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# Post-pandemic corporate office real estate

A proactive multi-case approach for realignment

# Colophon

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# Abstract

The COVID-19 pandemic is posing an unprecedented global challenge to social and economic life. This resulted in many corporations struggling for survival and exploring alternative strategic paths (Seetharaman, 2020). Additionally, these remote-work experiences triggered the rethinking of their future office use and space (Cushman & Wakefield, 2020).

According to literature, the strategic execution of the real estate portfolio and the alignment with the business strategy is considered crucial for organizations in order to create maximum added value (Scheffer, Singer and Meerwijk, 2006). As the pandemic is expected to create a new normal and changed the demand for office space, this indicates that the current corporate office portfolio is expected to not be aligned to their future demand. Therefore, the aim of this research is to provide large corporations within different sectors within the Netherlands with a strategy to realign their real estate portfolio to their future post-pandemic priorities. This in order to maintain competitiveness and create a sustainable built environment by addressing the mismatch that could develop overtime. An empirical research is conducted, in which the changes in demand of nine large Dutch corporates with multiple locations in the Netherlands is explored. From this the most relevant priorities are selected to develop a realignment strategy for.

The selected priorities of these case studies are: 'support culture', 'increase flexibility', 'increase productivity', 'increase sustainability' and 'increase technology'. As the need for a post pandemic flexible solution has been expressed extensively, flexibility is considered the starting point for this realignment strategy. From this perspective, three different integrated flexibility solutions are developed that reduce core space of the office portfolio. These are 'working from anywhere', 'external co-working' and 'internal co-working'.

Additionally, an assessment framework has been developed to define what combination of solutions contributes most to these selected priorities. Furthermore, the applicability of these solutions have been defined based on portfolio and company characteristics. At last, this strategy is applied on a case portfolio, thereby implementing the two solutions 'working from anywhere' and 'internal co-working'. For this case is concluded that in the short term post pandemic, the amount of core office space will likely not be down- or upsized due to existing leases, but instead a repurposing towards collaboration space within existing offices is proposed. Thereby emphasizing the importance of proactive realignment even more.

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# 1. Research introduction

## 1.1 Introduction

The past months COVID-19 has disrupted our society and economy. It has induced a structural shift in the commercial real estate industry. Both the global pandemic and the severe recession make businesses rethink their future office use and space (Cushman & Wakefield, 2020).

As a result of the pandemic, in the Netherlands a historic economic decline of 8.5% in the second quarter of 2020 is measured (Rabobank, 2020). Although historic within Dutch history, from an international perspective the contraction is limited. This can be explained by the relatively low intense governmental lockdown measures and the Dutch economic context, with a strong financial position, relatively high level of digitalization and a low dependency on tourism (Rabobank, 2020). The impact of the pandemic on different industrial sectors is uneven and revival of economic activity is expected in 2021, however, the ongoing corona measures, rising employment and limited corporate financial buffers of corporates is expected to withhold the pre-corona level until 2022 (Rabobank, 2020).

Governments implemented crisis management and containment measures mandating organizations to comply with social distancing and health protection policies (del Rio-Chanona et al., 2020). This resulted in businesses facing demand, supply chain, cash flow and employee health challenges. Working from home and back to the office scenarios succeed each other according to the unfolding pandemic. This new reality influenced existing trends and created new trends that will change our work practice fundamentally. Amongst others, an important accelerated trend is the increase of virtual work practice, that already expanded pre-corona due to the development of supportive technology (Kniffin et al., 2020). Additionally, the working from home trend is strengthened as both employers and employees recognize the benefits of a more fluid way of working post-COVID (CBRE, 2020).

These changes have an effect on corporate real estate, for example the reliance on technology could induce decentralization of offices (Barings, 2020) and the trend of workplace densification is likely to turn around (Brookfield, 2020).

These structural changes affect both the demand and supply side of the office sector. With organizations, the occupiers of commercial office real estate, rethinking their corporate real estate demand (Cushman & Wakefield, 2020) and investors that put real estate investments on hold due to current insecurities (Colliers, 2020). This could lead to a potential future mismatch considering the following. Property is considered to be inflexible by nature (Gibson, 2000) due to the development time and the spatial and structural segments due to sub-market behaviour and the heterogeneity of its assets (Stevenson, 2007).

The perspective of this research is that of the corporate office occupier, where the inflexibility of real estate has a specific angle of approach. Real estate leases put forward several practical accounting challenges that comprise amongst others long lease terms and the high value of the asset. As the tenant places their operating leases on the balance sheet this affects many financial ratios (KPMG, 2018). These implications cause a large delay in adjusting corporate real estate. According to Gibler & Lindholm (2012) in order for businesses to successfully implement their core business strategies, coherence amongst internal strategies is needed. Scheffer, Singer and Meerwijk (2006) add to this that the strategic execution of the portfolio and the alignment with the business strategy is considered crucial for organizations in order to create a maximum added value.

In conclusion, the effects of the pandemic are expected to affect the business needs and office use of companies, considering the inflexibility of real estate proactive alignment of CRE to their business is needed in order to recreate a maximum added value.

## 1.2 Exploratory research

As introduced above, the pandemic affects both the external business environment and the behaviour of the actors that formulate the office demand. Considering this situation to be an unexplored phenomenon, therefore first a broad perspective is developed where apart from the the main perspective of this research, the corporate perspective, also other actors that are of influence on the decision of the corporations are taken into account. This to create a more holistic understanding of the phenomenon and to figure out the lay of the land in respect to this topic. Both primary and secondary sources are therefore used; *a round table session, interviews, webinars, reports and news articles*. The most important insights and findings are set forth, resulting in the development of hypotheses.



Round-table session



Interviews



Webinars



Reports



News articles

### 1.2.1 Primary resources

At the start of this research a roundtable session was attended, hosted by CREME Nederland, the independent end-user platform for Corporate Real Estate Managers (CREME Nederland, 2021). In this session 21 real estate professionals from large organisation that operate in the Netherlands participated, representing both the demand and supply side. In this session post-COVID opportunities in the office market and their accommodation strategies are discussed (Creme Nederland, September 30th). The most important insights from this session are;

- All representatives agreed that working from home will play a significant role post-COVID.
- The majority of the demand side professionals expects to dispose of at least 20% office space in the future
- The majority of the real estate professionals expresses the need for flexible solutions and the supply side showed interest in providing new flexible real estate concepts (Creme Nederland, September 30th).

Additionally, three open interviews are conducted with real estate experts. Their roles are, Chief Executive Officer, Research professional and Strategy professional . Therefore, the following research question was leading in these conversations:

*In what way will COVID-19 affect the corporate strategies of companies? what priorities arise and how will the real estate strategy change accordingly and can differences be identified within corporates, sectors or business size?*

From these conversations the following important insights were developed:



- CEO JLL Netherlands: *“Moving into the post-pandemic era, it depends on the sector whether the work place requires up- or downsizing. As the office transforms more into a functional and communal meeting place rather than only a place of work, the company’s broader strategy determines both the purpose and the layout of the future office.”*(personal communication, 11 December 11<sup>th</sup> 2020).
- Strategy professional: *“Compared to previous crises, in this crisis the user market of the real estate is hit first hereafter the investor market is hit”* additionally the interviewee indicates: *“to expect the demand for space to decrease, however investments to be larger. This will result in the demand for prime locations at city borders and investments to improve the existing space”* (personal communication, November 30<sup>th</sup> 2020).
- Research professional: *“Even the companies within conservative sectors that have never been eager to transform have to make portfolio changes as it now becomes a necessity”* (personal communication, 05 januari 2021). Additionally the interviewee indicates: *“If the office will not be a primary process anymore, the offices that are of higher quality will become more popular, the polarization between grade A and B offices will intensify”*. Furthermore, the differences within countries and sectors are emphasized. At last the interviewee expects a certain amount of grade C offices to disappear which also effects the other office types: *“as grade A offices are not affordable for all, the grade B offices will be demanded more”* (personal communication, 05 januari 2021).

Apart from these physical conversations, multiple webinars are attended of which the most interesting findings are presented below.

The Transdisciplinary Workplace Research (TWR) webinar from the Chartered Institution of Building Services Engineers (CIBSE) provided insights on the working from home experience of employees, herein was concluded that the vast majority would like remote working policies post pandemic. The reason for this is flexibility and the choice to work across a total workplace ecosystem, balancing office, home and third spaces. However, the support for this differs between sector and employee function (Gillen et al., 2020, October 7).

In the JLL webinar, flexible space in a post-pandemic world (Munn, Colpaert and Badham, 2020) the importance of flexible office space is emphasized and quantified as a percentage that must range between 10-30% (Munn et al., 2020 september 17).

### 1.2.2 Secondary resources

Apart from these primary resources a selection of finding from *research reports and newspapers* that define the future office use are set forth below.

Both employees and companies formed an opinion on the future implementation of working from home which now plays a significant role in the determination of the future office demand. KiM (2020), researched the perspective from the employee and found that 40-60% of home workers expect to work from home more often after the pandemic, with the majority indicating this to be 1-3 days. From the employer perspective, a survey from CBRE presented that the majority of company leaders prefer their team to work from the office and remotely (hybrid) (CBRE, 2020) and indicate the role of the office to change to a place for communication and collaboration (CBRE, 2020).

Considering a change in working practice to have an effect on the office footprint, another survey of CoreNetGlobal amongst 102 companies indicates that 70% expect their corporate real estate footprint to shrink during the next two years (of which the majority expects a 10-30% reduction) (CoreNetGlobal, 2020). PWC (2020) presented that CEO's will prioritize business models that are digital and flexible and remote collaboration, automation and low-density workplaces will remain.

The most recent survey from PWC (2021), concludes that real estate portfolios are in transition as 87% of executives expect to make changes to their real estate strategy in the coming 12 months. However, the exact strategy direction is not one sided, as the majority expects increase their office space, however a very large percentage also indicates the opposite. This contradiction displays that companies take a different reinvestment approach.

Recent announcements already show evidence and validate outcomes of certain reports and surveys. For instance, ABN AMRO announced to sell their headquarter and lease a selection back, and the redevelopment of one of their Amsterdam locations to facilitate remote working. Additionally, announcements are made on a global workforce reduction by 15% (Trouw, 2020). Similar changes can be seen within Heineken which announced a staff expenditure reduction of 20% at the Dutch head and regional offices as a result of the demand decrease due to the pandemic (Volkskrant, 2020).

### 1.3 Hypotheses

The insights of the exploratory research has resulted in the development of three hypotheses that formulate the changes that largely affect the future office demand. These statements are based on the opinions of several actors at a certain point in time. Considering this pandemic to be ongoing, the possibility of additional external influences alternating these opinions is present. Therefore, this research developed these insights not into principles but into the following hypotheses:

- Companies are adjusting both their strategic corporate and real estate perspectives which differs per sector.
- Companies will dispose real estate to increase flexibility and in the long-term to ensure an agile portfolio (10-30%).
- The purpose of the office will be more people oriented as work-from-home policies will be implemented (1-3 days a week).

*This indicates both a change in corporate and real estate strategies and in demand for future office real estate of corporations.*

### 1.4 Problem statement

In order to make the research susceptible it is important to formulate the research problem (Kothari, 2004), therefore, the previous is synthesized as follows.

The past months COVID-19 disrupted society and acted as a major exogenous shock that altered the competitive business landscape (Wenzel et al., 2020). Organizations have been forced to adapt and facilitate this new remote-work reality and particularly specific sectors experience severe challenges

(Amankwah-Amoah, Khan & Wood, 2020). The pandemic has induced a structural shift in the commercial real estate industry and makes businesses rethink their future office use and space (Cushman & Wakefield, 2020).

The change in demand of office occupiers due to the pandemic acting as external influence is concretized within the hypotheses as a shift in their strategic priorities and perception of the office. The origin of the problem that arises can be explained with use of the Designing an Accommodation Strategy (DAS) framework (De Jonge, Arkesteijn, et. al. , 2008), see figure 1.

This framework can be used to assess the (mis)match between the current demand and supply and develop an accommodation strategy accordingly. The shift in current demand indicates a shift in the future demand for their office portfolio and thus a mismatch both on the strategic level considering the strategies, and the operation level, between the future demand and current supply of organizations. Therefore there is a need for a step-by-step plan in order to transform the current supply into the future supply.

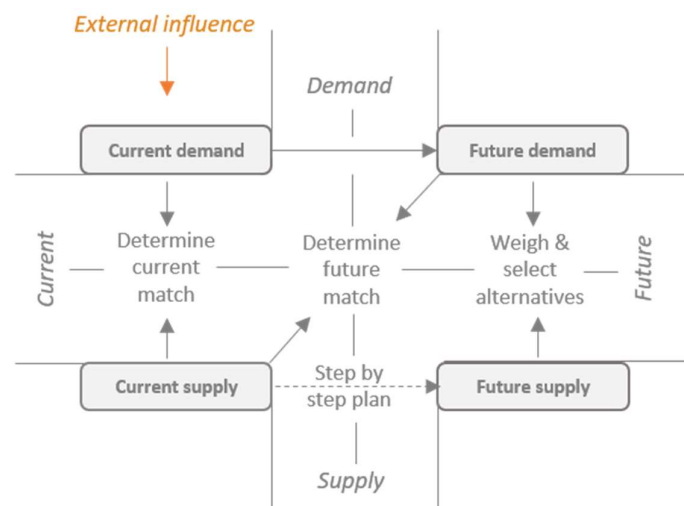


Figure 1: Adjusted DAS Framework of De Jonge, Arkesteijn, et. al. , 2008. (own illustration).

In addition, Gibler & Lindholm (2012) state that in order for businesses to successfully implement their core business strategies, coherence amongst internal strategies is needed. Scheffer, Singer and Meerwijk (2006) add that the strategic execution of the portfolio and the alignment with the business strategy is considered crucial for organizations in order to create a maximum added value. Additionally, Kaplan & Norton (2006), emphasize the need for proactive alignment considering the cooperation across the organization boundaries (Kaplan & Norton, 2006). Together this leads to the following problem statement.

*Currently the corporate real estate portfolio of companies is not proactively aligned to their future demand due to the changes in demand and therefore does not add maximum value to their business.*

## 1.5 Research aim and objectives

The pandemic is likely to have a unique impact on each individual company. Especially along different sectors and countries differences would be expected, as these companies operate in different external environments. Additionally, the characteristics of corporates and their portfolio are expected to affect the change in demand. Corporates with a large portfolio are expected to benefit more from a

realignment strategy, considering their portfolio size to also be larger and the possible mismatch to be larger.

Therefore the main aim of this research is to provide large corporations within different sectors within the Netherlands with a strategy to realign their real estate portfolio to their future post-pandemic priorities. This in order to maintain competitiveness and create a sustainable built environment by addressing the mismatch that could develop overtime. This research therefore takes on a broad perspective.

The following objectives are thereby formulated:

- To assess the change in both strategic and real estate priorities of different corporates.
- To define the priorities that are most relevant to design a realignment strategy for.
- To develop different measures that can be applied by corporates to proactively realign their corporate real estate portfolio
- To identify the effect of different corporate and portfolio characteristics on the implementation of these measures

This research can be summarized in a quick overview regarding the What, Why, How, Where and Who questions, presenting the fundamental research characteristics in figure 3.

What?	Proactive corporate real estate alignment strategy
Why?	To assist in realignment to create a sustainable built environment
How?	Multi-case study
Where?	Netherlands
Who?	Large corporates with multiple locations

Figure 2: Fundamental research characteristics (Own illustration).

## 1.6 Research questions

The exploratory phase forms the basis for the problem statement, research aim and objectives. From the previous findings the central research question can be formulated:

*“How can a strategy be developed that larger Dutch corporations could implement to proactively realign their corporate real estate office portfolio to their post pandemic corporate and real estate priorities?”*

In order to be able to answer the main research question, two categories of sub questions are posed. The first category of sub questions relates to the theoretical background and develops the theoretical underpinning of the main topics that this research addresses. The second category relates to the empirical research, together these provide an answer the main research question.

*Theoretical background:*

1. What is strategic management in accommodation theory?

2. What are the different corporate strategies and how do corporates achieve competitive advantage?
3. What different corporate real estate strategies exist?
4. How can corporate and real estate strategies be aligned considering the ongoing dynamics of this pandemic?

*Empirical research:*

5. How are corporate and real estate priorities of the larger Dutch corporations in different sectors affected by COVID-19?
6. What are the most relevant changes in real estate priorities that define the Post-COVID portfolio demand seen over the different case studies?
7. What real estate measures can be implemented to realign real estate portfolios of large corporations to these selected most relevant changes in priorities?

## 1.7 Conceptual model

The main themes of this research and their interrelations are illustrated within the conceptual model, see figure 4. The *COVID-19 pandemic*, can be seen as the driver of this research. The pandemic has accelerated and emerged *trends* that affect corporations both externally and internally causing *strategic priorities* to shift and a change in *post pandemic office*. This shift in strategic priorities creates a *mismatch* in terms of their current real estate supply and their new future demand. This can be explained through the strategic alignment of the portfolio with the business strategy that is considered crucial for organizations in order to create a maximum added value. Therefore, corporations must proactively realign their real estate.

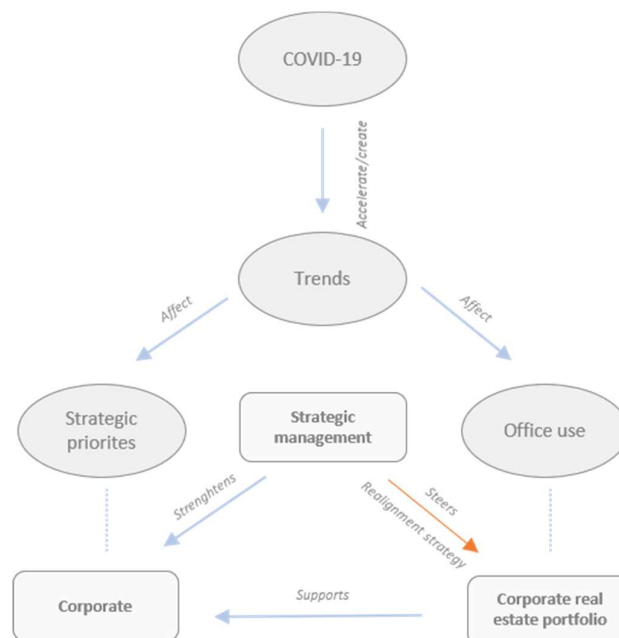


Figure 3: Conceptual model (Own illustration).

## 1.8 Relevance of the research

In the following sections the societal and scientific relevance of this research is proposed. Additionally, the general applicability is

### 1.8.1 Societal relevance

Proactive realignment of corporate real estate in general is relevant for society. This can be explained through the prevention of a mismatch of office real estate and their consequences. Disposal of corporate real estate can be an important negative consequence and with a lack of office uptake this could evolve into an increase in office vacancy. According to Remøy (2010) when office vacancy is concentrated this is assumed to result in an impoverishment of the area. This in turn negatively influences the rental price of surrounding offices (Koppels et al., 2011). From a broader perspective, the loss of value of real estate affects institutional investors, for example insurers and pension funds, that work with social capital (Vastgoedmarkt, 2018). A social risk could arise from the potential successive decrease in return from their office investments and have clear negative consequences.

However, the societal relevance of this research can also be approached positively, as the current situation creates a moment for businesses to reimagine the future of their office. Preventing a possible portfolio mismatch could prevent later cost-cutting strategies that affect the workforce. Additionally this moment can be used to strengthen their business and to break long-held assumptions from the past. An opportunity to take into consideration wider societal problems and challenges.

### 1.8.2 Scientific relevance

The scientific relevance of this research can be explained through the fundamentals it addresses in light with the unique situation of COVID-19. As the pandemic has affected both the internal and external environment of corporates and offices, shifts are expected in their corporate and real estate strategies. The expected changes are discussed widely in the market but a scientific approach on the perceived changes is absent. Therefore, in this research first the perceived changes in importance of both the corporate driving forces and added values of the office portfolio of large Dutch corporates post-COVID are studied. This research provides scientific knowledge on the perceived changes in driving forces and added values and fills the gap with the presentation of a framework and practical guideline, strategy, to be used by CRE practitioners to proactively realign their portfolio to the post pandemic demand.

Therefore, the analytical framework of Van der Zwart, Arkesteijn & Van der Voordt (2009) is adjusted with theories and methods that benefit this research most. The most important method therefore used is that of Scheffer, Singer and van Meerwijk (2006), that is adjusted to fit this specific situation. Additionally, the selected added values of Scheffer, Singer and van Meerwijk (2006) and the accompanied measurable items are redefined based on the specific post-pandemic demand. With use of these measurable items an assessment framework is developed in order to assess the solutions with.

At last, adjustments are proposed to the flexibility framework of Gibson and Lizieri (1999) to support the implementation of the flexible post-pandemic solutions and therefore serve today's demand.

Therefore, when the pandemic is petering out, this research contributes to the body of knowledge on method and different frameworks to be used to propose a strategy for proactive realignment.

### 1.8.3 General applicability

The outcome of this research is relevant for multiple actors. As defined before, the method and outcomes are interesting for researchers to specify further thereby using the findings and selections of this research as a starting point for future disruptive business situations or even future pandemics. Additionally, the solutions can be built upon and researched into more depth or the proposed strategy can be developed further. Apart from the researchers, the insights of this study are in particular valuable for decision makers and controllers of corporate real estate. This provides them the opportunity to proactively realign their corporate real estate to the post pandemic office demand in practice and create competitive advantage. Finally, the supply side of the market, investors and developers, can benefit from this research as the future demand is sought to be defined and this knowledge can be used to respond accordingly.

## 2. Research methodology

This chapter elaborates on the research methodology, the research type and design are presented. The methods and techniques to be used are further specified according to the different phases.

### 2.1.1 Research type

Considering the aim of this research to address a problem that has not been researched before, the dominant research method used within this empirical research. A multi-case study is conducted to gather information on this phenomenon. The focus of this empirical research is qualitative.

This can be explained by the following; according to Saunders et al (2009), qualitative research takes an inductive approach and theory is developed from the research in contrast with quantitative research that take a deductive approach. Although the main approach in this research is inductive, data and theory are weaved back and forth, implying an iterative character (Bryman, 2016). This is namely presented within the second part of the research, where the findings of the multi-case study are taken as starting point, here, literature is again consulted to design a strategy with.

