start of the theoretical phase was positively reviewed and the design of the empirical part of the research needed to be elaborated more extensively.

P2 The theoretical phase that has started in the first phase is completed in the second phase and will form an essential and integral part of the research process. The literature study is concluded with a theoretical model and a conceptual analytical model. This phase will be concluded with this report and a presentation, both in January, in which all element of the final research proposal are covered. Currently, the body of knowledge is sufficient that can serve as a thorough basis for the start of the elaboration phase. The essential part between the end of the P2-phase and the beginning of the P3-phase is the selection of a construction company to apply the single-case study approach in P3 and to elaborate the research in P4 and P5.

P3 A key element of the third phase is the empirical part. Annual reports will be analysed and multiple interviews will be conducted with responsible asset managers to increase the reliability of the single-case study results. During this phase, the decision-model will be built. An interim report in will be the end product of this phase that ends in April. Again, there will be a progress review at the end of this phase.

P4 The decision-model will be elaborated during P4 and the final research results will be used to make conclusions and recommendations for further research. At the end of this phase in June, there will be a formal assessment in which a Go or a No Go will be given.

P5 The fifth phase is used for the inclusion of comments made at P4, sharpen conclusions, finalise the thesis and to prepare for the public presentation in July. This will also be the final formal assessment.
Master 1 and Master 2 of the Real Estate & Housing program are already completed. During P1 and P2, a parallel program to complete the program of Real Estate and Housing is followed. This program consisted of the following courses:

» Quantitative Research Methods in Design and Engineering (3 Ects)
» Elective track: Case Study Methodology (3 Ects)
» Elective track: Operations Research Methodology (3 Ects)
» Free elective: Process Management (8 Ects)
» Free elective: Real Estate Valuation (7 Ects)
» Free elective: Written English for Technologists (3 Ects)

For the two elective tracks, an assignment needs to be submitted before the 25th of January. For the free elective track Process Management, an assignment and an exam need to be completed in January. The other courses are already completed. It is expected that all assignments and exams are completed at the end of January in order to mainly focus on the research.
Literature


AT Osborne. (2009). *Vastgoed Door de Bril van de Bestuurder*.


Appendices

Appendix I – Interview scheme
Also an interview with the real estate manager will be taken. In this interview, the real estate strategy, if there is one, will be questioned to assess the role of corporate real estate in company policy.

Content

A. Research goal

B. Instructions for interviewer (with the main questions)

C. Required materials

D. Card 1 – Possible answers interviewee and reactions to those
   Card 2 – Kind of questions and response to answers
   Card 3 – Contact Summary Sheet
Research goal:
To acquire useful information about all relevant real estate aspects that have a relation to the juridical-financial flexibility of real estate. The real estate strategy, if there is one, will be questioned to assess the role of corporate real estate in company policy. All variables that have a role in the current real estate decision making process have to be identified. The outcomes of the interview have to contribute to the quality of the decision-model.

Instructions for interviewer (with the main questions)

0. Preparation
   » Make an appointment with a real estate manager who is responsible for making real estate decisions.
   » The interviewer has to know what the subject of the thesis is, so he can read up on the subject.

1. Acquaintance
   The interviewer introduces himself.

2. Introduction
   » Explain what the goal is of the interview.
   » Explain the importance of opinion of the interviewee.
   » Reassure the respondent.
   » Tell the different subjects of the interview.
   » Note the context data of the respondent on the Contact Summary Sheet.
   » Give the respondent the chance to ask questions.

3. Start of the interview
   » Record the interview.
   » Main questions:
     1. How would you describe your role in the process of real estate decision making?
     2. Would the current strategy be described as a reactive or an anticipating strategy?
     3. What is the step-by-step plan that is applied in the real estate decision making process?
     4. Is the current portfolio differentiated into sub-portfolios?
     5. What variables are taken into account in each step of the process (organisational context variables and generic context variables)?
     6. What kind of costs and revenues are used to weigh different strategies?
     7. Are there any other important drivers on which decisions are based?
     8. Is scenario-thinking included into the real estate decision making process?
     9. Are flexibility levels are included in the real estate portfolio?
    10. What types of flexibility are distinguished?
    11. What is the approach to juridical-financial flexibility?
    12. Is there a decision-model that is used to make decisions?
   » Discussion about the conclusion from annual reports and other analysed documents.
   » Discussion about the real estate decisions of the last five years.

4. Completion of the interview
   Ask if the respondent has something to add to the interview.
5. Contact Summary sheet
Give a short evaluation of the interview

6. Afterwards
When all the result of the interview are summarized it is recommend to send a copy to the interviewee. So he has the possibility to place a comment. Maybe the interviewer didn’t understand something and expressed an opinion in the wrong way.

Required materials:
» Enough paper en two pens
» Contact Summery sheet
» A medium to record the interview

Cards

Card 1 - Possible answers interviewee and reactions to those

» The interviewee gives an answer that is irrelevant.
  Repeat the question, preferably in different words.

» The interviewee gives an answer that is only partly irrelevant.
  Only refer, in the summery, to that part of the answer that is relevant.

» The interviewee gives an incomplete answer.
  Encourage the interviewee in the answer. (use of silence)

» The interviewee doesn’t know the answer to the question.
  Outline a situation, make the question less abstract.

Card 2 - Kind of questions and response to answers

In general:
Do you find it important that ...?
Why is it important that you ...?
Why do you think is not important that ...?
What does it feel to ...
Why do you (not)...
Why do you choose (not) for ...
Why do you say that ...
What is the reason ...
Why do you ..?
What is the reason that you ..?
What is the cause of that ...

Card 3 - Contact Summery Sheet Interview

Name interviewer: ....................
Name interviewee: ....................  Date of interview:  ...-...-....
Address/City: ....................  Cell appointment:  ...-...-....
Cell-number: ....................  Place of interview: ............
E-mail address: ....................

Aspects / remarks / comments
..........................................................................................
## Appendix II – Decision-model; a first impression

### Endogenous variables

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<th>Core, expand</th>
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<th>1st, dispose</th>
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</table>

### Costs of flexibility

- **Core portfolio**: Not flexible; freehold, long-lease
- **1st Periphery portfolio**: Medium flexibility; licence, short-lease
- **2nd Periphery portfolio**: Maximal flexibility; short notice

### Costs of flexibility

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