However, apart from these qualitative data, quantitative techniques are also present within the analysis of quantitative data that is gathered within the case studies.

According to (Schoonenboom & Johnson, 2017) within a mixed methods research, the combination of both qualitative and quantitative research components can strengthen the conclusion of a research.

The rationale behind applying this mixed method is complementarity, as the methods address each a different part of the phenomenon (Clark & Creswell, 2008). The design can be identified as sequential exploratory, as qualitative and quantitative tools are sequential to one another (Creswell, Plano Clark, Gutmann, & Hanson, 2003).

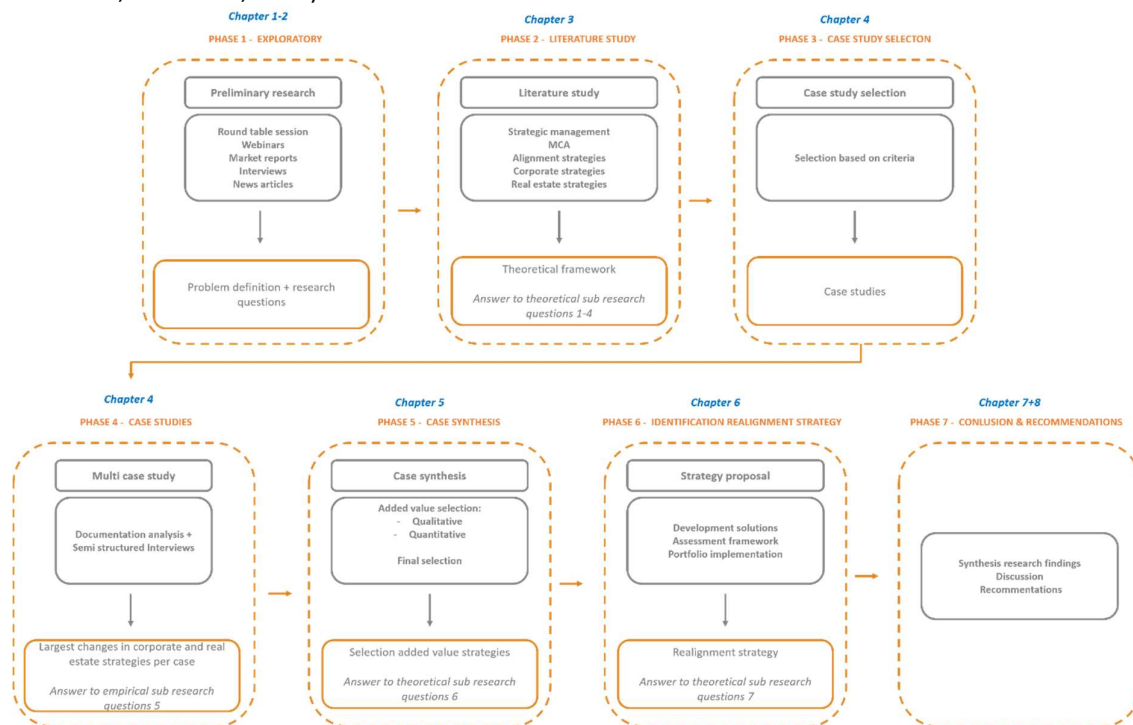


Figure 4: Research method (Own illustration).



### 2.1.2 Research method

This research consists of six phases in which multiple research methods are applied, see figure 5. (previous page). Per phase, the method, techniques, aim and sub research questions answered are set forth.

#### **Phase 1: Exploratory phase**

The first phase forms the start of the research and has an exploratory character. This phase entails preliminary research with use of literature, market reports, news articles, webinars, a round-table session and interviews. Three semi-structured interviews are conducted with professionals in the field to gain additional practical knowledge as the problem derives from practice. This phase resulted in the formulation of hypotheses and concludes with the problem statement and the set of research questions that are to be answered in this study.

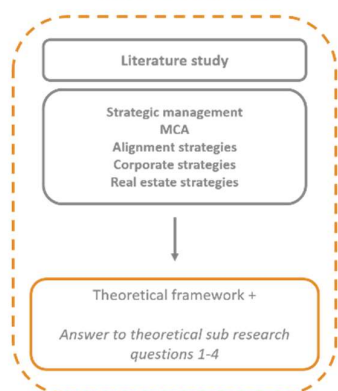
Chapter 1-2

PHASE 1 - EXPLORATORY



Chapter 3

PHASE 2 - LITERATURE STUDY



#### **Phase 2: Literature study**

In the second phase a literature study is conducted on the main research topics; strategic management of corporate real estate, alignment strategies, corporate strategies and real estate strategies. This phase has resulted in a theoretical framework and method that forms the basis for the case studies and case synthesis. This answers the theoretical sub research questions 1-4.

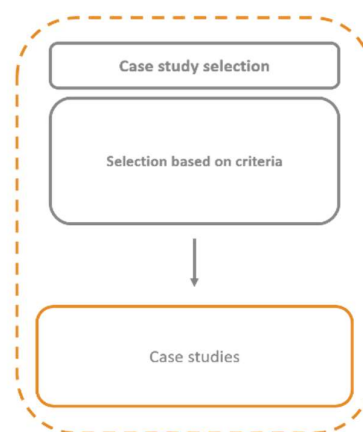
#### **Phase 3: Case study selection**

Within this research a multi-case study is performed. According to Bryman (2012) when selecting cases for qualitative research two levels of selection must be taken into account, the context and the people participating.

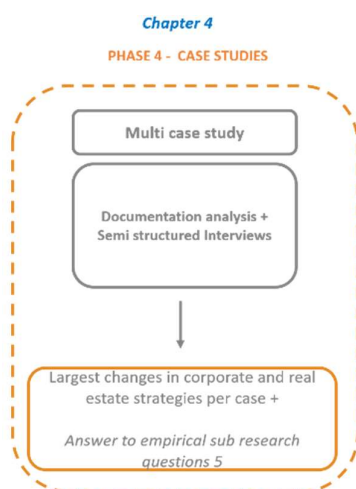
The selection criteria for the context are; the *portfolio size* as the portfolio must be large enough in order for companies to benefit from alignment and therefore acknowledging the value of real estate and the accompanied strategies. Furthermore, as this research investigates the Dutch market, and as the office use is strongly related to the country and working practice, the large corporations should have *multiple offices in the Netherlands*. Corporates with multiple offices are expected to have more negative effects when their corporate real estate is not aligned. Considering the goal of this thesis to realign the corporate office portfolio according to the shift in demand as a result of COVID-19, the need to proactively realign the office portfolio needs to be present. In other words the company must be *affected by the pandemic* and therefore is expected to alter their future office demand. The majority of the companies are contacted to with support of the professional network of JLL.

Chapter 4

PHASE 3 - CASE STUDY SELECTION



The second set of criteria according to Bryman (2012) are the people criteria. In this research these are defined for the interviewees which must be professionals that have *strategic knowledge on both the company's real estate portfolio* and on the *general corporate strategy*. Therefore, mostly the interviews are conducted with real estate professionals that have a strategic understanding of the organisation and are often involved at the corporate level. In case of absence of one of these criteria or the possibility given to create a more thorough understanding, two separate interviews are conducted or multiple professionals are present within a single interview. These selection criteria resulted in the participation of nine corporates and ten different interviews.



#### **Phase 4: Case studies**

The case studies are performed for the empirical part of this research. These nine case studies provide an understanding on the changes in the corporate and real estate priorities of these corporates post-COVID-19. The main source to gather the information is through case interviews in which both qualitative and quantitative data is gathered. Additionally, strategic corporate documents are analysed for additional supportive information.

In order to maximize the amount of valuable information about the research objective at stake, the interview protocol is shared with the interviewee in advance. This protocol contains the research background, interview goals and subjects and questions that will be discussed. The general protocol is included in Appendix A and is used as underlay to which company-specific changes have

been accommodated considering the trends and strategic priorities as deduced in advance from open sources.

The following specific interview goals to gain insight in the following themes as communicated within the protocol are:

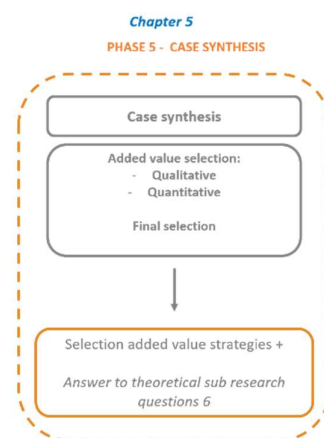
1. Accelerated and emerging trends due to COVID-19 that affect the company's sector.
2. Changes in business priorities of the company.
3. Changes in company's real estate and more specific their office strategy.
4. Change in the formulation of the metrics for portfolio management

Within the case studies, triangulation is applied to assure validity. Within these interviews both qualitative and quantitative data is gathered and analysed to develop an understanding of the same phenomenon; changes in both corporate and real estate priorities. However, the approach adopted is different. The qualitative method is used to obtain a more broad context of the phenomenon and its impact on the various companies. In the interview this applied through posing open-questions. Therefore the interviews were semi-structured, to ensure the possibility of exploration of interesting topics. These open questions provide the opportunity to detect real estate priorities that are not included in the list of possible real estate priorities or 'added values' that are used within the quantitative analysis. The qualitative method also provides a more in-depth view on what the motivations of the various companies are for their changes in priorities and what strategic measures they expect to take. The quantitative method makes use of scoring tables. The interviewees of the different case studies are requested to score their perception of importance both pre- and post-pandemic for the presented list of corporate and real estate priorities as deduced from literature. This method is limited to gain an understanding on the changes in the list as presented. However, this

method does provide a clear distinction in the extent to which these are perceived to change. Therefore, the combination of both methods to strengthen the validity of the findings of this research.

The interviews are transcribed to analyse the information communicated precisely. However, the transcripts of these are not included within this report as result of confidentiality reasons. Since the scoring tables and the explanation of these topics accordingly present a rather structured interview transcription and representation of the different subjects of interest, the application of an external coding tool is not perceived to add significant value and therefore not applied in this research.

The analyses on the information of both the qualitative and quantitative information are used in a supportive manner. The most important findings per case are set forth. This results in the presentation of the changes in corporate and real estate priorities per case and therefore answers the empirical sub research question 5: *“How are corporate and real estate priorities of the larger Dutch corporations in different sectors affected by COVID-19?”*.



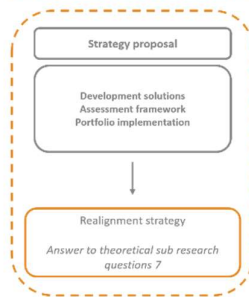
### **Phase 5: Case synthesis**

In the case synthesis the results from the individual case studies are analysed together in order to select the most relevant changes in real estate priorities.

Therefore, the definition of most relevant changes in real estate priorities is first concretized in the respective chapter. Then for the the quantitative and qualitative analyses findings of the individual cases are used to select the most relevant real estate priorities. This can be explained through the limitation within only using a quantitative method for selection, considering the importance of the context of this phenomenon and only data not being robust enough to explain the complex issues.

The qualitative multi-case analysis provides the opportunity to propose a selection of priorities based on patterns that are deducted from the multi-case study and are not predefined. The multi-case quantitative analysis selects priorities from the predefined real estate priorities or ‘added values’. In order to select these quantitatively, the principles of the most important changes are taken into account. The specific selection method is further elaborated on in chapter 6.

This lead to a set of relevant real estate priorities both from the quantitative and qualitative analysis. However, the final selection is based on the combination and comparison of both selections. This final selection is then analysed into more depth based on the communicated information within the case interviews. These insights provide specific information on the direction of the future demand and additional priorities that need to be taken into account in the following phase of strategy development. This answers the empirical sub research question 6: *“What are the most relevant changes in real estate priorities that define the Post-COVID portfolio demand seen over the different case studies?”*



### **Phase 6: Identification of a realignment strategy**

Then the selected added values and the specific information as communicated within the case studies are used as starting point to develop a general realignment strategy for. Here flexibility is the priority that is considered most important and defined as starting point for the development of realignment solutions. These solutions are based on both insights from the interviews as well as the researchers personal perspective and contribute to the realignment of the other priorities as well.

Additionally a creative expert session with corporate solutions professionals is hosted to propose developed ideas, generate practical knowledge and discuss the applicability of proposed solutions based on their experience.

In order to assess what solutions can be best applied for the different case studies a framework is developed where the proposed solutions can be assessed on their contribution on the specific measurable items that are adjusted to the future demand as communicated within the case studies thereby taking into consideration the importance of the priorities by the corporate. Additionally, an overview is provided on the applicability of the different solutions based on the portfolio characteristics.

In order to provide insights on how this general realignment strategy could be implemented in practice, it is implemented for a real estate portfolio of one of the case studies.

Therefore, the possible solutions are assessed based on their effect on all of the selected real estate added values. Where possible, a (semi-)quantitatively measurable scale is found for this purpose and a conclusion can be drawn on the effectiveness of the proposed strategy. Based on this assessment an optimal general realignment strategy for this case is proposed.

For this purpose, the global portfolio of this company is reduced to the selection of locations that meet the following criteria; *the office type* should be regular offices and service offices, *the location* of the office should be in The Netherlands or a country with similar working culture. A quick portfolio analysis is then performed to give insight in the key characteristics of the office portfolio, such as locations, surface area, the number of employees per desk, total and remaining lease durations, and operation costs. This strategy is then translated into concrete actions over time on the office level. This results in insights in how and in what time the specific strategy could be implemented.

This phase answers the empirical sub research question 7: *“What real estate realignment strategy is most effective to realign real estate portfolios of large corporations to the most relevant changes in priorities?”*

### **Phase 7: Conclusion & Recommendations**

In this last phase, the conclusions and discussion of this research is presented. More specifically the different answers to the sub research questions are individually presented. At last an answer is provided to the main research question and a possible realignment strategy is proposed. Additionally the different frameworks that are adjusted and developed for this research are presented.

Furthermore, other interesting findings are presented and recommendations for further research are provided.

### 3. Theoretical background

In this section a literature study is conducted on the main research topics, strategy in business, former crises, corporate real estate management, designing accommodation strategies and the multiple criteria analysis. The findings are combined into guidelines and a framework to be used for the empirical study.

#### 3.1 Strategy in businesses

Considering today's strategic corporate real estate management (CREM) era, this section elaborates on strategy in businesses, the development, impact, goal and translation into reality.

The concept of strategy dates back to centuries ago and originates from military conflicts. In the modern business environment, strategy has a more recent history and a more nuanced goal. Here, strategy is about an organization using a set of analytic techniques to understand and influence the competitive advantage (Henry, 2008). In order to achieve competitive advantage, a strategic management process is pursued where decisions are made based on policies or plans to achieve the goals and objectives as determined by the organization (Gibler & Lindholm, 2012).

The strategy of a business organization can usually be divided into corporate strategy, business strategy and functional strategy (Ali et al., 2008). The corporate and business strategies focus respectively on 'what' industry the company operates in and 'how' this is done. The aim of the business strategy is to improve the competitive position of a company. The business strategy is a direct result of the corporate strategy (Wheelen and Hunger, 2000). The functional strategy focuses on a key functional area within the business. These three types of strategies are applied simultaneously and must be supportive between themselves to reach the overall organizational goal (Ali et al., 2008).

The business strategy of a company can be approached in multiple ways (Mintzberg, Ahlstrand, & Lampel, 2009). Porter's generic strategies for competitive advantage (1985), served the foundation for modern business strategy and proposed how to overcome existing competitors in the industry. These strategies can be identified as sustained competitive advantage. Mintzberg & Water (1985) state that the influence of internal and external factors ensures that the development of strategy is emergent, complex and an iterative process.

Today's business environment changed into dynamic, uncertain and unpredictable due to the fast development of technologies and customer behavior (Stoyanova & Angelova, 2018). In this new world, competitive advantage is hard to sustain, and in order to stay competitive, this requires continual adaptation to realign the business (McGrath, 2013).

#### 3.2 Corporate real estate management

In line with the changing environment of the business, and the increased importance to realign the business, a similar movement can be identified within the practice of corporate real estate management.

Corporate real estate management (CREM) is considered a relatively young profession (Heywood et al., 2009). One of the principles for the acknowledgement of the discipline was underpinning the importance of corporate real estate on the total expenditures as Veale (1989) revealed that property occupancy costs accounted for almost 50% of the net operating income. Hereafter, Joroff et al. (1993) shifted the perspective of real estate as solely an expenditure to the company's fifth resource. Thereby adding corporate real estate to the list of the four traditional resources; people, technology, information and capital. Although this demonstrates the relevance for business, not enough attention was given by senior management accordingly (Nourse and Roulac, 1993).

With the increase of complexity of organization due to the economic environment, the demand for extensive corporate real estate management (CREM) has grown (Appel-Meulenbroek, Brown & Ramakers, 2010). The discipline evolved as the corporate real estate priorities changed significantly the last several decades. Roulac (2001) distinguishes in his research five eras, where professionalization of CREM started with planning demand. In today's strategic era this evolved into a field of management and aims for the alignment of corporate and real estate strategies through real estate operating decisions and activities (Heywood and Kenley, 2008).

This strategic component is also present within the perspective of corporate real estate management of Krumm et al. (2000). Here is implied that added value is the proposed end result and objective of CREM and that this can be achieved through the alignment of the corporation's real estate portfolio and the services to the needs of the core business.

However, the exact meaning of added value in corporate real estate management is interpreted differently in literature over time. According to Jensen (2009) former research focussed solely on the financial goal of cost minimization, which he defines as 'exchange value'. In more recent research an important shift is made, of which Nourse and Roulac (1993) are one of the initiators of exploring the perspective of 'use value'.

When following this line further into the present corporate real estate management practice, de Jonge et al. (2009) distinguish four perspectives; general management, asset management, facility management and project management, see Figure 5. These domains are a result of the specific focus of the corporate real estate management and on the level where this is conducted, the operational or strategic level (Jonge et al, 2009).

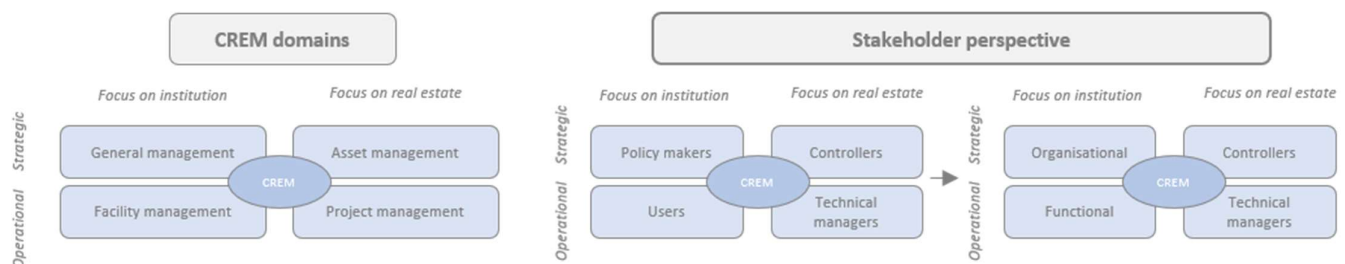


Figure 5: CREM domains and stakeholder perspectives (Left: De Jonge et al, 2009, Right: Den Heijer, 2011).

The strategic level is of interest for this research as at this level the impact of COVID and the change in demand are first formulated. The stakeholders that are connected to this are according to Den Heijer (2011) the organisation, policy makers, and the controllers of the office real estate, see figure 7. These stakeholders have a strategic perspective on both the organisation and the real estate and are of interest for this research.

### 3.3 The effect of a former crisis

Sagan (1980) stated “You have to know the past to understand the present.” In line with this statement it is valuable to understand in what way a previous crisis has affected the topics addressed within this research.

Dalderup et al. (2014) researched a similar phenomenon in the same context, however instead of adopting a proactive approach, this research analysed in retrospect the changes in corporate strategy and real estate strategy due to the credit crunch. Therefore, case studies of multinationals in different sectors were presented. The results indicate that the multinationals that were identified being most affected by the crisis, changed their corporate strategy and focused on cost savings. The multinationals that were deemed to be less affected, differentiated their corporate strategy in order to make use of the market. Regarding the effect on the real estate strategy, in most cases adaptation is the result of a direct top-down response with the main objective to reduce real estate costs. This resulted in quick property disposal and hereafter adjustments to increase flexibility and efficiency (Dalerup et al., 2014).

From this can be concluded that in a previous crisis on the strategic level changes were made in the corporate strategy, and adaptations were made accordingly in the real estate strategy. Although the insights of the former crisis are not applicable or transferable considering the different external forces, it provides an understanding on where the changes take place and in what order both the corporate and the real estate strategy were affected. This provides a confirmation of the need for a two sided focus on the strategic level.

### 3.4 Designing the accommodation strategy

#### 3.4.1 The overarching framework

In the current strategic field of CREM, multiple models exist for matching the demand and supply on portfolio level, and to align the real estate strategy with the corporate strategy (Jonge et al., 2008). One of these models is the DAS framework (De Jonge, Arkesteijn, et. al. , 2008), a widely acknowledged framework that can be used to develop an accommodation strategy through multiple steps. First, the possible mismatch between current demand and current supply is defined, then the mismatch between the future demand and current supply. Hereafter, the alternatives are developed and selected, resulting in the formulation of a step-by-step plan. The flexibility incorporated within this model has provides the possibility to use this framework for different types of real estate within different time frames.

This model is further developed in literature. De Jonge et al (2008) forwarded models from literature that can be used to concretize the steps and Van der Zwart, Arkesteijn & Van der Voordt (2009) in return developed an integrated analytical framework that is positioned in the DAS-Framework. This latter framework can be used both ex ante and ex post. Ex ante is explained as follows: *“to steer and to support the analysis of the present and future demand and supply as a starting point to designing an accommodation strategy that is linked to corporate business strategy”* (Van der Zwart et al., 2009, p.10).

This ex ante approach and the integration of an analytical framework is of interest within this research. An ex ante approach can prevent a mismatch through proposing a realignment strategy for the office portfolio that is linked to the corporate business strategy and based on the analysis of the current supply and post-COVID demand and supply. Van der Zwart et al. (2009) focus on the complete strategic path. However, the primary focus of this research is only the selection where the



current pandemic is expected to induce change and thus a need for realignment arises. This selection presents the path from the current demand to future demand to future supply, see Figure 6. Scenario planning is left out of consideration as the focus will be on the perception of the future demand of these corporates instead of taking into consideration multiple directions.

This path contains two underlying concepts. The first where the prime focus is on is the alignment of the corporate real estate with the corporate strategy. This consists of linking corporate strategies to real estate strategies and hereafter the translation of real estate strategies to real estate operating decisions. Additionally, the generic strategies of O'mara (1999) are used to define in a generic manner how corporates cope with their future supply.

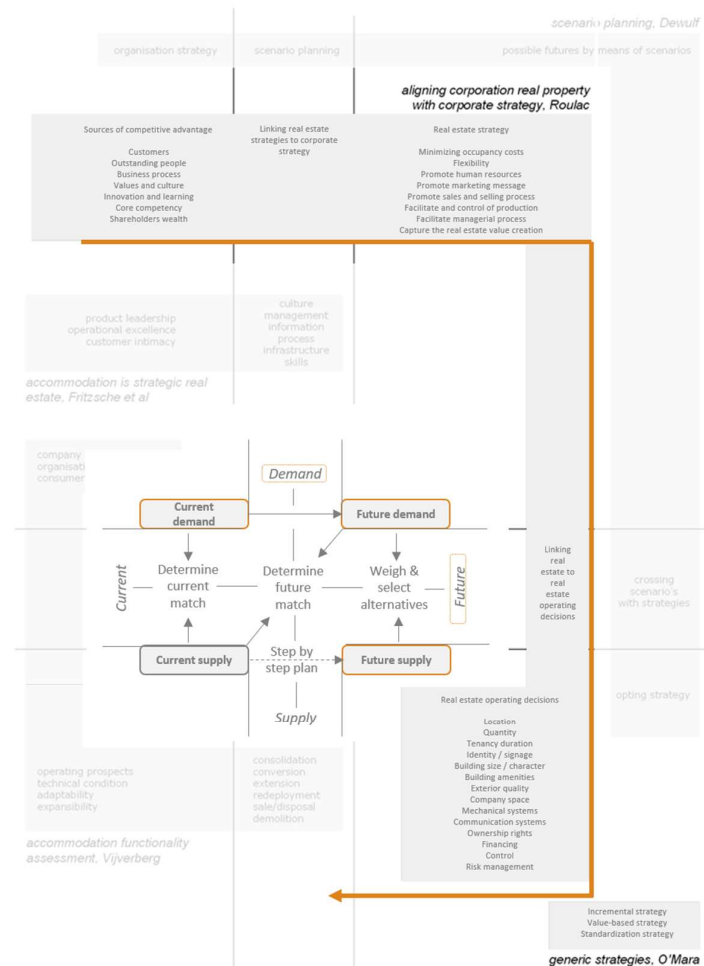


Figure 6: Adjusted Integrated analytical framework of Van der Zwart et al. (2009) to highlight the aspects of importance.

This research applies this overarching concept and understanding of the positioning and relation between the underlying models within the framework. However, it is further investigated which alignment model benefits this particular research the most. This is addressed in the following sections.



### 3.4.1.1 Alignment models

In order to select a method that can be used to align the corporate strategy and real estate strategies, it is important to understand what kind of components are generally part of such methods and which of these are of interest to the topic of this research.

Appel-Meulenbroek and Haynes (2014) indicate that the two most important components within these alignment models are the formation of the corporate strategy and the corporate real estate strategy. Ramakers (2008) researched the place of formation further in existing models and proposes to place the alignment of corporate strategy and the real estate strategy in the strategic thinking map of Swayne, Duncan and Ginter (2006) as shown in Figure 7. This strategic management process is defined as a continuous process, changing back and forth between thinking, planning and evaluating (Appel-Meulenbroek and Haynes, 2014). Ramakers (2008) then indicates that the alignment of corporate real estate should be placed within the directional strategies, the place where the corporate goals are established and what CREM must align with. Thus representing a shift from its former position within support strategies towards a more strategic perspective.

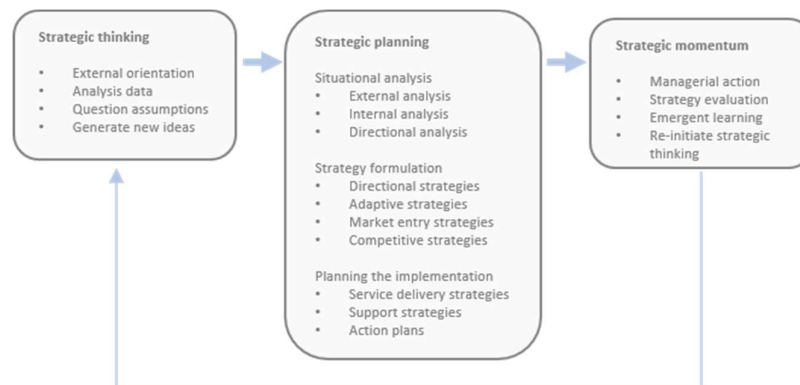


Figure 7: Strategic thinking map of Swayne, Duncan and Ginter (2006), Own illustration

Now having presented the place where alignment must take place in the process, the alignment itself is further investigated. Multiple corporate and real estate alignment models have been developed in research. Appel-Meulenbroek et al. (2010) researched the most important corporate and real estate alignment models thereby taking into consideration the mechanisms and their position within the strategic thinking process. Taking this process into account, the researchers value the corporate strategy lists that are based upon the nine driving strategies as defined by Tregoe and Zimmerman (1980) the highest. This can be explained as the first step in the strategic thinking map is to determine the directional strategy, which is underpinned by the driving forces theory.

Another meta study on the alignment of corporate real estate strategies to directional strategies at the corporate level is conducted by Ramakers (2008). In this study eight models are compared on the completeness on multiple aspects. One of these aspects is the lists used for the corporate and real estate strategies, another is the process of strategy formulation. From this comparison the models from Nourse and Roulac (1993) and Scheffer et al. (2006) are indicated be most useful as these both present the relationship between the specific corporate strategies and real estate strategies. Therefore, this can provide direction for a strategic path. The model of Nourse and Roulac (1993) takes this further and identifies the different strengths were Scheffer et al. (2006) only identify the links.

The model of Nourse and Roulac (1993) formed the principle in the formulation of corporate real estate strategies. De Jonge (1996) added value strategies to Nourse and Roulac (1993) and Lindholm et al. (2006) combined these. The model of Lindholm et al. (2006) represents, apart from only adding

exchange value through limiting corporate real estate cost and increasing efficiency, a shift towards also adding use value through five additional output strategies. This shift towards use value requires the expertise of the corporate real estate manager to extend and outline their practice with other business functions (De Vries, de Jonge & Van der Voordt, 2008). In a further study, Lindholm (2008) identified the actions regarding all levels of real estate management being general management, asset management, facility management and project management as mentioned earlier. However, not all actions are relevant as this study focuses on the general and asset management.

Additionally, Jylhä, Remøy & Arkesteijn (2019), researched the major developments in CRE research from the demand side and found two new paradigms. In short these are the shift from cost minimization to value delivery and from building to people. Thereby adding that the perspective of capturing future value delivery is also important, indicated in literature as an increase in productivity, flexibility and sustainability.

Considering again the large presence of models that could be used for this second form of alignment, the meta-study of Heywood & Arkesteijn (2017) is consulted to select a model based on the models' constituent parts that are most beneficial for this particular research. Therefore taking into consideration the two models identified by Ramaker (2008) to be most useful as these presented the connection between the corporate strategies and real estate strategies and the suggested alignment between those. This alignment is considered very beneficial as the pandemic is expected to affect both the corporate and real estate strategies of the case studies. When understanding the relation between these, this provides additional insights in the direction of the corporate real estate strategies.

#### 3.4.1.2 Selection alignment model

From the meta-study the presence of different constituent parts within these models are set forth. The possibility to assess the effect of the corporate real estate management actions is present in the model Scheffer et al (2006), which is not present in the model of Nourse and Roulac (1993). The model of Scheffer et al (2006) provides information on the real estate market that is based on a case study of dutch-based globally operating corporations. The model of Nourse and Roulac (1993) is more extensive as it also includes the components of other corporate functions (Heywood & Arkesteijn, 2017).

Based on the insights of the different components present within the different corporate and real estate alignment models, the model of Scheffer, Singer and Van Meerwijk (2006) is selected as most applicable for this research. The main reason for this selection is the practical component to analyse the alignment of corporate real estate to corporate strategy. This tool can be used as a directive for the continuous adaptation of the real estate strategy approach as a result of changes in the strategic corporate setting. Additionally, this research addresses the relationship between the added values of real estate and the corporate driver that are enhancing one another. Furthermore, the proposed alignment is based on a multi-case study of Dutch-based globally operating corporations and is thus relatable to this research.

The corporate strategies in this tool are based on the strategic driving forces as within the framework of Nourse and Roulac (1993). These serve as a clear concept to guide the top management in developing the strategic framework (Nourse and Roulac, 1993) and are further explained on the left side of Table 1. Although the framework of Nourse and Roulac (1993) also propose the link between these driving forces to the real estate strategies, Scheffer, Singer and Van Meerwijk (2006) alternate from these through substitution with the added values of de Jonge (1993). Therefore considering real

estate to contribute to the corporate through a series of added values. Scheffer, Singer and Van Meerwijk (2006) operationalized these further into 25 measurable items as presented within the right side of the table.

Driving forces (corporate)	Explanation	Added value (real estate)	Measurable item
(1) Products offered	A business with this driving force defines the business by its products and products similar to existing ones	(1) Increasing productivity	(1) Selection of location
(2) Market needs	A business with this driving force defines the business by attempting to serve the particular needs of a particular segment of a market		(2) Innovative workplaces
(3) Technology	A business with this driving force defines the business by attempting to provide products, services, and markets derived from its technological expertise		(3) Retaining human capital
(4) Production capacity	A business with this driving force defines the business by attempting to provide products and services that can be produced using its production capabilities	(2) Cost reduction	(4) Workplace costs
(5) Method of sale	A business with this driving force will define the business by attempting to provide products and services that can be sold by the company's way of convincing customers to buy		(5) Accommodation costs
(6) Method of distribution	A business with this driving force defines the business by attempting to provide products and services that can be sold by its distribution system		(6) Facility costs
(7) Natural resource	A business with this driving force defines its business by attempting to provide products and services that are generated from its control and use of particular resources	(3) Risk control	(7) Benchmarking
(8) Size/growth	A business with this driving force defines its business by attempting to provide products and services that meet new size or growth objectives		(8) Corporate finance
(9) Return/profit	A business with this driving force defines its business by attempting to provide products and services that will meet its targeted return or profit measures		(9) Inflexibility of real estate portfolio
		(4) Increase of value	(10) Selection of location
			(11) Value risk
			(12) Working environment
		(5) Increase of flexibility	(13) Environmental aspects
			(14) Development process
			(15) Acquisition and disposal of real estate
		(6) Cultural support	(16) Redevelopment of real estate
			(17) Market analysis
			(18) Organisational flexibility
		(7) PR & Marketing support	(19) Financial flexibility
			(20) Technical flexibility
			(21) Workplace innovation
			(22) Communication
			(23) Image
			(24) Selling points
			(25) Sales strategy

Table 1: Left: Strategic driving forces(Nourse and Roulac, 1993) and their explanation. Right: Seven added values of de Jonge (1996) operationalized by Scheffer, Singer and Van Meerwijk (2006).

After the introduction of these different components, the research developed a three stage measurement model for the alignment of corporate real estate with corporate strategy. In this tool first the contribution of each measurable item to the added value of real estate is measured with use of scores. Additionally, the corporate strategy is analyzed and the relative importance of the driving forces. Then, with use of the identified relationships between the added values and driving forces, the key elements of the corporate and their real estate are confronted to identify where alterations are necessary. In the measurement model these different components and their proposed coherence can be synthesized in the following figure, see Figure 8.

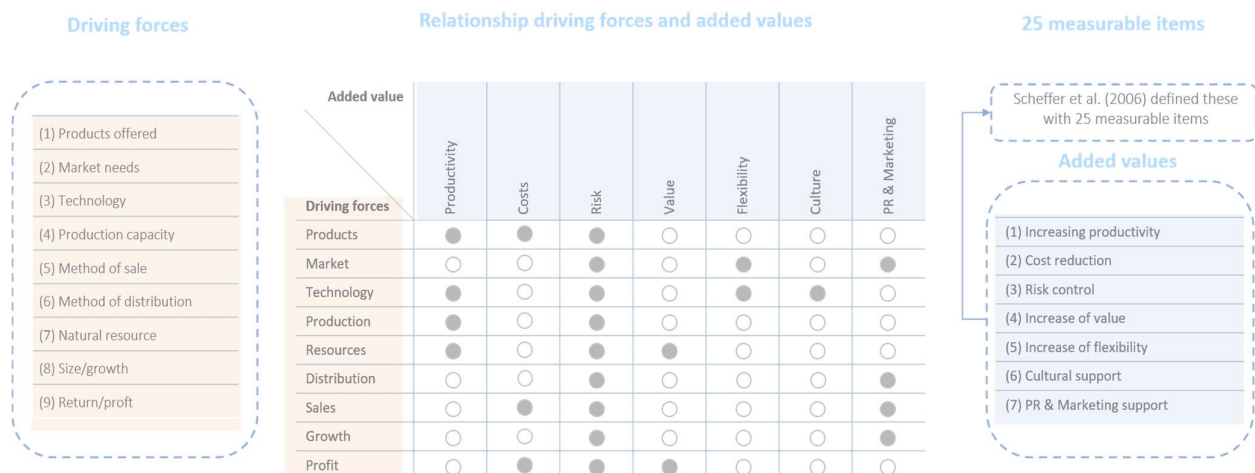


Figure 8: Relationship between driving forces and added values (Scheffer, Singer and Van Meerwijk, 2006)

The model is initially developed to measure the level of alignment and thus focuses on the present contribution of certain elements. However since the aim of this research is to ensure future alignment, the focus will be on measuring the change in perception of importance of these elements instead of their contribution.

### 3.4.1.3 Generic strategies

As stated above, the generic strategies of O'Mara (1999) can be used to define in a generic manner how corporates cope with their future supply. These provide additional direction on the alignment strategy in general. O'Mara (1999) identified three generic real estate strategies that organizations can use to assert their portfolio; value-based, standardization and incremental. These are the result of the level of uncertainty that the corporate experiences and their view on action that is either symbolic or rational. Singer (2005), visualized these generic strategies within these perspectives, see Figure 9.

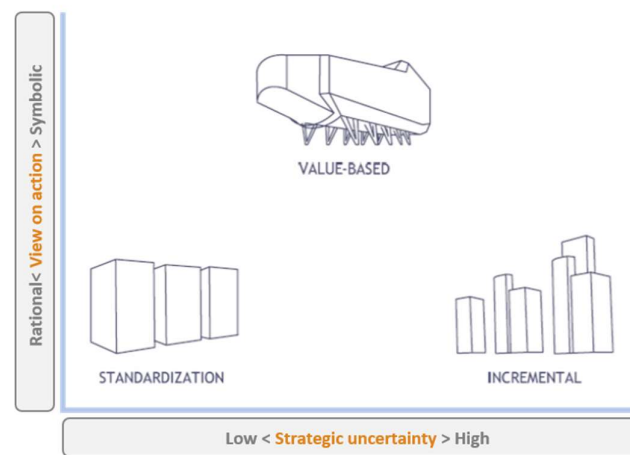


Figure 9: Adjusted visualization of generic strategies of O'Mara (1999) by Singer (2005), (Own illustration)

The value-based strategy expresses the values and strategic direction of the company and visualizes this in the corporate's objects. The corporate that adopts this strategy mediates with uncertainty. The standardization strategy controls and coordinates the corporate real estate centrally with use of standards. Therefore, a corporate that uses this strategy often faces a lower level of uncertainty. Whereas the incremental strategy is often used with uncertainty as a strategic driver. Here, real estate is acquired gradually over time (O'Mara, 1999). These generic strategies can be used to define from a large perspective the overall focus of the corporate on the use of their real estate without defining very specific components.

## 3.5 Multi-criteria analysis

Within this study a number of measures or actions will be identified that contribute to realising real estate strategies. Several methods exist to weigh the effectiveness of different solutions and support decision making, such as cost effectiveness analysis (CEA), cost benefit analysis (CBA) and multi-criteria analysis (MCA). The CEA and CBA require to explicitly quantify the impact of measures in money terms (Dodgson, Spackman, Pearman & Phillips, 2009). The MCA has the benefit that it can combine qualitative and quantitative criteria to identify the overall performance of the measures,

allowing for instance to take into account both economic and social criteria. The criteria within a MCA can both be costs or benefits/value. A MCA is therefore deemed the most suitable decision method for this study, where criteria could for instance be cost reduction but also flexibility in line with the real estate strategies elaborated section 3.3.2.

A key element of the MCA is the performance matrix. This matrix contains the scores of the different measures on each of the considered criteria. Table 5 gives an example of such a performance matrix. With this research, the criteria may correspond to the real estate strategies. Within a MCA the scores of measures on the criteria can be based on either expert judgement or a quantitative analysis.

Performance matrix	Measure A	Measure B	Measure C	Measure D
Criterion 1	--	+	++	0
Criterion 2	€100.000	€50.000	€200.000	€0
Criterion 3	2 years	6 years	6 years	0 years

*Table 2: Example of a performance matrix of a MCA*

To compare between criteria the performance matrix is normalized. Possible normalisation methods are linear interval normalisation, in which the scoring function linearly varies between the lowest and highest score within the performance matrix, or maximum normalization, where the scoring function varies between zero and the maximum performance within the performance matrix.

In practice, decision makers often prioritise certain criteria over others. This is taken into account within a MCA by applying weights to each of the criteria. A possible method to inventory these weights is by proposing a series of pair-wise trade-offs to the stakeholders, for instance deriving how much reduction in customer satisfaction would be justified corresponding to a certain cost reduction. The MCA results in a weighted normalized overall score allowing for a comparison between the desirability of the considered measures. Table 3 shows an example of a normalized MCA including weighted overall scores corresponding to the example of the performance matrix.

Performance matrix	Weight of criterion	Measure A	Measure B	Measure C	Measure D
Criterion 1	0.2	0	0.75	1	0.5
Criterion 2	0.5	0.5	0.75	0	1
Criterion 3	0.3	0.67	0	0	1
Overall score		0,451	0,525	0,2	0,9

*Table 3: Example of a normalized MCA including weighted overall scores. In this example, measure D is most desirable.*

The principles of a multi-criteria analysis are used in this research to select the most relevant changes in real estate priorities found from case interviews while taking into account the importance of related driving forces as weighting factors. Furthermore, this concept is used in this study to select an optimal realignment strategy from several different identified possible solutions.

## 3.6 Theoretical conclusions and the resulting framework

### 3.6.1 Theoretical conclusions

From the theoretical background in this chapter the following conclusions can be drawn:

- Considering the strategic focus of this research, the policy makers and controllers of the office real estate are the most interesting stakeholders. The case interviews will therefore be focused on these stakeholders.
- The path of the integrated framework of Van der Zwart et al. (2009) that links business strategies with real estate strategies and real estate strategies with operating decisions is relevant to this study. This is used as an overarching framework for this thesis.
- Instead of the 'default' models proposed within the framework of Van der Zwart et al. (2009), the alignment model of Scheffer, Singer and Van Meerwijk (2006) seems better suited to this specific study for two reasons. First, this model presents an applicable set of driving forces and added values including the relationship between these, such that this relationship does not have to be re-investigated within this study. Second, these results have been found based on a study of the Dutch multinational market, such that these have a good representability for this specific research. Additionally, the generic strategies of O'mara can be used to define in a generic manner how corporates cope with their future supply.
- The concepts of multi criteria analysis can be used to: 1) select the most relevant changes in real estate priorities found from case interviews while taking into account the importance of related driving forces as weighting factors and 2) select an optimal realignment strategy from several different identified possible solutions.
- Within a former crisis case study, multinationals that were identified to be affected the most, changed their corporate strategy and focused on cost savings. Regarding their portfolio, this started with disposal strategies and hereafter flexibility and efficiency was increased. This can be used as a lead or hypothesis to be used in the case studies in this research.

### 3.6.2 Theoretical framework applied in this study

With use of the theoretical underpinning as presented above a theoretical framework is set-up, see Figure 10. The analytical integrated framework of Zwart et al. (2006) is therefore used as an overarching framework and presents how the various theories discussed in this chapter support the research steps of this research. These steps are briefly explained below.

- 1) The mismatch between the current demand and future demand is investigated in this thesis using case interviews (as discussed in the methodology chapter). The driving forces and added values that are investigated in the case interviews are based on the research by Nourse and Roulac (1993) and de Jonge (1996). Additionally, these insights are used to define the generic strategies with use of the theory of O'mara (1999).
- 2) The most relevant changes in real estate priorities are chosen not only based on the largest magnitude but also on the importance of the driving forces related to these added values, as these added values are expected to be more impactful and also longer lasting than those that do not reflect changes in corporate driving forces. The relationship between the corporate driving forces and the real estate added value categories is based on the theory of Scheffer, Singer and Van Meerwijk (2006), that states which corporate driving forces support which specific real

estate added values. The theory of Scheffer, Singer and Van Meerwijk (2006), which is originally meant to determine how the real estate portfolio contributed to the driving forces, is therewith used in a novel way to select the most important changes in added values. Both a qualitative and quantitative approach are taken to select the most relevant added values. For the quantitative part, the principles of the multi-criteria analysis are combined with this theory of which is therewith employed in a novel way.

- 3) The measurable items of the theory of Singer (2008) are used to translate the added values to solutions to realign the real estate portfolio. At this moment, theory must be included that is specific to the selected added value that is selected as the basis of defining a realignment strategy, which anticipating the results of Chapters 4 and 5 is the added value of increasing flexibility and the theory of Gibson and Lizieri (1999). This theory has not yet been discussed in this chapter but is instead treated in Chapter 7 containing the proposed realignment theory.
- 4) Finally, a selection of the possible solutions is made based on their effectiveness on all selected added values. Here again, the principles of multi-criteria analysis are used to make this selection.

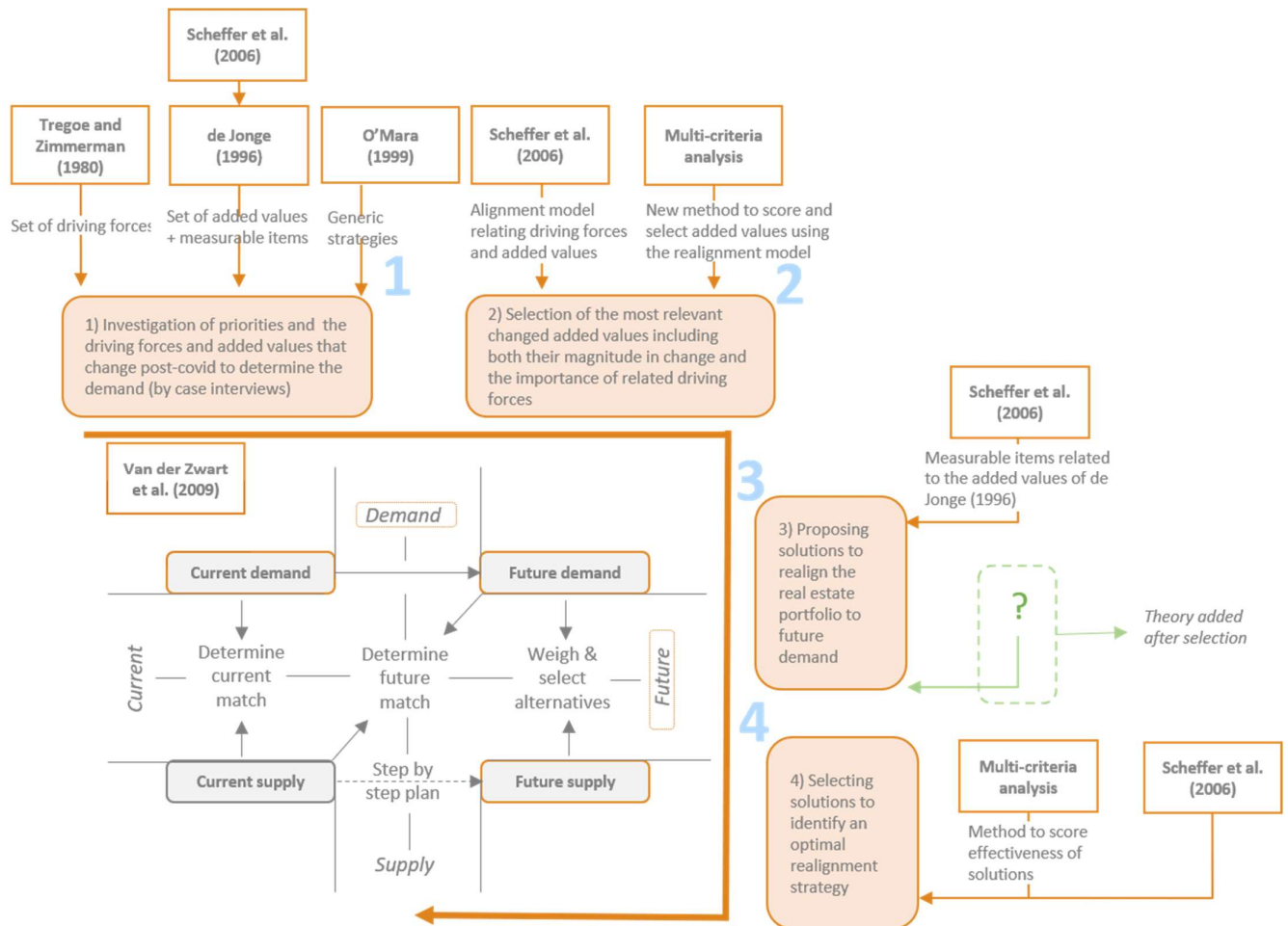


Figure 10: Theoretical framework applied in this research (Own illustration, adaptation on Zwart et al. (2009))

## 4. Multi-case study

After concluding in the previous chapter with the theoretical underpinning and framework of the research, this chapter will now present the first step of the empirical part of this research. First, the multi-case study is introduced by presenting the different case studies and defining the time frame over which the impact of COVID is studied. Then, the most important findings from the analyses of the different case studies are presented. Appendix F proves the complete and thorough analyses. At last, a conclusion is presented, however this does not include the comparison over the different cases as this will be covered in detail in the next chapter.

### 4.1 Case study introduction

#### 4.1.1 Selection

As described in detail in the chapter methodology (2.1.2), multiple case studies are used to gain a broad perspective on this open-ended problem to develop a possible solution and develop enough information about the research objective at stake.

In order to do so, the case studies, the corporates, are strategically selected based on the following contextual criteria: *portfolio size*, the presence of *multiple offices in the Netherlands*, the *expectation of being affected by the pandemic* and the *presence of variety of sectors*.

As the contextual criteria ensure the optimal environment to generate a holistic view, a second set of people criteria defines selection of the interviewees. These criteria are the presence of *strategic knowledge on both the company's office corporate real estate portfolio* and the *general corporate strategy*. As the focus of this research is primarily on the real estate strategy, the interviews are conducted with real estate managers that have a strategic understanding of the organisation and are often involved at the corporate level. Two separate interviews or an interview with multiple professionals are conducted when a single interviewee cannot fulfil all criteria or when it provided an opportunity to gain a more thorough understanding.

The previously described contextual- and people criteria resulted in nine case studies and twelve interviewees. An overview of the selected companies, the sector they are operating in, and the interviewees is presented in Table 4. The first and last company are named by their sector due to confidentiality reasons and information has been altered accordingly.

Icon									
Company	-	Engie	Vattenfall	Philips	ING	Rijksvastgoedbedrijf	JLL	Consultancy	-
Sector	Electrotechnical	Energy	Energy	Healthtech	Banking	Real estate	Real estate	Consultancy	Security
Interviewee	Head of public and governmental affairs + Global real estate transaction manager	Real estate manager	Facility advisor	Director Construction Projects EMEA	Global Head of: - Transaction management - Asset Management, Projects and Workplace Strategy - Corporate Real Estate Strategy and Portfolio Management	Senior policy advisor portfolio management	Head of corporate real estate and workplace EMEA	Director Services, Workplace Solutions	Advisor accommodation

Table 4: The nine case study companies accompanied with sector and function interviewees



#### 4.1.2 Positioning in time

As the post-COVID change is the central element within this research, it is important to define the moment in time of both before- and after-COVID. This in order to ensure comparability between the different case studies and transferability of the information generated.

Before-COVID is relatively easy to define, as this refers to the situation when the old office 'ideology' was still in place, thus before regulations or measures were implemented that affected both the company and the way of working. An exact date for when the before-COVID period ends can be designated with March 11<sup>th</sup>, from this point in time the Dutch prime minister requested their inhabitants to work from home (RIVM, 2020). However, the situation of re-entering the office has evolved and will evolve further according to the outbreak and the accompanied regulations. Therefore, when conducting the interviews, no real and concrete date can define the start of the after-COVID period. Despite this fact, in light of the vaccination progress a positive perspective has been adopted considering the possibility to fully re-entering society and offices within the coming year. Additionally, the point in the process of companies reimagining their future office is also expected to affect their perception. Therefore, no concrete point in time is communicated as it is their post-pandemic perception that is of interest and not a perception to a specific point in time.

#### 4.1.3 Case study approach

As defined in the research methodology, the case studies are conducted to develop an understanding of the changes in the corporate and real estate priorities of these corporates post-COVID-19. The main source to gather this information is through the case interviews, the strategic corporate documents are supportive. The goal of the interviews is to gain insight into the following themes:

1. Accelerated and emerging trends due to COVID-19 that affect the company's sector.
2. Changes in corporate priorities of the company.
3. Changes in company's real estate and more specific their office strategy.
4. Change in the formulation of the metrics for portfolio management

The general interview protocol, is included in Appendix A. In this interview protocol both a qualitative and quantitative method are present.

The qualitative method is used to obtain a more broad context of the phenomenon and its impact on the various companies. In the interview this applied through posing open-questions on these different themes. These open questions provide the opportunity to detect priorities that are not predefined. This method also provides a more in-depth view on what the motivations of the various companies are for their changes in perceptions of priorities and what strategic measures they expect to take.

In the quantitative method, the interviewees of the different case studies are requested to score their perception of importance both pre- and post-pandemic for the presented list of corporate priorities (driving forces) and real estate priorities (added values) as deducted from literature. This method is limited to gain an understanding on the changes in the list as presented. However, this method does provide a clear distinction in the extent to which these are perceived to change.

In Table 5 the unfilled scoring tables used for this purpose are presented. A total overview of all scores given in all case studies is included in Appendix B . A total overview of the scores given over all case studies is included in Appendix C , for the added values this is included in Appendix D .

Driving force	Score before COVID	Expected score after COVID	Added value	Measurable item	Score before COVID	Expected score after COVID
Products offered			Increasing productivity	Selection of location		
Market needs				Innovative workplaces		
Technology				Retaining human capital		
Production capability			Cost reduction	Workplace costs		
Method of sale				Accommodation costs		
Method of distribution				Facility costs		
Natural resource				Benchmarking		
Size/growth				Corporate finance		
Return/profit			Managing risk	Inflexibility of real estate portfolio		
				Selection of location		
				Value risk		
				Working environment		
				Environmental aspects		
			Increase value	Development process		
				Acquisition and disposal of real estate		
				Redevelopment of real estate		
				Market analysis		
			Increase flexibility	Organisational flexibility		
				Financial flexibility		
				Technical flexibility		
			Cultural support	Workplace innovation		
				Communication		
			PR & Marketing support	Image		
				Selling points		
				Sales strategy		

Table 5: Scoring tables as used in the interviews for the driving forces (left) and the added values (right).

## 4.2 Multi-case study analysis

In the following sections of this chapter the individual case studies are treated. Each section presents a case study discussing the following topics:

- company information and their office profile
- the trends that are accelerated and/or came into existence due to COVID (qualitative analysis)
- their present corporate and real estate (office) strategy (qualitative analysis)
- the changes in strategic priorities corporate and real estate (office) strategy (qualitative analysis)
- the changes in importance of their strategic driving forces and real estate added values (quantitative analysis)
- translation of the findings on the previous topics to a conclusion on the shift in generic strategy
- expected change in portfolio management.

The presented results are a brief overview of the findings from the elaborate individual case analyses that also include the explanations and rational of the interviews for the communicated change. These elaborated analyses are included in Appendix F .

#### 4.2.1 Electrotechnical company

In this case study, two interviews are conducted. The first is conducted with the head of public and governmental affairs (March 1<sup>st</sup>) further referred to as interviewee 1. In this interview the corporate strategy and trends are discussed. In the second interview with interviewee 2, the global real estate transaction manager (March 2<sup>nd</sup>), first the most important insights of the previous interview were communicated and then the real estate strategy was discussed. Additionally, apart from the information provided within the interviews year reports and company statements are consulted. Due to confidentiality reasons, references and information are anonymized when necessary.

##### ***Company and office profile***

*Not presented due to confidentiality reasons*

##### ***Trends***

Interviewee 1 acknowledges that the pandemic has had a major impact on the entire industry and identifies multiple trends that are accelerated by COVID that influence both the industry and the company. The most important accelerated trends are *working from home*, which resulted in a significant increase in the demand for products from the customer portfolio. Additionally the importance of *connectivity, sustainability, health* and the *shift from products towards a service* increased. These latter trends could already be identified pre-COVID, however especially within the customer portfolio this has been accelerated due to the increased time spent at home. The acceleration of the health trend is a result of the raised awareness of the importance of health as a result of the pandemic (Personal communication, March 1<sup>st</sup> 2021).

##### ***Corporate- and real estate priorities and metrics***

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 6.

Interviewee 1 communicated that the above mentioned trends induce a shift in the importance of certain corporate priorities. Post-COVID the interviewee expects that the corporate will be more focused on the customer-, connectedness- and sustainability driven (Personal communication, March 1<sup>st</sup> 2021).

Interviewee 2 explains that the corporate real estate strategy pre-COVID can be described as “*a constant process of value engineering of the entire portfolio to optimize whenever possible*”. More specific for the office strategy there is an additional focus on “*creating a great place to work for all employees that want to come to the office*”.

However interviewee 1 also indicates that the above mentioned trends also affect the real estate and office strategy. This is expected to result in an increase of importance for sustainability, digitalization and the increased importance on services is expected to induce a reduction of the office space (Personal communication, March 2<sup>nd</sup> 2021).

Apart from the answers given to the open questions and the qualitative analysis of these, the quantitative analysis provides insight on the changes in importance as provided through the scores given by the interviewees. From the information provided by interviewee 1 it can be concluded that the driving forces production capability and the method of distribution both increase. Interviewee 2 indicates that all added values increase in importance post-COVID except for PR & marketing support. However, cultural support of the portfolio has been indicated to change the most in how important this is valued by the interviewee. An overview of the given score to the most relevant added values by each company is shown in the next chapter

The information from the qualitative analysis of the corporate real estate office priorities pre-COVID are translated into the generic strategies of O'mara. A slight shift can be identified from an incremental strategy pre-COVID, as the interviewee explains this to be a constant process of value engineering, towards adding more value-based characteristics. This can be explained by the growing importance of the sustainability and supporting culture within the office real estate. However, the generic strategy overall is expected to remain incremental.



A	C	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
"To be innovation driven"	<ul style="list-style-type: none"> <li>• Customer centric</li> <li>• Connectedness</li> <li>• Sustainability</li> </ul>	 INCREMENTAL	<ul style="list-style-type: none"> <li>+ Production capability</li> <li>+ Method of distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Change in measurement metrics: most important is presence</li> <li>• Distribution of space:               <ul style="list-style-type: none"> <li>&lt; workspaces</li> <li>&gt; collaboration spaces</li> </ul> </li> <li>• Reduction of m2</li> <li>• Reduction FTE</li> <li>• &gt;work from anywhere</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
<ul style="list-style-type: none"> <li>• Connectivity</li> <li>• Sustainability</li> <li>• Health</li> <li>• Product towards service</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainability</li> <li>• Digitalization</li> <li>• Focus on services</li> <li>-Reduction footprint</li> <li>• Health</li> </ul>	 VALUE-BASED	<ul style="list-style-type: none"> <li>+ Increasing productivity</li> <li>+ Cost reduction</li> <li>+ Managing risk</li> <li>+ Increase value</li> <li>+ Increase flexibility</li> <li>+ Cultural support</li> <li>± PR &amp; Marketing support</li> </ul>	

Table 6: Presentation of the most important findings of the case study

### 4.3 Engie Energie Nederland N.V

In this case study, one interview is conducted with the real estate manager of Engie in which both the corporate and real estate priorities were discussed (March 22<sup>th</sup> 2021). Additionally, apart from the information from the interview, year reports and company statements are consulted.

#### **Company and office profile**



ENGIE Energie Nederland N.V. is part of the international and listed global energy and services ENGIE Group that operates in 70 countries. From the financial report of 2020, an EBITDA of €3.5bn is reported, which is a decrease of 10.5% compared to last year (Engie, 2021). The company is the largest sustainable technical service provider in the Netherlands (Engie, 2021) and has come into existence through a merger of individual companies. Therefore, the company started with a real estate portfolio of approximately 100 locations, however a reduction has already taken place toward 55 locations (Personal communication, March 22<sup>th</sup> 2021). Almost all of the offices are leased and the majority is combined with business space with an average energy label B. Additionally, at the moment there are no external co-working solutions in use and the average m<sup>2</sup>/desk is between 12-17. Furthermore, the desk share ratio per Full Time Employee (FTE) is 1 (Personal communication, March 22<sup>th</sup> 2021).

#### **Trends**

The interviewee indicates that digitalization and the change in mobility use are the most important trends that are accelerated by COVID. Considering the utility sector being multifaceted, the impact of COVID on the company is within limits (Personal communication, March 22<sup>th</sup> 2021).

#### **Corporate- and real estate priorities and metrics**



The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 7.

The corporate strategy of Engie is to play a leading role in sustainable change, with strategic choices to aim to build a net-zero carbon transition for all. Therefore the focus is on sustainable energy, innovative technology and digitization (Engie, 2021). The interviewee indicates that the process of the three pillars could be accelerated due to COVID as clients are also expected to value these pillars more (Personal communication, March 22<sup>th</sup> 2021).

Additionally, the Interviewee describes the corporate real estate strategy pre-COVID as “to provide the means to ensure that the companies are accommodated in the best possible and efficient way to conduct their activities”. This is an ongoing process to optimize the current portfolio while meeting the goals of reducing housing costs as imposed by the parent company. More specific for the office strategy there is an additional focus “all offices in 2030 must be Paris proof”.

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. For the corporate strategy, the interviewee indicates five of the driving forces increase in importance as a result of the consequences of the pandemic. The real estate priorities that are expressed through the added values are all indicated to change in importance. All added values are indicated to increase in importance except for ‘cost reduction’.

The information from the qualitative analysis of the corporate real estate office priorities pre-COVID are translated into the generic strategies of O'mara. A shift can be identified from an incremental strategy towards more emphasis on the value-based strategy post-COVID.

A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
<p>"To play a leading role in sustainable change, with strategic choices to aim to build a net-zero carbon transition for all "</p>	Acceleration of strategic priorities	 <p>INCREMENTAL</p>	<ul style="list-style-type: none"> <li>+ Products offered</li> <li>+ Market needs</li> <li>+ Technology</li> <li>+ Production capability</li> <li>+ Size/growth</li> </ul>	<ul style="list-style-type: none"> <li>• Change in value of metrics: occupancy rate will increase</li> <li>• Distribution of space &lt; workspaces</li> <li>• Reduction of m2</li> <li>• Reduction FTE</li> <li>• Integral solution to reduce space</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
<ul style="list-style-type: none"> <li>• Sustainable energy</li> <li>• Innovative technology</li> <li>• Digitization</li> </ul>	Yes (Not indicated how)	 <p>VALUE-BASED</p>	<ul style="list-style-type: none"> <li>+ Increasing productivity</li> <li>± Cost reduction</li> <li>+ Managing risk</li> <li>+ Increase value</li> <li>+ Increase flexibility</li> <li>+ Cultural support</li> <li>+ PR &amp; Marketing support</li> </ul>	<ul style="list-style-type: none"> <li>• 40% employees will work anywhere</li> </ul>

**Table 7: Presentation of the most important findings of the case study.**

## 4.4 Vattenfall

In this case study, the interview is conducted with the facility advisor of Vattenfall in which both the corporate and real estate priorities were discussed (March 18<sup>th</sup> 2021). Additionally, apart from the information from the interview year reports and company statements are consulted.

### Company and office profile



Vattenfall is a leading European energy company with a parent company that is 100% owned by the Swedish government (Vattenfall, 2021). The company has approximately 20.000 employees, located in 9 countries, and serves 14 million customers. The main markets are focused on western Europe including the Netherlands, where 12 offices are located (Vattenfall, 2021). From the financial report of 2020, an EBITDA of €46bn is reported, which is a decrease of 10.5% compared to last year (Vattenfall, 2021). The office profile is characterized by a 100% leased portfolio with an average energy label B. Additionally, at the moment the average m<sup>2</sup>/desk is 11.6 with a desk share ratio per Full Time Employee (FTE) of 0.7.

### Trends

The interviewee indicates the energy transition is the most important trend within the sector. Additional trends that are secondary to this are digitalization, robotics and artificial intelligence (Personal communication, March 18<sup>th</sup> 2021).

### Corporate- and real estate priorities and metrics

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 8.

The corporate strategy of Vattenfall is based on an *'integrated utility logic'* and is to *'enable a fossil-free living within one generation'*, additionally the following five strategic priorities have been developed: *'connecting and optimizing the energy system, securing a fossil-free energy supply, delivering high-performing operations, empowering our people, and driving decarbonization with our customers and partners'* (Vattenfall, 2021). The interviewee indicates that the strategic priorities are considered to be equally important both before and after COVID and are deemed necessary for the fulfilment of the strategy (Personal communication, March 18<sup>th</sup> 2021).



According to the interviewee no overall real estate strategy can be defined as the real estate department does not manage all of Vattenfall's real estate. The production locations are managed by the business and at the moment the focus is one developing a synergy.

In general there is a focus on centralization of the real estate and this is expected to accelerate as a result of the pandemic. The real estate strategies are indicated to be strongly connected to the corporate strategy. An example of this is given by the interviewee: *"considering the trend of technology for example, we are still developing how to integrate this within the business, hereafter the real estate strategy can be adjusted accordingly"* (Personal communication, March 18<sup>th</sup> 2021). The interviewee also indicates that although to a very small extend, the real estate strategy also affects the corporate strategy: *"we actively involve 'environment' in our sustainability ambitions this sometimes works inspiring for the organization"* (Personal communication, March 18<sup>th</sup> 2021).

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. For the corporate strategy, the interviewee indicates that prior to COVID all of the driving forces are equally important for the company, except for 'natural resources' that can be seen as the main driving force. Changes in importance have been indicated to occur after COVID in the 'method of sale' (Personal communication, March 18<sup>th</sup> 2021).

For the real estate priorities of the office portfolio that are expressed through the added values, the interviewee indicated four added values to increase in importance. These are 'increasing productivity', 'cost reduction', 'managing risk' and 'increasing flexibility'.

When translating this information of the real estate office priorities to the generic strategies of O'mara, the strategy can be considered incremental pre-COVID and this will remain dominant post-COVID.

A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
"to enable a fossil-free living within one generation"	No Equally important	 INCREMENTAL	+ Method of sale	<ul style="list-style-type: none"> <li>• Change in value of metrics: occupancy rate will increase</li> <li>• Distribution of space &lt; workspaces</li> <li>• Reduction of m2</li> <li>• Reduction FTE</li> <li>• Integral solution to reduce space</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
<ul style="list-style-type: none"> <li>• Connecting and optimizing the energy system</li> <li>• Securing a fossil-free energy supply</li> <li>• Delivering high-performing operations</li> <li>• Empowering our people</li> <li>• Driving decarbonization with our customers and partners</li> </ul>	<ul style="list-style-type: none"> <li>• Technology</li> <li>• Centralization</li> </ul>	 INCREMENTAL	<ul style="list-style-type: none"> <li>+ Increasing productivity</li> <li>+ Cost reduction</li> <li>+ Managing risk</li> <li>+ Increase flexibility</li> </ul>	<ul style="list-style-type: none"> <li>• 40% employees will work anywhere</li> </ul>

**Table 8: Presentation of the most important findings of the case study**



## 4.5 Philips

In this case study the interview is conducted with the director construction projects EMEA. In this interview both the corporate and real estate priorities were discussed (April 22<sup>nd</sup> 2021). Additionally, apart from the information from the interview year reports and company statements are consulted.

### **Company and office profile**



Philips is a global healthcare company that operates within the care sector, amongst others in connected care and diagnosis and treatment. With a profit of 9.5 million euros and approximately 37.000 employees within 100 countries. Within the Netherlands the headquarter is located in Amsterdam and the high-tech campus in Eindhoven (Philips, 2021). From the financial report of 2020, an adjusted EBITDA of €3.6bn is reported (Philips, 2021), this represents a small increase compared to the previous year. The office profile is characterized by a 100% leased portfolio. Additionally, on average the offices have a desk share ratio per Full Time Employee (FTE) of 0.7 and a space distribution of 60% workspace and 50% meeting space.

### **Trends**

The interviewee indicates the following trends to be present within the industry, the increased importance of the service software instead of the product, E-health due to the trend of aging and digitization, AI, and the importance of innovativeness of the products due to the increase of market entrants. The interviewee indicates that *“as a result Philips is thriving to be more innovative”* (Personal communication, April 22<sup>nd</sup> 2021).

### **Corporate- and real estate priorities and metrics**

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 9.

The overall strategy of Philips is *“to make the world healthier and more sustainable through innovation”*. Thereby the company wants to be able to take back and reuse all used professional medical equipment. In addition, the company wants to improve the lives of three billion people per year by 2025 with innovative solutions and products (Philips, 2021). According to the interviewee this has been practicalized in the previous years through selling parts of the business that do not represent this strategy and buying those that do represent this. As a result of COVID this strategy has been proven to work (Personal communication, April 22<sup>th</sup> 2021).

According to the interviewee: *“the general real estate strategy follows the business strategy”*. The previous mentioned trends that affect the corporate strategy will therefore also move along in the real estate strategy. An example is given of the increased importance of software and thus software developers. The result is the consolidation of factories and a shift of global Service locations towards countries as India, where high quality software development is offered at a lower price.

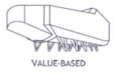
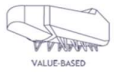
The Dutch office strategy this is mainly based on retaining talent at brainport Eindhoven and emphasizing the international character in the Amsterdam headquarter (Personal communication, April 22<sup>th</sup> 2021).

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. For the corporate

strategy, the interviewee indicates that post- COVID the ‘production capability’ and ‘natural resource’ increase largely in importance. Additionally, the ‘method of distribution’ will also grow in importance for the corporate.

For the real estate priorities of the office portfolio that are expressed through the added values, four added values are indicated by the interviewee to increase in importance. These are ‘cost reduction’, ‘managing risk’, ‘increase flexibility’ and ‘cultural support’.

When translating the information of the real estate office priorities to the generic strategies of O’mara, the strategy can be considered value-based both pre- and post- COVID.

A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
“to make the world healthier and more sustainable through innovation”	Strategic shift proven to work and further implemented		<ul style="list-style-type: none"> <li>+ Production capability</li> <li>+ Method of distribution</li> <li>+ Natural resource</li> </ul>	<ul style="list-style-type: none"> <li>• Change in targets of metrics</li> <li>• Distribution space workspace &gt; 30% Collaboration space &gt;70%</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
<ul style="list-style-type: none"> <li>• shift from a consumer electronics producer to a health technology concern</li> </ul>	Emphasis on software steers office locations		<ul style="list-style-type: none"> <li>+ Cost reduction</li> <li>+ Managing risk</li> <li>+ Increase flexibility</li> <li>+ Cultural support</li> </ul>	<ul style="list-style-type: none"> <li>• Desk ratio / FTE = 0.6</li> <li>• Space reduction 25%.</li> <li>• &gt; Work from anywhere</li> </ul>

*Table 9: Presentation of the most important findings of the case study*

## 4.6 ING Group

In this case study the interview is conducted with three real estate professionals. These are the Global Head of Transaction management, the Global Head of Asset Management, Projects and Workplace Strategy and the Global Head of Corporate Real Estate Strategy and Portfolio Management (April 25<sup>th</sup>, 2021). Additionally, apart from the information from the interview year reports and company statements are consulted.

### **Company and office profile**



ING is an international bank operating in over 40 countries that is of Dutch origin. The company provides financial services including banking, investment, pensions and life insurances to their clients. Their clients are individuals, companies, institutions and governments (ING, 2021). In the Netherlands ING has approximately 8 million account holders and 134 branch offices and 246 service points (ING, 2021). The net year result of 2020 is 2,485 billion euros which indicates a decrease of almost 50% compared to the year before (ING, 2021). The office profile is characterized by a 65% leased portfolio with 0% co-working solutions and a space distribution of 60% workspace and 50% meeting space (Personal communication, April 25<sup>th</sup> 2021)

### **Trends**

ING reported different general trends that affect their operations as a financial institution. Amongst others these are the digitalization of banking, new market entrants due to technology, low interest rates, easy accessible ecosystems for all services, the transition to a low-carbon economy and lowering operating expenses (ING, 2021). The interviewees indicate that: *"COVID will not cause major changes to these trends, but certain processes that were already running, such as digitization and the disposal of branches, may be accelerated"* (Personal communication, April 25<sup>th</sup> 2021).

### **Corporate- and real estate priorities and metrics**

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 10.

The 2020 ING annual report defines their current Think Forward strategy as a strategy focused on the customer with a data-driven digital and mobile-first approach. Therefore the following strategic priorities have been formulated; *earning the primary relationship, mastering data, being innovative to serve changing customer needs, and developing new services and business models beyond banking* (ING, 2021). According to the ING 2020 annual report, the coronavirus crisis accelerated the need for implementation of end-to-end digitalization, in response to the growing demand for mobile banking and to enhance the operations. Additionally, COVID enlarged the need for flexible implementation of the current strategy. An example of this is a change in customer behavior regarding the use of digital channels, which in return impacts the organization. Additionally, announcements have been made about simplifying the client and geographical footprint, which will result in a headcount reduction of approximately 1,000 full-time equivalents (FTEs) (ING, 2021).

In the interview the real estate professionals indicate that the purpose of the general real estate strategy is: *"to serve our customers as well as possible"* (Personal communication, April 25<sup>th</sup> 2021), explained is that the customers in this case are the offices. Thereby emphasizing the importance of

high-quality of the real estate and facilities and flexibility against the best price, three pillars that are part of an continuous process to find the right balance (Personal communication, April 25<sup>th</sup> 2021). Additionally, from an office portfolio perspective the past years a strategy has been applied to relocate ING offices from the CBD to the fringe of the city. At the moment this strategy is (partially) reconsidered due to COVID (Personal communication, April 25<sup>th</sup> 2021). The interviewee expresses the following: *“We are carefully looking again towards a possible option (as part of the portfolio) of regional satellite offices, hubs, or another name, but flexible. An idea that is still developing”* (Personal communication, April 25<sup>th</sup> 2021). Additionally, the interviewee aspire to: *“gradually adding more flexibility to our portfolio in order to be able to more easily keep up with the size of the company or calamities such as COVID”* (Personal communication, April 25<sup>th</sup> 2021).

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. These scores together with the complete analysis and the explanation and reasons behind these can be found in the appendix. For the corporate strategy, an increase in the importance of ‘technology’ could be expected considering the information as communicated within the reports, however this is not quantitatively indicated by the interviewees and a result of the researchers own interpretation. From the perspective of the real estate through the added values all added values are expected to increase in importance except for ‘PR & marketing support’.

When translating the information of the real estate office priorities to the generic strategies of O’mara, the strategy can be considered value-based pre-COVID. Post-COVID the emphasis will also be value-based however a shift is noticeable towards a more incremental strategy post-COVID.

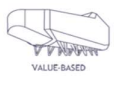

A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
“Think forward strategy: strategy focused on the customer with a data-driven digital and mobile-first approach”	Enlarged the need of flexible implementation	 VALUE-BASED	+ Technology	<ul style="list-style-type: none"> <li>Change in metric importance: From workspace per FTE -&gt; space per FTE</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	<ul style="list-style-type: none"> <li>Need for metric that reflects benefits of flexibility; include level of risk reduction</li> <li>Change in targets of metrics</li> <li>Distribution of space from &lt; workspace 80% &gt; Collaboration space 20%</li> <li>&gt;work from anywhere</li> <li>Reduction of m2</li> <li>Reduction FTE</li> </ul>
<ul style="list-style-type: none"> <li>Earning the primary relationship</li> <li>Mastering data</li> <li>Being innovative to serve changing customer needs</li> <li>Developing new services and business models beyond banking</li> </ul>	The post-COVID office strategy of relocating CBD towards city boundaries is reconsidered + Adding more flexibility to the portfolio	 INCREMENTAL	<ul style="list-style-type: none"> <li>+ Increasing productivity</li> <li>+ Cost reduction</li> <li>+ Managing risk</li> <li>+ Increase value</li> <li>+ Increase flexibility</li> <li>+ Cultural support</li> <li>+ PR &amp; Marketing support</li> </ul>	

Table 10: Presentation of the most important findings of the case study

## 4.7 Rijksvastgoedbedrijf

In this case study the interview was conducted with a senior policy advisor portfolio management. (March 12<sup>th</sup>, 2021). Additionally, apart from the information from the interview year reports and company statements are consulted.

### *Company and office profile*



The Rijksvastgoedbedrijf (RVB) is the Dutch public real estate organisation that develops and manages the real estate portfolio for its users and uses buildings and sites to achieve economic and social added value based on policy objectives. In 2020 the RVB manages almost 12 million m<sup>2</sup> real estate, of which 17% accounts to offices, and has a positive financial result of € 31,2 mln. (RVB, 2021), which represents almost a 30% growth compared to the results of the prior year. The office profile can be characterized by 0% co-working solutions and on average the offices have a desk share ratio per Full Time Employee (FTE) of 0.7 (Personal communication, April 25<sup>th</sup> 2021).

### *Trends*

The interviewee indicates that the largest trends within the real estate sector that is accelerated through COVID is the working from home trend. Safety and health are also themes considered to be affected by COVID (Personal communication, March 12<sup>th</sup> 2021).

### *Corporate- and real estate priorities and metrics*

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 11.

The Rijksvastgoedbedrijf develops and manages the real estate portfolio for its users and uses buildings and sites to achieve economic and social added value based on policy objectives. According to the market strategy report 2021, in the coming years, the policy tasks will be largely determined by the social ambitions surrounding energy transition, circular and low-nitrogen construction and social added value (Rijksvastgoedbedrijf, 2020).

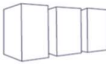

Their real estate portfolio strategy (VPS) is to arrive at a 'future-proof real estate portfolio' (Rijksvastgoedbedrijf, 2021). The primary processes of central government and the policy objectives of the ministries are supported by managing the portfolio (Rijksvastgoedbedrijf, 2021). To be more specific, the interviewee describes the real estate office strategy as an office system where the departments obtain a standard office concept for a fixed price per m<sup>2</sup> that meets all requirements that are considered to be important by the government (Personal communication, March 12<sup>th</sup> 2021). Considering the impact of COVID on the real estate strategy, the strategy pillars sustainability, safety, health and accessibility will be more important. Other important changes are that the buildings will be used more in collaboration and the specific departments will not have their own buildings. Additionally, the focus of the strategy shifted from standardization and savings towards stimulating productivity and creativity (Personal communication, March 12<sup>th</sup> 2021).

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. These scores together with the complete analysis and the explanation and reasons behind these can be found in the appendix. As the Rijksvastgoedbedrijf is a public company, the driving forces table is rather

difficult to fill in and the interviewee indicates that the ‘method of distribution’, ‘natural resource’, ‘size/growth’ and ‘return/profit’ are not applicable (Personal communication, March 12<sup>th</sup> 2021). Additionally as their business is focused on providing real estate the content of this table is similar to the real estate strategy as real estate is their core business. The driving forces that are applicable are identified to increase in importance post-COVID. These are the ‘products offered’, ‘market needs’, ‘technology’, ‘production capability’ and ‘method of sale’.

The priorities of the real estate as communicated through the added values change in importance post-COVID. The four added values that increase in importance are ‘increase productivity’, ‘increase value’, ‘increase flexibility’ and ‘cultural support’. However, ‘cost reduction’ is communicated to decrease in importance post-COVID.

When translating the information of the real estate office priorities to the generic strategies of O’mara, the strategy can be considered standardization pre-COVID. Post-COVID a shift is noticeable towards more emphasis on the value-based strategy.

A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
“develops and manages the real estate portfolio for its users and uses buildings and sites to achieve economic and social added value based on policy objectives”	Enlarged the need of flexible implementation	 STANDARDIZATION	<ul style="list-style-type: none"> <li>+ Products offered</li> <li>+ Market needs</li> <li>+ Technology</li> <li>+ Production capability</li> <li>+ Method of sale</li> </ul>	<ul style="list-style-type: none"> <li>• Change in value metrics: Desk ratio / FTE &lt; 0.7</li> <li>• Space reduction 20%.</li> <li>• Distribution of space &lt; workspace &gt; Collaboration space</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
Social ambitions surrounding: <ul style="list-style-type: none"> <li>• Energy transition</li> <li>• Circular and low-nitrogen construction</li> <li>• Social added value</li> </ul>	The post-COVID office strategy of relocating CBD towards city boundaries is reconsidered	 VALUE-BASED	<ul style="list-style-type: none"> <li>+ Increasing productivity</li> <li>- Cost reduction</li> <li>+ Increase value</li> <li>+ Increase flexibility</li> <li>+ Cultural support</li> </ul>	<ul style="list-style-type: none"> <li>• &gt; work from home</li> <li>• Reduction of m2</li> </ul>

**Table 11: Presentation of the most important findings of the case study**

## 4.8 JLL

In this case study the interview was conducted with the head of corporate real estate and workplace EMEA (April 7<sup>th</sup>, 2021). Additionally, apart from the information from the interview, year reports and company statements are consulted.

### **Company and office profile**



JLL is one of the world leaders in commercial real estate services and investment management. The year 2020 was closed with an EBITDA of €0.7 billion, a decrease compared to the year before. The company has offices in 80 countries and 91.000 employees around the world (JLL, 2021). In Europe JLL's office portfolio counts 120 locations and approximately 125.000 m<sup>2</sup>, in the Netherlands there are 3 locations. Additionally, the office profile can be characterized by 5% co-working solutions (Personal communication, April 7<sup>th</sup> 2021).

### **Trends**

The interviewee indicates multiple major trends that will be accelerated by COVID. The demand for flexibility is an important trend – this includes more flexibility regarding how, when and where to work. As indicated by the interviewee this will change the demand, the quantity and quality of space (Personal communication, April 7<sup>th</sup> 2021). This will in return impact the company, across all businesses and service lines. Another trend that is identified is the importance of employee wellbeing factors that reaches beyond the limits of space (Personal communication, April 7<sup>th</sup> 2021).

### **Corporate- and real estate priorities and metrics**

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 12.

The vision of JLL is: *"We shape the future of real estate for a better world"* (Personal communication, April 7<sup>th</sup> 2021), the interviewee indicates that due to COVID the components 'sustainability' and in particular 'flexibility' are accelerated, and become cross functional topics (Personal communication, April 7<sup>th</sup> 2021).

The interviewee indicates that the real estate strategy is to: *"create engaging workplaces that are sustainable and a showcase of our technology while at the same time be cost efficient" ... "So we are really looking at how we drive engagement through our workplaces, culture and well-being, while at the same time maintaining or improving the cost level at an increased experience for our employees or clients"* (Personal communication, April 7<sup>th</sup> 2021).

Additionally the interviewee indicates that the strategy is being redefined by the lessons learned from COVID. As office space is the business, the company will show what the workplace of the future should be, from a sustainability, human experience and well-being perspective that is supported by technology to manage the workspace. Additionally is underpinned that the exact strategy depends on the country and business. The local business will inform what strategy to apply (Personal communication, April 7<sup>th</sup> 2021).

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. These scores

together with the complete analysis and the explanation and reasons behind these can be found in the appendix. For the corporate strategy, an increase in the importance of the ‘method of sale’, ‘method of distribution’ and ‘natural resource’ is communicated. For the added values that represent the real estate priorities all added values except for the ‘increase of value’ are identified to increase in importance.

When translating the information of the real estate office priorities to the generic strategies of O’mara, the strategy can be considered incremental pre-COVID. Post-COVID a shift is noticeable towards more emphasis on the value-based strategy.



A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
“We shape the future of real estate for a better world”	‘sustainability’ and in particular ‘flexibility’ are accelerated, and become cross functional topics	 INCREMENTAL	+ Method of sale + Method of distribution + Natural resource	<ul style="list-style-type: none"> <li>• Change in metric importance :</li> <li>• From cost per m2 to cost per employee</li> <li>• Points of interest will be space usage and capacity usage</li> <li>• Need for additional sustainability KPI's</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
-	Show the workplace of the future, from a sustainability, human experience and well-being perspective supported by technology	 VALUE-BASED	+ Increasing productivity + Cost reduction Managing risk + Increase flexibility + Cultural support + PR & Marketing support	<ul style="list-style-type: none"> <li>• Distribution of space   &gt; Between businesses   &gt; types</li> <li>• &gt;work from anywhere</li> </ul>

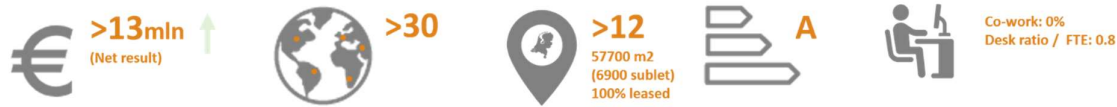
Table 12: Presentation of the most important findings of the case study



## 4.9 RHDHV

In this case study the interview was conducted with the the Director Services, Workplace Solutions (March 26<sup>th</sup>, 2021). Additionally, apart from the information from the interview, year reports and company statements are consulted.

### Company and office profile



Royal Haskoning DHV is an international consultancy firm, with offices located in 30 countries and 12 buildings located within the Netherlands. In 2020, the company had a net result of €13 million, a large increase compared to the financial results of the year before (RoyalhaskoningDHV, 2021). The office profile can be characterized by 12 locations in the Netherlands with on average an energy label A. Additionally, there is no use of external co-working solutions and on average the offices have a desk share ratio per Full Time Employee (FTE) of 0.8 (Personal communication, March 26<sup>th</sup> 2021).

### Trends

The interviewee indicates that the already existing trend sustainability receives more attention. In return this will affect the company's growth and the war for talent (Personal communication, March 26<sup>th</sup> 2021).

### Corporate- and real estate priorities and metrics

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in



A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
"Enhance society together through our expertise, partnerships and innovations"	"Sustainability will affect the company's growth and the war for talent" + "Internationalization is accelerated"	 INCREMENTAL	+ Technology	<ul style="list-style-type: none"> <li>Limited reduction of m2</li> <li>Lower occupancy</li> <li>&gt; Work from anywhere</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
<ul style="list-style-type: none"> <li>Strong international and independent engineering and consultancy firm</li> <li>Leading in innovation and sustainability</li> </ul>	Yes (Not explicitly indicated how)	 INCREMENTAL	<ul style="list-style-type: none"> <li>+ Increasing productivity</li> <li>- Cost reduction</li> <li>+ Increase value</li> <li>+ Increase flexibility</li> <li>+ Cultural support</li> </ul>	

Table 13.

The mission of the company can be described as follow: *"Enhance society together through our expertise, partnerships and innovations"*, the vision is *"to be a strong international and independent engineering and consultancy firm, leading in innovation and sustainability"* (RoyalHaskoning DHV, 2021). The interviewee indicates that COVID has enhanced the international part of the vision, as the local background has become less important considering the locations of employees, this could in return have an impact on the market the company is operating in (Personal communication, March 26<sup>th</sup> 2021).

The general real estate strategy is to add value to the their primary process, their services. More specific for the office strategy this is focused on flexibility and sustainability (Personal communication, March 26<sup>th</sup> 2021).

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. These scores together with the complete analysis and the explanation and reasons behind these can be found in the appendix. For the corporate strategy, an increase in the importance of 'technology' is communicated. For the added values the interviewee communicates a change in importance for five of the added values. Where 'increase productivity', 'increase value', 'increase flexibility' and 'cultural support' are all increasing in importance, the importance of 'cost reduction' decreases.

When translating the information of the real estate office priorities to the generic strategies of O'mara, the strategy can be considered incremental both pre-COVID and Post-COVID.



A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
"Enhance society together through our expertise, partnerships and innovations"	"Sustainability will affect the company's growth and the war for talent" + "Internationalization is accelerated"	 INCREMENTAL	+ Technology	<ul style="list-style-type: none"> <li>• Limited reduction of m2</li> <li>• Lower occupancy</li> <li>• &gt; Work from anywhere</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
<ul style="list-style-type: none"> <li>• Strong international and independent engineering and consultancy firm</li> <li>• Leading in innovation and sustainability</li> </ul>	Yes (Not explicitly indicated how)	 INCREMENTAL	+ Increasing productivity - Cost reduction + Increase value + Increase flexibility + Cultural support	

Table 13: Presentation of the most important findings of the case study

## 4.10 Security

In this case study the interview was conducted with the advisor of accommodation (March 30<sup>th</sup>, 2021). Additionally, apart from the information from the interview, year reports and company statements are consulted. Regarding confidentiality requirements, information is presented accordingly.

### ***Company and office profile***

*Not presented due to confidentiality reasons*

### ***Trends***

From the company reports the trends that are applicable to the sector are amongst others cybercrime and international collaboration (company report). Additionally, digitalization is indicated by the interviewee to affect the company (Personal communication, March 30<sup>th</sup> 2021).

### ***Corporate- and real estate priorities and metrics***

The most important findings from the quantitative and qualitative analyses on the corporate- and real estate priorities and metrics are summarized in Table 14.

Due to confidentiality reasons the mission or vision statement of the company cannot be shown. However, the interviewee indicated these will not be altered post-COVID. However, the importance of scenario planning will increase, this to prepare the company for different scenarios and be able to attain the same goal (Personal communication, March 30<sup>th</sup> 2021).

Considering the real estate strategy, the interviewee explains this as follow: *“the real estate strategy is a translation of the primary process and is considered to provide support to the services”* (Personal communication, March 30<sup>th</sup> 2021). Additionally the real estate strategy is considered to be a driver of the corporate goals. Furthermore, COVID has an impact on the office strategy, the impact is expected to be most important for the distribution, the number and function of the offices (Personal communication, March 30<sup>th</sup> 2021).

Apart from open-questions and the qualitative analysis of these, the quantitative analysis provides information on the changes in importance as provided through the scores given. These scores together with the complete analysis and the explanation and rational behind these can be found in the appendix. For the corporate strategy, only three driving forces are applicable for this company. These are ‘products offered’, ‘technology’ and ‘production capability’. The driving force ‘products offered’ is considered to be most important before COVID as this is the translation of the purpose and services this company offers (Personal communication, March 30<sup>th</sup> 2021). Additionally, ‘technology’ is considered to become most important and the only driving force that changes in importance. At last, ‘production capability’ is considered to be a precondition to provide the services (Personal communication, March 30<sup>th</sup> 2021).

For the added values the interviewee communicates a change in importance for five of the added values. Where 'increase productivity', 'increase flexibility', 'cultural support' and 'PR & marketing support' are all increasing in importance, the importance of 'cost reduction' decreases.

When translating the information of the real estate office priorities to the generic strategies of O'mara, the strategy can be considered incremental both pre-COVID and Post-COVID as the focus of the real estate is mostly on supporting the primary process and provide accommodation to support those services.



A	B	C	D	F
Pre-Covid corporate strategy (qualitative)	Post- Covid priorities change (qualitative)	Real estate strategy (qualitative)	Post- Covid priorities change (quantitative)	Post- Covid portfolio management
<i>Pre-Covid Strategy</i>	<i>Corporate</i>	<i>Pre-Covid generic strategy</i>	<i>Driving forces</i>	<i>Metrics / perspectives</i>
Due to confidentiality requirements not possible to rephrase	-	 INCREMENTAL	-	<ul style="list-style-type: none"> <li>• Change in value metrics: Desk ratio / FTE &lt; 0.7</li> <li>• Distribution of space &gt; Collaboration space</li> <li>• &gt; work from anywhere</li> </ul>
<i>Pre-Covid Strategic priorities</i>	<i>Real estate</i>	<i>Post-Covid generic strategy</i>	<i>Added values</i>	
<ul style="list-style-type: none"> <li>• Scenario planning</li> </ul>	"Distribution, the number and function of the offices "	 INCREMENTAL	<ul style="list-style-type: none"> <li>± Increasing productivity</li> <li>- Cost reduction</li> <li>+ Increase flexibility</li> <li>+ Cultural support</li> <li>+ PR &amp; Marketing support</li> </ul>	

Table 14: The most important findings of the case studies

## 4.11 Conclusion

The most important findings of each case study have been summarized in the respective section, including the company profile, general strategy, real estate strategy, influence of trends, change in priorities and the portfolio management metrics. In the following chapter the results over the different case studies are discussed both qualitatively and quantitatively. Therefore, this chapter will not conclude with these findings in order to prevent repetition. In Appendix B and Appendix C, overviews are presented of the scores given and resulting changes of the driving forces and added values of all case studies. In appendix D, a total overview is presented of both the added values and driving forces.

## 5. Case synthesis

This chapter presents the synthesis over the different case studies, and proposes the answer to the sub research question: *What are the most relevant changes in real estate priorities that define the Post-COVID portfolio demand seen over the different case studies?*

First in section 5.1, a comparison of the different company- and office profiles over the different case studies is presented. Then, in section 5.2 the concretization of the definition of relevant changes in real estate priorities for the purpose of this research and the methods to be used for both the qualitative and quantitative selection is presented. In line with this, the qualitative selection of the most important priorities over the different cases is conducted in section 5.3. Then, in section 5.4, the selection of these real estate priorities is approached through the quantitative method. In section 5.5, the final selection of the most relevant real estate priorities is made based on the insights from both the qualitative and quantitative analysis. The selected real estate priorities are analysed in more depth in section 5.6 thereby presenting the most important remarks as verbally communicated within the case interviews to take into consideration for the following phase, the development and proposal of a realignment strategy. At last a conclusion of this chapter is presented.

### 5.1 Company and corporate real estate profiles

In order to develop an understanding of the specific priorities within the case studies, it is important to understand the context of these corporates. Therefore, for the different case studies the most important characteristics of their company and corporate real estate profile are presented, see Table 15.










 Elektronical	 Engie	 Vattenfall	 Philips	 ING	 RVB	 JLL	 RHDHV	 Security
Company profile								
<ul style="list-style-type: none"> <li>Sector: Electronical</li> <li>Mutlational</li> <li>Private party</li> <li>Listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Utility</li> <li>Mutlational</li> <li>Private party</li> <li>Listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Utility</li> <li>Mutlational</li> <li>Private party</li> <li>Listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Healthtech</li> <li>Mutlational</li> <li>Private party</li> <li>Listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Banking</li> <li>Mutlational</li> <li>Private party</li> <li>Listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Real estate</li> <li>National</li> <li>Public party</li> <li>Not listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Real estate</li> <li>Mutlational</li> <li>Private party</li> <li>Listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Consultancy</li> <li>Mutlational</li> <li>Private party</li> <li>Non-Listed</li> </ul>	<ul style="list-style-type: none"> <li>Sector: Security</li> <li>National</li> <li>Non-Listed</li> </ul>
Corporate real estate								
	<b>Asset types</b> Offices  Industrial  <b>Office profile</b> <ul style="list-style-type: none"> <li>Worldwide &gt;15 locations</li> <li>The Netherlands ± 55 locations</li> <li>75000 m<sup>2</sup></li> <li>98% leased</li> <li>2% owned</li> <li>Energy label av.: B</li> </ul>	<b>Asset types</b> Offices  Industrial  <b>Office profile</b> <ul style="list-style-type: none"> <li>Worldwide &gt; 9 countries</li> <li>The Netherlands 12 locations</li> <li>Ca. 33.500 m<sup>2</sup> in 100% leased</li> <li>Energy label av.: B</li> </ul>	<b>Asset types</b> Offices  Industrial  <b>Office profile</b> <ul style="list-style-type: none"> <li>Worldwide</li> <li>Netherlands ± 4 locations</li> <li>265000 m<sup>2</sup> vvo</li> <li>65% lease</li> <li>35% owned</li> <li>100% leased</li> </ul>	<b>Asset types</b> Offices   <b>Office profile</b> <ul style="list-style-type: none"> <li>Worldwide</li> <li>Netherlands ± 134 branches</li> <li>265000 m<sup>2</sup> vvo</li> <li>65% lease</li> <li>35% owned</li> </ul>	<b>Asset types</b> Offices   <b>Office profile</b> <ul style="list-style-type: none"> <li>Netherlands 165 locations</li> <li>Ca. 2 mln m<sup>2</sup></li> <li>30% lease</li> <li>70% owned</li> <li>Energy label av.: &lt;C</li> </ul>	<b>Asset types</b> Offices   <b>Office profile</b> <ul style="list-style-type: none"> <li>Worldwide &gt; 80 countries</li> <li>Netherlands 3 locations</li> <li>37000 m<sup>2</sup></li> <li>100% lease</li> <li>Energy label av.: Breeamverygood</li> </ul>	<b>Asset types</b> Offices   <b>Office profile</b> <ul style="list-style-type: none"> <li>Worldwide &gt; 30 countries</li> <li>Netherlands 12 locations</li> <li>57700 m<sup>2</sup></li> <li>100% lease</li> <li>Energy label av.: A</li> </ul>	
Office use								
	<ul style="list-style-type: none"> <li>Co-work solutions: 0%</li> <li>m<sup>2</sup> per desk = 12-17 m<sup>2</sup></li> <li>Desk ratio / FTE = 1</li> </ul>	<ul style="list-style-type: none"> <li>m<sup>2</sup> per desk = 11.6</li> <li>Desk ratio / FTE = 0.7</li> </ul>	<ul style="list-style-type: none"> <li>Desk ratio / FTE = 0.8</li> <li>Space distribution: 60% work, 40% meeting</li> </ul>	<ul style="list-style-type: none"> <li>Co-work solutions: 0%</li> <li>Space distribution: 80% work, 10% meeting</li> </ul>	<ul style="list-style-type: none"> <li>Co-work solutions: 0%</li> <li>Desk ratio / FTE = 0.7</li> </ul>	<ul style="list-style-type: none"> <li>Co-work solutions: 5%</li> <li>Space distribution: 95% activity-based workplaces</li> </ul>	<ul style="list-style-type: none"> <li>Co-work solutions: 0%</li> <li>Desk ratio / FTE = 0.8</li> </ul>	

Table 15: Overview company and corporate real estate profile of the case studies. (due to confidentiality reasons not fully shown)

Multiple differences and similarities can be identified from this table. Although not for all of the cases the same information could be gathered, comparisons are made on the available information. Starting with the company profile, in line with the selection criteria for the case studies, the corporates represent a wide range of sectors. Only the real estate and utility sector are represented twice. Furthermore, almost all corporates operate within the private sector, are listed on the stock exchange and operate apart from the Netherlands also in an international environment.

When comparing the office profiles of these companies, differences can be identified within the asset types that are part of the corporate real estate portfolios. The corporate real estate of RVB, JLL, RHDHV consists only of offices. Other corporates have a more diversified portfolio. For example the portfolio of Engie, Vattenfall, Philips and the Electrotechnical also consists of industrial locations. When the portfolio of a company consists of a variety of asset types, there could be a possibility that certain types are linked with each other. For example industrial asset types are often supported with office locations as is the case with the portfolio of Engie.

The size of the portfolio varies in between 3-12 locations for most companies. However, two outliers can be noted. Both 'ING' and 'security' exceed this number in large proportion. This has to do with the local customer service function that the offices of these sectors provide.

Another point of attention is the lease/own ratio, this provides insight on the flexibility of the corporate. Almost all of the case studies have a fully leased office portfolio apart from ING, RVB and the 'security' case. Additionally, the information available on the average Energy labels of the office portfolios indicates the presence of fairly sustainable portfolios. Considering the national regulations to comply with Energy label C in 2023, and energy label A in 2030 (EIB, 2016), both RHDHV and the 'elektronical' case exceed the demands for 2023 as their portfolio has on average an energy label A.

Looking further into the office use of these companies, the desk ratio/ FTE, provides insight on the amount of desks that is available for one full time employee. Almost all companies indicate to apply a ratio of 0.7 - 0.8. Therefore, for every 10 full time employees, there are 7-8 desks. The only exception is Engie, who provides a desk for every employee. Then the amount of m<sup>2</sup> per desk gives insight in how spacious the office is but also in the possibilities of reducing this amount and distributing space differently. The cases that have communicated this information all differ between 12-17 m<sup>2</sup> per desk. Co-working solutions are apart from JLL not present within these portfolios. At last, for the distribution of space, the majority before COVID is dedicated for workspace, two cases even quantified this as percentage of 60-80% workspace. An outlier within this is JLL, who indicates a 95% of the space to be dedicated to activity-based working.

## 5.2 Concretization selection relevant real estate priorities

This section elaborates on the concretization of the most relevant real estate priorities for the purpose of this research. Therefore, it is important to define 'most relevant' in line with the aim of this research. The research aim is to realign the office portfolio in order to prevent a possible mismatch as a result of the changing demand due to the pandemic. In this context the priorities that are expected to create a substantial mismatch form the centre of attention to develop a realignment strategy for. The priorities that are indicated to change largely in the perception of importance compared to the pre-pandemic levels can be expected to develop a mismatch that is substantial and thus form the first criteria of selection. However, the selection of the most relevant changes of these real estate priorities is not as straightforward as selecting the priorities with the largest expected change in importance. There is an additional criteria important to take into account for the selection, the priorities that are expected to have a relatively permanent nature. The importance of this second criteria can be explained through the future focus of this research. This prospective focus creates a high level of uncertainty on what is indicated to be expected to be important and whether this will turn out to be important.

The two introduced criteria, (1) the real estate priorities that are expected to both change the most in importance and (2) that are also considered to be of permanent nature, can be further concretized by the alignment of the corporate- and real estate strategy as stated within literature. Lindholm et al. (2006) state that the corporate real estate portfolio must derive and support the overall corporate strategy in order to ensure an effective contribution. Therefore, the most relevant priorities are the priorities that are expected to change the most and are in line with the strategic corporate priorities that are perceived to be most important post-pandemic. As these real estate priorities are both steered into existence from a two sided perspective, both real estate- and corporate driven, these are considered more permanent than those that are only perceived to change in importance from the single real estate perspective. With the most relevant real estate priorities concretized, the method to select these can be further defined.

The method to be used for the qualitative selection is relatively straightforward. Here the real estate priorities are selected based on the insights from the different trends and how these are perceived to influence the corporate, the real estate and office strategies and priorities. The largest changes in priorities can be identified within the overarching themes of the office strategies and real estate strategies that are indicated to be affected by COVID. Additionally, in line with the criteria these priorities are compared to the strategic direction of the company in order to select those priorities that are expected to be of most permanent nature.

The quantitative selection is based on the analysis of the scores given by the interviewees for these predefined real estate priorities, that are expressed through the 'added values', and the corporate priorities, that are expressed through the 'driving forces'. In order to propose a selection of the most relevant 'added values' over all case studies an adjusted method is developed that quantifies the scores and proposes a selection with use of the criteria as concretized above.

Therefore a score table is developed that is used for each of the case studies. First, the post-COVID driving force scores and the percentages of change of the added values post-COVID are inserted in the table. Then, the alignments as proposed by Scheffer, Singer and Van Meerwijk (2006) between the driving forces and added values are linked to this. When a link is present in the table that is also proposed by theory, the percentage change in importance is multiplied by score of the driving force post-COVID, and the new value is presented within the middle square. In this manner, the percentual changes of the added values are emphasized when a link is present with driving forces that are considered to be important post-COVID. Then the average of the scores is calculated per added value. These 'average changes score per added value' are normalized and present percentages that indicate what added values are most relevant for selection. The exact implementation of this method is further elaborated on in the respective section in this chapter.

### 5.3 Qualitative multi-case analysis

In this section the qualitative multi-case analysis is conducted and a selection of the most relevant priorities are proposed for the realignment strategy. Therefore, first an understanding of the the context is developed through an analysis of the external influences or trends and how these change the corporate- and real estate and office priorities. The overarching themes of these changes in real estate and office priorities are defined. Additionally, these priorities are compared to the strategic direction of the company in order to select those priorities that are expected to be of most permanent nature. Finally a qualitative multi-case real estate priority selection is proposed.

### 5.3.1 Changes in corporate- and real estate strategic priorities

In this section the external influence of the multi-case studies are analyzed in the form of the trends and how these affect the corporate- and real estate strategic priorities. This information is deducted from the qualitative analysis from the individual case studies.

First in Table 16 the overview is provided of the industry trends that are influenced by COVID, the most important statement regarding the mission, vision or general strategy and the influence of the indicated trends on the strategic priorities of the general strategy. The combination of these three subjects develops insight into the direction of the company in a broader manner based on information shared by the interviewee without the limitation of predefined tables. This approach could reveal strategic priorities that are not covered in the predefined interview tables.










 Elektronical	 Engie	 Vattenfall	 Philips	 ING	 RVB	 JLL	 RHDHV	 Security
Industry trends								
<ul style="list-style-type: none"> <li>Connectivity</li> <li>Sustainability</li> <li>Health</li> <li>From product towards service</li> </ul>	<ul style="list-style-type: none"> <li>Digitalization</li> <li>Mobility</li> </ul>	<ul style="list-style-type: none"> <li>Energy transition</li> <li>Digitalization</li> <li>Robotics</li> <li>Artificial intelligence</li> </ul>	<ul style="list-style-type: none"> <li>From product to service software</li> <li>E-health</li> <li>AI</li> <li>Innovation</li> </ul>	<ul style="list-style-type: none"> <li>Digitalization</li> <li>New market entrants</li> <li>Easily accessible service ecosystem</li> <li>Low-carbon economy</li> <li>Lower operating expenses</li> </ul>	<ul style="list-style-type: none"> <li>Working from home</li> <li>Safety</li> <li>Health</li> </ul>	<ul style="list-style-type: none"> <li>Demand for flexibility</li> <li>Employee well being</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Cybercrime</li> <li>International collaboration</li> <li>Digitalization</li> </ul>
Mission/vision or general strategy								
"To be innovation driven"	"To play a leading role in sustainable change with strategic choices to aim to build a net-zero carbon transition for all"	"to enable a fossil-free living within one generation"	"to make the world healthier and more sustainable through innovation"	"Think forward strategy: focused on the customer with a data-driven digital and mobile-first approach"	"to develop and manage the real estate portfolio for its users and uses buildings and sites to achieve economic and social added value based on policy objectives"	"We shape the future of real estate for a better world"	"Enhance society together through our expertise, partnerships and innovations"	Due to confidentiality requirements not possible to rephrase
Influence of trends on strategic priorities								
Emphasize: <ul style="list-style-type: none"> <li>Customer centric</li> <li>Connectedness</li> <li>Sustainability</li> </ul>	Accelerate: <ul style="list-style-type: none"> <li>Sustainable energy</li> <li>Innovative technology</li> <li>Digitization</li> </ul>	No concrete changes indicated	Reassurance: <ul style="list-style-type: none"> <li>The shift from consumer electronics producer to a health technology concern</li> </ul>	Emphasize: <ul style="list-style-type: none"> <li>Flexible implementation</li> </ul>	No concrete changes indicated	Accelerate: <ul style="list-style-type: none"> <li>Sustainability</li> <li>Flexibility</li> </ul>	Accelerate: <ul style="list-style-type: none"> <li>Company's growth and war for talent</li> <li>Internationalization</li> </ul>	<ul style="list-style-type: none"> <li>Scenario planning</li> </ul>

Table 16: Synthesis of trends and influences on general strategy from multi-case study. In orange bullets the patterns are displayed

The table shows that the most often indicated trends that affect the case studies are 'sustainability', 'digitization' and the emphasis on 'services instead of products'. The two companies that operate within the real estate sector, indicate trends that are of a different nature, and are more focused on 'flexibility' and the 'people perspective'.

The formulation of the mission, vision or general strategy of the case studies reveal that almost all case studies present a goal to enhance society from a sustainability perspective supported by innovation. Only the exact interpretation of this goal is specified according to the business they are operating within. More important for the corporate direction is whether and how these trends affect the strategic priorities of the companies. From this can be stated that 7 out of 9 case studies indicated that the accelerated and affected trends will also influence their general strategy. Although not all of the case studies define the exact influences, the majority does.



Similarities and differences can be identified within these influences. To begin with the nature of the effects, all case studies that indicate their strategic priorities to be affected by the trends indicate a form of acceleration within their strategic priorities. Apart from Philips that defines this more as a reassurance of a direction that was already taken. Additionally, the outcome of the influences are important as these indicate the strategic direction. These outcomes present both differences and similarities. To begin with the similarities, considering the nature and the acceleration of the trends the outcome is as can be expected relatable to the trend itself. Therefore, the majority also indicates an acceleration of sustainability and technology/digitalization within their strategic priorities. Additionally, flexibility, can also be considered as important outcome.

Now understanding the perception of the case studies on the strategic direction of the company, more important is to develop this understanding for the real estate and office priorities. Therefore, a similar approach is taken, see

Table 17.

When focussing on the content of the formulated strategies, the following can be identified. For the first row, the real estate strategies, multiple case studies, Engie, Vattenfall, Philips, RHDHV and the 'security' case identify the real estate strategy to support the primary process of the company. Additionally, this is often mentioned together with the importance of either efficiency or optimization. The connection between the real estate strategy and corporate strategy emphasizes and reassures the importance to take into consideration the change within the strategic direction of the company. Additionally, remarkable is that the two case studies that operate within the real estate sector define a different strategy that is not defined by serving the primary process but by setting future ambitions.













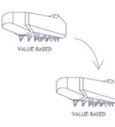

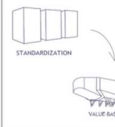



 Elektronical	 Engie	 Vattenfall	 Philips	 ING	 RVB	 JLL	 RHDHV	 Security
Real estate strategy								
"a constant process of value engineering of the entire portfolio to optimize whenever possible"	"to provide the means to ensure that the companies are accommodated in the best possible and efficient way to conduct their activities"	"Strongly connected to corporate strategy" and to a very small extend, affects the corporate strategy'	"the general real estate strategy follows the business strategy"	"to serve our customers as well as possible"	"to arrive at a 'future-proof' real estate portfolio"	"create engaging workplaces that are sustainable and a showcase of our technology while at the same time be cost efficient"	"to add value to our own primary process, our services"	"The real estate strategy is a translation of the primary process and is considered to provide support to the services" and "a driver of the corporate goals."
Office strategy								
"to create a great place to work for all <u>employees</u> that want to come to the office"	"all offices in 2030 must be <u>Paris proof</u> "	focus on centralization of the real estate	based on retaining <u>talent</u>	"high-quality, <u>flexibility</u> and price are part of a continuous process to find the right balance"	"a standard office concept for a fixed price per m2 that meets all requirements that are considered to be important by the government"	"Drive engagement, culture and well-being, while at the same time maintaining or improving the cost level at an increased <u>experience</u> for our <u>employees</u> or clients"	"The office strategy is focused on <u>flexibility</u> and <u>sustainability</u> "	
Influence of trends on real estate / office strategy								
• Services → <u>Reduction</u> office footprint	• Mobility → Growing importance public transport <u>locations</u>	• Acceleration of <u>centralization</u>	• Software → steers office <u>locations</u>	• Reconsideration of relocating CBD towards city boundaries	• Stimulating productivity + creativity • Growing importance of <u>sustainability</u> , safety, health and accessibility	• Showcase the workplace of the future, from a <u>sustainability</u> , human experience and well-being perspective supported by <u>technology</u>	• <u>Technology</u> will be further implemented in the office strategy with smart offices to facilitate the employees in their work.	• Alterations in <u>distribution</u> , the number and function of the offices
Generic strategy emphasis shift								
								

Table 17: Synthesis of trends and influences on real estate strategy from multi-case study

Regarding the office strategy, the majority of case studies defines their strategy based on requirements for their office portfolio, at a certain cost level. These requirements vary, most

mentioned are sustainability, flexibility, employee and experience. Then in respect of the influence of COVID-19 on these real estate and office priorities, all case studies indicate their strategy to be influenced. Again, different themes can be distinguished, most important are ‘sustainability’, ‘technology’, ‘relocation’ and ‘reduction of offices’. At last the generic real estate strategies and the shifts in emphasis that the pandemic induces can be compared. Important to state is that these categorizations are not clear-cut as presented. These categorizations are only enlargements of changes that could be detected. This shows that all but one of the case studies either starts or ends with an incremental- or value-based strategy. Important to notice is that post-COVID none of the case studies puts emphasis on the standardization strategy.

### 5.3.1.1 Metric and value perspectives

In this section, briefly the perspectives of the different case studies on the future portfolio management are presented. Considering the management of the portfolio to be the result of internal office changes, Table 35 presents the values and metrics that influence the space requirements the most. Therefore these insights are most interesting to take into account for the implementation of the realignment strategy. Again, important to notice is that the values given present rather vague idea then decisions.



 Elektronical	 Engie	 Vattenfall	 Philips	 ING	 RVB	 JLL	 RHDHV	 Security
Post-Covid expectations metrics / perspectives								

Table 35: Synthesis of perspectives of future metric and values from multi-case study. Due to confidentiality reasons information not shown.

This table shows that almost all case studies expect a change in the distribution of space, an increase of collaboration spaces and a decrease of workspaces is expected. Additionally, the majority of the case studies expects to implement a reduction of office space. Philips and RVB already could concretize this in percentages of respectively 25 and 20%. Additionally, two of the case studies have expressed a reduction in FTE. At last, either working from home or from anywhere is likely to be implemented post-COVID within all case study corporates.

### 5.3.2 Qualitative selection most relevant real estate priorities

As stated before, the most relevant real estate priorities are those that are considered to change the most in importance post-COVID and are also expected to be relatively permanent in nature. The different trends and their influences and changes in priorities within the corporate, the real estate and office strategies are considered for this. The insights of these analyses results in the selection of the most relevant added values over the performed case studies for realignment.

Therefore, the largest changes can be identified within the overarching themes of the office strategies that are indicated to be affected by COVID. As the majority of the case studies indicates

the real estate strategies to support the primary process, this emphasizes the importance to take into consideration the change in the strategic direction of the company as these are connected. Additionally, when these changed office priorities have overarching themes with the changed office priorities, these changed office priorities could be emphasized and thus of more permanent nature.

As a result of the trends identified, the different case studies present an acceleration of 'sustainability' and 'technology' within their corporate strategic priorities, second to this is 'flexibility'. For the office strategies, the majority of case studies defines their strategy based on multiple requirements for their office portfolio at a certain cost level. Although these requirements vary, most mentioned are 'sustainability', 'flexibility', 'employee' and 'experience'. Additionally, all case studies indicate COVID to have an effect on either the real estate or office strategy on the following overarching themes, 'sustainability', 'technology', 'relocation' and 'space reduction'.

Considering the overarching themes as explained above, the themes 'sustainability', 'technology' and 'flexibility' are therefore considered to be the most relevant priorities for a realignment strategy.

### 5.3.3 Conclusion

The qualitative selection is used to create a more holistic view of the phenomenon. Therefore, no predefined priority options are considered, instead patterns within the communicated information are developed. The selection is based on themes that can be identified within the changes as a result of the acceleration of certain trends due to COVID on the the real estate and more important the office strategies. Additionally, as the majority of the case studies indicates the real estate strategies to support the primary process, the change in the strategic direction of the company is also taken into account as these could emphasize themes that therefore have a more permanent nature. From this, the themes 'sustainability', 'technology' and 'flexibility' are considered to be the most relevant priorities to design a realignment strategy for.

## 5.4 Quantitative multi-case analysis

In this section the multi-case quantitative analysis is conducted on the scores given by the interviewees for the predefined real estate priorities that are expressed through the 'added values', and the corporate priorities, that are expressed through the 'driving forces'. In order to propose a selection of the most relevant 'added values' over all case studies an adjusted method is developed that quantifies the scores and proposes a selection with use of the criteria as concretized in section 5.2. First the added values that present the largest changes in importance over the different cases studies are defined. Hereafter, the driving forces are taken into account in order to define the most permanent added values and propose a final selection. Finally, a conclusion of this analysis is presented.

### 5.4.1 Changes in priorities of added values

As stated before, first the added values that present the largest change in perception of importance post-pandemic compared to the pre-COVID levels are defined. This selection presents the added values that are expected to be in need to develop a realignment strategy for. Therefore all scores for the individual added values are first translated to percentages of change per added value, this table is included in In Appendix D . Therefore both increases and decreases are taken into account as both contribute to the need for realignment. The changes in added values from the multi-case study are combined and presented in Table 18.

Percentual change in added values	Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
Electrotechnical	23%	20%	17%	24%	22%	34%	0%
Engie	34%	0%	25%	8%	11%	33%	33%
Vattenfall	11%	6%	11%	0%	22%	0%	0%
Philips	0%	7%	20%	0%	22%	16%	0%
ING	11%	27%	7%	17%	12%	33%	-12%
RVB	33%	-17%	0%	16%	11%	33%	0%
JLL	23%	33%	47%	-	33%	33%	22%
RHDHV	21%	7%	16%	-	12%	0%	33%
Security	0%	-25%	0%	0%	11%	33%	33%
Average	17%	6%	16%	9%	17%	24%	12%

Table 18: Percentual change in added values per corporate. On average over the case studies, “supporting culture” is the added value that changes the most.

This table defined that the added value ‘support culture’ is identified with the largest average percentual change. Second comes ‘increase flexibility’ and ‘increase productivity’ with an identified change in importance of 17% compared to the pre-COVID levels. However, all case studies indicate an increase in importance for the added value ‘increase flexibility’.

Additionally, seven of the case studies identified an increase in importance after COVID for the added values ‘increasing productivity’, ‘managing risk’ and ‘cultural support’. For the added value ‘reducing costs’, eight of the case studies identify a change in importance.

Although the magnitude differs, it can quite generally be concluded over the various case studies that the added values ‘increase flexibility’, ‘increasing productivity’, ‘managing risk’ and ‘cultural support’ have the most significant change in priority.

Furthermore, the added values that show differences in the change reported between the case studies provide interesting information. For example within the added value ‘cost reduction’, a division can be observed of both positive and negatively perceived change.

The RVB and the ‘security’ case perceive a decrease of importance whereas all other corporates except for Engie perceive this to change positively. A similar but less significant change can be detected for the added value ‘PR & Marketing support’, as five case studies indicate this to increase in importance, ING reports a decrease. A consequence of these types of variation is that a single realignment strategy thus cannot provide in the demand of all case studies. For the purpose of this study, these added values have less general relevance.

#### 5.4.2 Selecting the most relevant added values

In the former section the average percentages of change in importance for the added values for all case studies were presented. This provides information on what added values are most relevant based on the first selection criteria. However, as stated before, the selection of the most relevant added values for the realignment strategy will not only be based on the average largest change in score of importance for the future office portfolio but also on the added values that are most permanent in nature as defined by the second selection criteria.

Therefore the relationship between the driving forces and added values as indicated by Scheffer, Singer and Van Meerwijk (2006) are taken into account in the final selection method. The real estate priorities or added values that present a large change and are highly valued post-COVID are expected to be more impactful and also longer lasting than those that do not reflect changes in corporate driving forces. Therefore, a score table is developed that is used for each of the case studies. The operation of the scoring table is further explained with use of the Electrotechnical case study, see Table 19.

Electrotechnical									
Electrotechnical		Added values							
			Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
		Change in importance	23%	20%	17%	24%	22%	34%	0%
Driving forces	Expected score after Covid		.....	.....	.....	.....	.....	.....	.....
Products offered	2	.....	46%	40%	34%				
Market needs	2	.....			34%		44%		0%
Technology	2	.....	46%		34%		44%	68%	
Production capability	3	.....	69%		51%				
Method of sale	2	.....	46%		34%	48%			
Method of distribution	3	.....			51%				0%
Natural resource	2	.....		40%	34%				0%
Size/growth	2	.....			34%				0%
Return/profit	2	.....		40%	34%	48%			
Average change score per added value:			52%	40%	38%	48%	44%	68%	0%
Normalized change score per added value:			76%	59%	56%	71%	65%	100%	0%
Legend:									
			#1 largest change						
			#2 largest change						
			#1 largest average change						
			#2 largest average change						

Table 19: Synthesis of trends and influences on real estate strategy from multi-case study

In this table first the post-COVID driving force scores and the percentages of change of the added values post-COVID are inserted. Then, the alignments as proposed by Scheffer, Singer and Van Meerwijk (2006) between the driving forces and added values are linked to the table. When a link is present in the table that is also proposed by theory, the percentage change in importance is multiplied by score of the driving force after COVID, and the new value is presented within the middle square. In this manner, the percentual changes of the added values are emphasized when a link is present with driving forces that are considered to be important after COVID. Then the average of the scores is calculated per added value. Then these 'average changes score per added value' are normalized through dividing this score by the maximal score present. The normalized changed score per added value now present percentages that indicate from 0-100% what added values are most relevant based on the largest change and whether an important driving forces is also linked.

For each of the case studies an similar method is applied, these tables can be found in Appendix E . These outcomes are used to calculate the average of the added values for all case studies. The outcome of this is presented in Table 20. This table indicates that the added value 'culture' is most important to consider for realignment. Hereafter, 'flexibility' is indicated as second most important, followed by 'productivity', which scores third. Risk is also considered as an important added value as

the percentage is close to the percentage of productivity. However, 'PR & Marketing', 'Reduce costs' and 'increase value' are defined as less relevant through these scores.

Normalized change score per added value	Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
Electrotechnical	76%	59%	56%	71%	65%	100%	0%
Engie	94%	0%	67%	20%	33%	100%	83%
Vattenfall	56%	32%	56%	0%	100%	0%	0%
Philips	0%	28%	84%	0%	100%	73%	0%
ING	25%	55%	15%	34%	30%	100%	-24%
RVB	100%	-52%	0%	48%	33%	100%	0%
JLL	38%	73%	100%	0%	82%	82%	55%
RHDHV	72%	32%	55%	0%	45%	0%	100%
Security	0%	-76%	0%	0%	33%	100%	0%
Average	51%	17%	48%	19%	58%	73%	24%

Table 20: Normalized added value score per sector.

#### 5.4.3 Conclusion

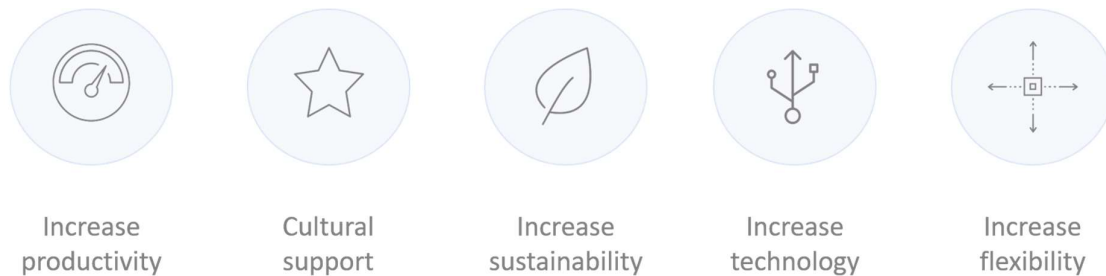
A selection method has been developed based on the selection criteria that define what added values are most relevant to develop a realignment strategy for. These are the added values that present a large change in score of importance and that are also linked to corporate driving forces that are defined with a large score post-COVID. According to this method from the average of all the added values from all the case studies, the added value 'culture' is indicated as most important to consider for realignment. Hereafter, 'flexibility' is indicated as second most important, followed by 'productivity', which scores third.

### 5.5 Final selection of added values

In the quantitative selection a method is applied to select the most relevant added values based on the combination of a large change in importance and the presence of the link to corporate driving forces that are also defined with a large score post-COVID. According to this method from the average of all the added values from all the case studies, the three most important added values are, 'support culture', 'increase flexibility' and 'productivity'.

The qualitative selection is used to create a more holistic view of the phenomenon, therefore the selection is not based on the framed added values but based on themes that can be identified within the changes as a result of the acceleration of certain trends due to COVID on the real estate and more important the office strategies. Additionally, as the majority of the case studies indicates the real estate strategies to support the primary process, the post pandemic strategic direction of the company is also taken into account as could emphasize the implementation of priorities and expects these therefore to be more permanent. This method resulted in the selection of 'sustainability', 'technology' and 'flexibility'.

Considering both selection methods to be supportive to one another, the selections are combined which results in the following selection: 'increase productivity', 'increase flexibility', 'cultural support', 'increase sustainability' and 'increase technology'.



## 5.6 In-depth findings on the selected real estate priorities

For the selected real estate priorities, 'increase productivity', 'increase flexibility', 'cultural support', 'increase sustainability' and 'increase technology' an in-depth analysis is conducted within all case studies. In this analysis the focus is on the most insightful information to be used for realignment. Therefore, the most important *perspectives* on the elements are presented together with statements regarding *possible solutions*.

Even though each corporate has a specific reasoning for the perception of the identified change in importance of the different priorities for their office portfolio, a form of uniformity is drawn from this reasoning. Therefore, important is to consider that this is an interpretation of the combination of the perspectives and the information is therefore generalized. For example all case studies acknowledge that to some extent working from anywhere is here to stay. However, the exact implementation and interpretation of the alternatives offered and the frequency of use differs. The perceptions of the future importance of the items are all in line with this reasoning.

### ***Increase productivity***

Table 21, the different measurable items that are part of the added value 'increase productivity' and the perception of importance from all case studies, both before and after COVID, are presented. In total all but one of the case studies indicate a positive shift in importance of productivity post-COVID. When zooming in on the different elements that define 'productivity', the element 'innovative workplaces' can be considered the main driver of this. The elements 'selection of location' and 'retaining human capital' are driving this to a secondary extend.

																												
ADDED VALUES REAL ESTATE		←	→		←	→		←	→		←	→		←	→		←	→		←	→		←	→		←	→	
Increasing productivity	Selection of location	2	3	+ 1	2	2		3	3		2	2		2	3	+ 1	1	2	+ 1	2	3	+ 1	1	1		1	1	+ 1
	Innovative workplaces	1	2	+ 1	1	3	+ 2	2	3	+ 1	2	2		2	3	+ 1	2	3	+ 1	1	2	+ 1	2	3		2	3	+ 1
	Retaining human capital	3	3		2	3	+ 1	3	3		3	3		2	3	+ 1	2	3	+ 1	3	3				2	1		

Legend:

 Percentual average score before covid

 Percentual average score after covid

 Percent change in importance before / after covid

 -1 decrease

 +1 increase

 > 30% increase

Table 21: In depth – Measurable items 'Increase productivity'

From the information given within the interviews can be stated that in general the increased importance of productivity as a value for the office portfolio is explained to be a product of

innovation of the office use in general. The working from home experience highlighted the execution of concentrated work at home as main positive element, while also showing the benefits for physical collaboration. Accordingly, the item 'workplace innovation' is perceived very important as the workplace must support this new concept accordingly. Within the case studies a shift is expressed in the type of work that is executed in the office, the time spent per employee in the office and how this can be regulated efficiently. Expected is that the future office will be used as a space for collaboration and concentrated tasks will be executed at home. The distribution of space is also expected to change as the percentage of workspaces will decrease and collaboration space will increase to support this.

Apart from the innovative workplaces, the location selection will increase in importance. In particular the distance towards the employee is thereby highlighted since travel time is not considered anymore as a necessary activity for the employee. Possible ideas that were communicated to increase this aspect and decrease travel time are the relocation of the offices through a satellite model, outside the Randstad, and large offices near transport location.

### ***Increase flexibility***

In Table 22, the different measurable items that are part of the added value 'flexibility' and the perception of importance from all case studies, both before and after COVID is presented. In total all but one of the case studies indicate a positive shift in importance of flexibility post-COVID. When zooming in on the measurable items that define 'flexibility', the element 'technical flexibility' can be considered the main driver of this change. The element 'organisational flexibility' is considered second and the last important driver for this increase is 'financial flexibility'.

ADDED VALUES REAL ESTATE																			
		←	→	←	→	←	→	←	→	←	→	←	→	←	→	←	→	←	→
Increase flexibility	Organisational flexibility	2	3	+ 1	2	2		2	3	+ 1	2	2		2	2		1	3	+ 2
	Financial flexibility	2	2		2	3	+ 1	2	2		2	3	+ 1	0	0		2	2	
	Technical flexibility	1	2	+ 1	2	2		2	3	+ 1	2	2		2	3	+ 1	2	3	+ 1

Legend:

Percentual average score before covid  
 Percentual average score after covid  
 Percentage change in importance before / after covid

-1 decrease  
 +1 increase  
 +10% increase

Table 22: In depth – Measurable items 'Increase flexibility'

The interviews with the different corporates show that flexibility is considered very important for the future office portfolio as the ability to easily adapt to the company size and calamities such as COVID are acknowledged to now be of essential value. Considering real estate to be relatively slow in response, flexibility is therefore perceived to be the solution. The demand for this is extensive, however in respect to the costs that are accompanied with this not every office location in the portfolio requires the same level of flexibility. The required level of flexibility is considered to be a result of the size of the locations and whether these have a long-term focus. The core business locations that have a long use perspective and require less flexibility than secondary smaller locations. These could for example be located in shared service providers to enlarge the flexibility of the portfolio.

However, apart from the need to be flexible in response, COVID also proved a level of flexibility that was not perceived possible before, working entirely from home. The case studies indicate that when pursuing this type of flexibility further after COVID benefits that are deeply connected to other values could derive from this. Examples of these are the possibility to reduce workspaces and transform those into these new needs for collaboration space.

Therefore the flexibility demand is two sided and the need for an integral solution for flexibility is communicated in the case studies. A solution is demanded that could take this to a broader level, for



example integrating between buildings and companies. Some case studies even indicate a demand for flexibility that is beyond primary needs, to be used for test models and others express the demand for periodical change of the work floors. Additionally, for the internal use of the office, on average the flex factor of 0.7 workplace per FTE is communicated and all case studies expect this to be lowered. An important result of this increase in flexibility of office space is the expected possibility to reduce office space. This expected reduction is acknowledged by the majority and is even concretized by two of the case studies with 20-25%.

### Cultural support

In Table 23, the different measurable items that are part of the added value 'cultural support' and the perception of importance from all case studies, both before and after COVID, is presented. When zooming in on the different elements that define 'cultural support', the element 'workplace innovation' can be considered the main driver. The element 'communication' is also steering this increase.

ADDED VALUES REAL ESTATE																												
Cultural support	Workplace innovation	1	2	+ 1	1	3	+ 2	3	3		2	3	+ 1	2	3	+ 1	2	3	+ 1	2	3	+ 1	2	3	+ 1	2	3	+ 1
	Communication	1	2	+ 1	2	2		3	3		2	2		2	3	+ 1	2	3	+ 1	1	2	+ 1	2	2		2	3	+ 1

Legend:

- Percentage change score before covid
- Percentage change score after covid
- Percentage change in importance before/after covid
- 1 decrease
- +1 increase
- >30% increase

Table 23: In depth – Measurable items 'Cultural support'

The different case studies acknowledge the implementation of new hybrid and augmented working concepts to be implemented after COVID. A change within the type and use of space is expected, where silo's between businesses and business lines and the way people pay for space are broken. The physical office use will thus change, and in respect to this, considering employees to spend less time in the office, the importance grows of creating a sense of belonging and supporting and communicating a culture when being present in the office.

### Increase sustainability

Although not discussed as an individual topic within the interviews due to its absence within the seven added values, the importance of sustainability within the portfolio is underpinned. The different case studies formulate ambitions to Paris proof their office portfolio before a certain time varying from 2030 until 2040. However, the increase in importance of this aspect is acknowledged post-COVID and the demand for real showcases of sustainability in the office has been accelerated. The is underpinned by the increase of importance to practice as a corporate what you preach.

### Increase Technology

Although, the increase of technology post-COVID is also not discussed as an individual topic within the interviews, the importance of 'increase technology' has been widely acknowledged. The most important reason for this is the enforced adoption and adaption of technology to support working from 'anywhere'. This raised the awareness of the possibilities that are embedded within technology and thus the potential value for the office. Additionally, with the expected change of office use for collaboration and the increased focus on creative processes, the importance of technology is also driven further.

## 5.7 Conclusion

In this chapter a selection is made of the priorities or added values of the office portfolio that are considered most relevant to design a realignment strategy for. These are the priorities for the office portfolio that are perceived with a large change in importance and that are also most likely to be permanent. The final selected priorities based on the qualitative and quantitative analysis are 'increase productivity', 'increase flexibility', 'cultural support', 'increase sustainability' and 'increase technology'.

Although all selected items are considered important for the realignment strategy, the item 'increase flexibility' is considered to be fundamental. This can be explained through both the in-depth analysis and the quantitative analysis. First, in the quantitative analysis the selected added value 'increase of flexibility' is indicated to increase in importance post-COVID within all of the case studies, whereas the other selected added values do not. Additionally, in the in-depth analysis the need for an integrated flexible approach is expressed and the connection of flexibility to all other aspects can be identified. Considering the realignment strategy to be developed for the multi-case study, therefore the added value 'increase in flexibility' is considered as the starting point for the development of the realignment strategy.

This conclusion Based on the case studies, the first hypothesis as developed in the preliminary research can now be confirmed; companies have adjusted their strategic corporate and real estate perspectives due to the pandemic and that these changes differ per company. Considering the second and third hypotheses, that consider flexibility and working from home, these are more intertwined than initially stated within the separate hypotheses. Space reductions could be the result of implementing working from home post-COVID, which in return increases the flexibility.

## 6. Strategy development

In the previous chapter the most important added values of the real estate portfolio for the realignment strategy were selected to be **'cultural support', 'increase flexibility', 'increase productivity', 'increase of sustainability' and 'increase of technology'**. It was concluded that within all case studies the added value 'increase of flexibility' was indicated to increase in importance post-COVID. Furthermore, the connection of flexibility to other aspects was detected and the need for an integrated flexible approach was expressed, therefore the added value 'increase flexibility' is considered as the starting point for the development of the realignment strategy. Therefore, considering the previous perspective to be on the highest strategic level, this is now taken a step closer to practice.

Therefore first the method for the development of the realignment strategy is described with use of a theoretical approach on flexibility in corporate real estate. Hereafter, the assessment framework is adjusted to take into account the future portfolio demand as communicated within the multi-case study. Then in section 6.2 different possible solutions are presented that contribute to these demanded added values. Hereafter the different solutions and their applicability for the various case studies is discussed based on the corporate real estate and company profiles of the case studies. Then in 6.3 the realignment strategy is applied on the office portfolio of the electrical company. Therefore first the different solutions are assessed and selected with use of the framework. These selected solutions are applied on the office portfolio of the electrotechnical case. Resulting with a conclusion of the application of this strategy to the portfolio. At last in 6.4, a reflection is presented on the strategy.

### 6.1 Method for the realignment strategy

This section presents the theoretical underpinning of the realignment strategy. First the flexibility framework is introduced to define the operation and develop the different solutions. Hereafter, the assessment framework is developed that is subsequently used to assess the contribution of these solutions to all of the selected added values that the alignment strategy must contribute to. These frameworks are applied in next section where the strategy is put into practice.

#### 6.1.1 Flexibility framework

As previously mentioned, flexibility is considered to be the starting point of this realignment strategy. Therefore, portfolio management in relation to flexibility is consulted within theory.

An interesting research that addresses flexibility within the corporate real estate portfolio is the research of Gibson and Lizieri (1999). In this research a framework is developed to examine a corporate property portfolio in terms of three tiers. These tiers represent the core and periphery property requirements defined by the type of flexibility that those reflect. The core is defined as the part of the portfolio that consists of properties that reflect a long term perspective. This is further specified by Gibson and Lizieri (1999) as the properties that the organization needs to be in control of, make adaptations to when necessary, and is willing to invest in. Figure 11 gives an overview of this flexibility framework.

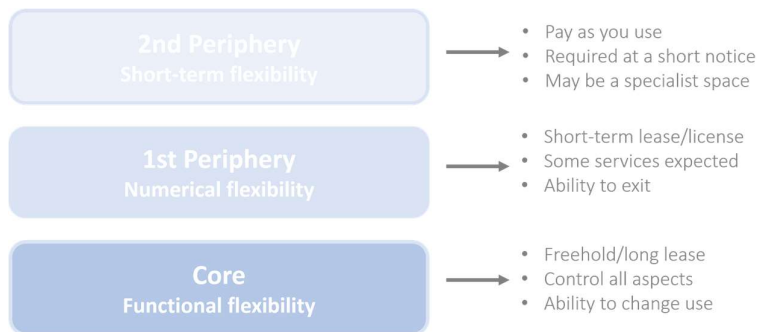


Figure 11: Flexibility framework of Gibson and Lizieri (1999)

Since the core contains long lease or free hold assets, organizations have relatively high control on these assets to serve their specific needs. The main type of flexibility for the core is considered to be functional flexibility. On the other hand, these assets are owned or under long duration contracts meaning the financial flexibility of these assets is limited.

Above the core, the 1<sup>st</sup> periphery is positioned, which is defined by numerical flexibility. This tier represents the properties that are able to adjust towards the functional flexibility but mainly provide financial flexibility. Then the second periphery consists of properties that are considered to be used for the very short-term and thus are financially flexible. Gibson and Lizieri (1999) indicate that the two periphery layers not only apply to the office space itself but also other services regarding office use. Finally, it is important to take into account that the balance of assets and services between the core and the peripheries differs per company and sector.

This framework thus provides the possibility to analyze the different properties of an office portfolio and appoint those according to their characteristics to the different layers of the framework. When translating the post pandemic demand for flexibility as discussed in the previous chapter to this framework, this indicates a reduction of the core portfolio or a shift from core properties towards the peripheries. Therefore, different solutions are developed that contribute to this demand.

#### 6.1.2 Added value assessment framework

In the previous part of this research, the assessment framework was used to identify the importance of the selected items for the different corporates. This framework will be adjusted to assess the different solutions with. Therefore not all of the of added values are of interest anymore and only the selected added vales are of interest within the original framework. Accordingly, each of the flexible design solutions is assessed on their contribution to 'cultural support', 'increase of productivity', 'increase of sustainability' and 'increase of technology' compared to the pre-COVID situation. A qualitative appraisal method is used for this purpose for which specific criteria are developed.

As initially the selection of the most relevant added values derived from the scores given of their accompanied measurable items of Scheffer, Singer and van Meerwijk (2006), the first logical step is to consider those items. However, the selection of 'increase of sustainability' and 'increase of technology' are deducted from the qualitative analysis and therefore does not represent one of the added values of Singer et al. (2006) and must thus still be included within the measurable items.

In Table 24 at the left side, the original added values and the measurable items from theory are presented. However, with the knowledge at this point in time on the future demand that can be expressed through the added values, the items from theory are considered to be to generic to be used. To give an example, 'increasing productivity' through 'workplace innovation' does not reflect

the direction of the future demand precise enough. Therefore, for each of the five selected added values, measurable items are newly developed or adapted according to the interpretation of the future demand as deducted from the case studies, this in order to assess the possible solutions in a realistic way. These are briefly explained below and presented in the assessment framework in of Table 24.

Theory		Post-Covid	
Added value	Measurable item	Added value	Measurable item
Increasing productivity	Selection of location	Increasing productivity	Distance employee
	Innovative workplaces		Informal and concentrated space distribution
	Retaining human capital		Retain human capital
Increase of flexibility	Organisational flexibility	Increase of flexibility	Organisational flexibility
	Financial flexibility		Financial flexibility
	Technical flexibility		Technical flexibility
Cultural support	Workplace innovation	Cultural support	Interaction
	Communication	Sustainability	Reduction of m2
			Mobility
			Shared resources
		Technology	Technological support

Table 24: Added values and corresponding values according to theory and adjusted for the situation post-COVID

The items for the added value *increasing productivity* are based on the perception of the future innovative workplace. A place where the employee uses the office in a different way than before COVID. Instead of being present an entire day in the office at the same desk, the employee will rather walk in and out to collaborate within different ‘informal spaces’ that enhance collaboration and stimulate creative processes, in between these collaborative moments spaces for ‘concentrated work’ in designated areas should be present. Additionally, the ‘distance’ between the employee and the office locations is therefore important in order to be able to change from location easily. In order to ‘retain human capital’ apart from the distance, the amount of amenities that are close to office are important. Additionally, the support of a healthy life-work balance is also perceived important for this aspect.

The *increase of flexibility* is considered to be very important for the future office portfolio. In essential, the pandemic shed light on the flexibility of the current portfolio, and more specific where this fell short under the circumstances that were created and that evolved. Therefore, the most important consideration is the perspective from companies to have the ability to easily adapt their portfolio to the company size and other unexpected events. In line with this reasoning it is the ‘organisational’ and ‘technical flexibility’ that are perceived most important to be implemented within the office portfolio. The initial investment that this would require is thereby considered to be returned within time. However, this is of course to a certain extent, as the nature of the corporates and the shareholder perspective embedded within their organisation do weigh the ‘financial’ aspect heavily. Apart from only implementing the acknowledged benefits, the demand has evolved further as was expressed through the ability to for example change departments within the building or create flexibility within the portfolio to test new workplace concepts. This information can be directly related to the tree-tiers framework of Gibson & Lizieri (1999), as a shift from core properties towards the peripheries in the office portfolio is demanded.

*Cultural support* is valued highly through the importance of creating a sense of belonging and supporting and communicating the company culture. This culture is mostly created with a form of ‘interaction’ between the employees and the company in general.

Then, *increase of sustainability*, the era of reduced-activity exposed the importance of sustainability and the prioritization of green buildings increased and sustainability has been demanded throughout all facets of the company and thus also within the office portfolio. An important measurable that defines sustainability within the portfolio is the amount of office space. For example, an office building with energy label D could have a CO<sub>2</sub> emission of 49/kg/m<sup>2</sup> (RVO, 2010). Therefore, a ‘reduction of office’ space increases the average sustainability level within the portfolio. Additionally, ‘mobility’ is perceived to be an important factor considering the increase of sustainability when employees either travel less or in a sustainable manner. At last, when multiple corporates are ‘sharing resources’ this will also reduce the level of CO<sub>2</sub>.

The last added value, ‘increase of technology’ is very important as in line with the different use of the office, the *technological support* can be considered a precondition to enhance collaboration within the digital environment.

Now the content of the framework has been discussed, the exact implementation is further explained. The framework is evaluated with a qualitative method, however in order to increase the comparability of the contribution of a possible flexible portfolio solution towards the measurable items, a positive contribution is indicated with a ‘+’, neutral with a ‘o’ and negative with a ‘-’. The final score is made numerical, with a positive contribution accompanied with a 1, neutral with a 0 and negative with a -1. The total will reflect a score that relatively indicates to what extend a single solution contributes to the realignment of the added values. However, as in practice the added values are expected to differ in importance the added values must be weighted accordingly. Additionally, for the implementation of more than one solution the scores do not provide enough support to identify whether these strengthen each other. Therefore, the contribution of these solutions to the individual items must be compared. The following assessment framework has therefore been developed, see Table 25.

#### Assessment framework

RE priority	Post- pandemic Measurable items	Weights	Score sol. 1	Score sol. 2	Score sol. 3
Increasing productivity	Distance employee				
	Informal and concentrated space distribution				
	Retain human capital				
Increase of flexibility	Organisational flexibility				
	Financial flexibility				
	Technical flexibility				
Cultural support	Interaction				
Sustainability	Reduction of m2				
	Mobility				
	Shared resources				
Technology	Technological support				
Total score					

Table 25: Assessment framework case studies

## 6.2 Exploration of realignment solutions

The representation of flexibility within the generic office portfolio as presented by Gibson and Lizieri (1999) is now used to design solutions with. The solutions have a direct link with the direction of the post pandemic demand for flexibility. In other words, the proposed solutions contribute to the demand for a reduction of the core portfolio or a shift from core properties towards the peripheries in the office portfolio. Considering a wide range of solutions to be possible in this respect, first existing integrated flexibility solutions are explored and adjusted to the specific post-pandemic demand. Important to note is that these are possible solutions and are selected based on their perceived potential, but are only a small representation of the endless range of solution that can be applied. Therefore, the researchers perspective is of influence.

As the demand is defined by the strategic goals, the solutions proposed are based on concepts that contribute to this at the strategic level. The first solution is based on the concept of working from home which is indicated by all of the case studies to be implemented in a certain way in the post-COVID era. The other two proposed solutions are sought within the typologies of office space that instead of being owned or leased represent a higher level of flexibility. These are the spaces that are provided as a service and could be identified as co-working concepts. Within the concept of co-working multiple alternatives are present. In order to use this concept for the proposition of a solution, it is important to understand the existing forms that are present. JLL (2016) presented four different models. The first is internal collaboration, defined by coworking in an internal space of the business for employees only. The second is defined as external coworking memberships for employees. The third, external coworking space, is defined by the collaboration for employees shared with others in an external coworking environment. And last defined is the internal coworking space that is open to other individuals or organizations (JLL, 2016). Each of these models are perceived to have specific benefits and risks.

The models that are selected to be most suitable and are further explored within two realignment solutions are the external and internal co-working space.

The following three solutions are explored within this study:

- Solution A: Working from anywhere
- Solution B: External co-working
- Solution C: Internal co-working

First the solution and its implementation is explained, hereafter with use of the three-tier framework a visualization is provided on how the portfolio space moves through the tiers of the flexibility framework. Additionally, the applicability of this solution on a selection of portfolio and company characteristics is evaluated. Therefore, the following characteristics are used; the type of work that executed in the core office, the corporate priorities, lease/own ratio of the office portfolio and the types of assets present within the corporate real estate portfolio. Determining the characteristics of a specific company and its portfolio can thus provide insight on the applicability of this solution. However, as this is only a selection of a large group of characteristics that is present in reality the evaluation is only a first indication of the applicability.

Furthermore, the applicability of the solutions in practice is evaluated. Therefore, a creative expert session is hosted. In this session three professionals participated that work within the field of strategic consultancy on corporate portfolio solutions. These professionals develop solutions for portfolios of large Dutch corporates and therefore have specific knowledge on the feasibility of these solutions in practice. In this session first the different realignment solutions are presented, hereafter, these professionals have been asked to elaborate on their perception on the applicability of these solutions into practice. The insights of this discussion are included in the respective section.

### 6.2.1 Solution A: Working from anywhere

The first flexibility solution presents the implementation of one of the most fundamental lessons to be learned from the pandemic, the acknowledgement of the benefits of working from anywhere. This concept originates from before COVID with the 'light version' of working from home. However, then the benefits were regarded primarily from the employee perspective. Now, this perspective is expanded as the tasks that were not deemed possible to conduct outside of the office prior to the pandemic have been proven possible to the employer. Additionally, the virtual office gained ground to support this further. Therefore, the benefits of this sudden addition of workspace to their pre-COVID static portfolio can be further utilized. With this in mind, this concept presents the first possible solution that contributes to the demand of both functional and organisational flexibility and in the shift from space from the core towards the peripheries of the office portfolio.

The concept of working from anywhere can be implemented in countless ways. Anywhere could be the employees home but also another location according to their preference. However, 'anywhere' is a location that the corporate does not supply for but is used by the employee as workspace and therefore reduces the space demand from that perspective within the office portfolio. This provides the possibility to reduce space from the current portfolio without moving space to other locations to be provided by the employer.

Although the benefits of this solution are clear from the flexibility perspective of the corporate, additional benefits could derive from this. This flexibility benefit is also present for the employee as he or she could fill in both the time and location according to their own demand. However, the largest downside of this solution in respect to the selected added values that this solution must contribute to for realignment, is the lack cultural support. Therefore, the corporate must support the culture when employees are in the office, for example through encouraging collaborative work for those in-office and support those who work remotely.

#### ***Space distribution***

When translating the effect of this solution to the distribution of office space within the tree-tiers framework of the generic office portfolio, the current framework does not support this new provision of space to be positioned within one of the tiers of the framework. The tiers reflects assets positioned within levels of flexibility that can be influenced by the corporate. As there are no contractual connections involved with this 'anywhere space', there is also no exertion of influence possible and no direct flexibility for the corporate. However, this space is considered to be a part of the office portfolio as it supplies in a part of the space demand and therefore also takes up a part of the space demand from the other. Therefore, this anywhere space will be visualized in a new layer that is not connected to the existing tiers, but must be part of the framework as it can be considered a new type of space. The shift from space from the existing layers towards this anywhere space comes from all existing tiers as this is a general change within the company. This is visualized in Figure 12.





Figure 12: Left: Shift in office portfolio in terms of the flexibility framework for the solution 'working from anywhere'  
Right: Abstraction of positioning organization.

### ***Applicability to company/portfolio characteristics***

The applicability of this solution is evaluated based on the characteristics of the work that is executed in the office, the corporate priorities, the lease/own ratio of the office portfolio and the present asset types. Determining the characteristics of a specific company and its portfolio can thus provide insight on the applicability of this solution.

#### ***Type of work***

The solution is highly applicable to companies that execute work that has the following characteristics. The work must be able to be executed without the use of specific facilities that are present within the office and must have no physical demands. Additionally, highly confidential tasks are less suitable to be executed at a distance from the employer.

#### ***Corporate priorities***

This solution is not optimal to implement for companies that value cultural support within their portfolio highly. Therefore, when implemented other solutions should be additionally applied that support the culture. For companies that value productivity highly this solution contributes positively.

#### ***Owned vs Leased***

Companies with an office portfolio that have a high percentage of lease are more flexible and can therefore easier dispose of the office space that now becomes superfluous. This is especially important for the core space.

#### ***Asset types***

This solution is expected to be less applicable for companies that have a high variety of asset types within their corporate real estate portfolio. This can be explained by the higher level of interdependency that is expected within the work compared to when only offices are present within the portfolio. In returns this makes the implementation of working from anywhere more complex.

### ***Applicability in practice***

The applicability of this solution in practice is considered positively within the expert session. At the moment this solution is already in place and can therefore be easily continued. A critical note however is that this solution needs to be facilitated. This in order to spread the office demand evenly and facilitate the employees in additional support, for example technology (personal communication, May 10<sup>th</sup>).

## **6.2.2 Solution B: External co-working space**

### ***Solution to increase flexibility***

The concept of co-working is explored as a solution to increase flexibility. Co-working is in the first place an alternative for traditional lease, the external co-working concept provides peripheral space and thus offers the possibility to scale the core. Second, the concept supplies in the demand of companies to focus on their core business by making use of service providers. As the potential of co-working was already widely acknowledged before COVID, the pandemic has highlighted this further.

The external co-working concept can be defined as: "Collaboration space for employees shared with organizations/individuals in an external coworking environment" (JLL,2016). This concept could be applied in the traditional manner where a group of employees can use and share facilities with other

companies. This type of external co-working space offers a unique environment for startups as it is focused on driving innovation. However, for large corporates this is less suitable as the largest disadvantage of sharing space with other companies is to ensure that the information discussed will remain confidential. Therefore, the external co-working space that is best to be implemented is a dedicated area that can be separated from others. The corporate can use this dedicated space from a serviced office provider and appoint this to a specific part of the organisation that is currently positioned within the core portfolio. Within this concept there are again varieties amongst others within the level of service, lease length and to a certain extent the distribution of space. This can be defined in more detail with use of the added values that this realignment strategy should contribute to. In order to create a high level of flexibility it is important that the lease length is short. A lease length of approximately a year provides this flexibility.

As the focus of physical presence in the office will be on collaboration it is important that these dedicated collaboration spaces provide the support to enable collaboration with the rest of the organisation. Additionally a small area should be dedicated to conduct focus work. The largest challenge of this solution is that there is less support of culture compared to in the core office. In order to increase this, investments can be made to the co-working space to increase the corporate image. The presence of a short lease term also provides the opportunity to test specific collaborative models within the organisation before implementing these in the core. At last the location of this space is preferably within close distance of the core office to maintain a certain level of connection. Additionally the proximity of this space to a public transport hub enhance the accessibility of this solution and support the flexible use of the office. A space that is used to enable employees to move freely in and out of the office.

### **Space distribution**

When translating the effect of this solution to the distribution of office space within the tree-tiers framework of a generic office portfolio, the dedicated space from a serviced office provider can be appointed to a specific part of the organisation that is currently positioned within the core portfolio. Therefore, this concept enables the corporate to reduce space from the core portfolio through providing space that will be located in the first peripheral layer. This change in distribution of office is visualized within the tree-tiers framework in Figure 13. These shifts between layers do not reflect the shift of a complete asset, but is referred to as space in general.

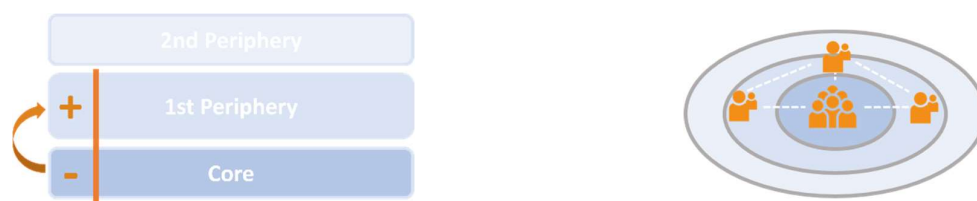


Figure 13: Shift in office portfolio in terms of the flexibility framework for the solution 'external co-working'  
Right: Abstraction of positioning organization

### **Applicability to company/portfolio characteristics**

The applicability of this solution is evaluated based on the characteristics of the work that is executed in the office, the corporate priorities, the lease/own ratio of the office portfolio and the present asset types. Determining the characteristics of a specific company and its portfolio can thus provide insight on the applicability of this solution.

### **Type of work**

The solution is highly applicable to companies that execute work that have the following characteristics. The work must be able to conduct with low dependency on specific facilities that are

present within the office. Additionally, highly confidential tasks are less suitable to be executed within the near presence of other companies.

#### *Corporate priorities*

This solution is not optimal to implement for companies that value cultural support within their portfolio highly. However, the shared space concept of this solution is expected to contribute to the sustainability level of the portfolio. Therefore this solution is suitable for companies that value this highly. At last, this solution is expected to be expensive, therefore cost reduction should not be considered important.

#### *Owned vs Leased*

Companies with an office portfolio that have a high percentage of lease are more flexible and can therefore easier dispose of the office space that now becomes superfluous. Especially, as the space will be reduced from the core the presence of (short) leases is important.

#### *Asset types*

This solution is expected to be less applicable for companies that have a high variety of asset types within their corporate real estate portfolio. This can be explained by the higher level of interdependency that is expected within the work compared to when only offices are present within the portfolio. In return this makes the implementation of working from an external location more complex.

#### ***Applicability in practice***

The applicability of this solution in practice is considered positively through the experts within the expert session. The solution already existed pre-COVID. However, the level of flexibility in relation with the lease length is discussed. A lease period of two years is for example considered relatively long in order to respond to both organisational and unexpected changes. However, the shorter the lease length, the smaller the investment in space, which is considered a constant trade-off. Additionally the application of this dedicated space within a flexible office space could be at risk to not benefit from cross pollination of ideas from other users while at the other side also not benefit from its own company culture (personal communication, May 10<sup>th</sup>).

### 6.2.3 Solution C: Internal co-working space

#### ***Solution to increase flexibility***

Again the starting point for this solution is to reduce the size of the core office portfolio. The internal co-working concept of JLL (2016) is defined by: "Internal space open to external organizations/individuals". This solution is not a direct translation of the previous definition however this solution is used to build upon the previous external co-working solution.

Therefore, the dedicated external co-working space is shifted as close as possible to the internal environment of the company and core, preferably within the same building.

To be more specific, if a corporate leases multiple floors that can be considered their core space, a reduction of this space needs to be replaced with other space. If this replaced space would be positioned within the same building as the original core space, the proximity of the core ensures these characteristics to overflow. The employees that are located at the co-working solution are able to access the core space easily and can for example make use of the specific core facilities.

Additionally, the proximity of a space provider results in the ability to respond quickly to sudden changes in the demand for space. From this perspective, the external space provided could be considered a flexible extension of the core space.

The required space is similar to that of solution B, the external co-working space. Therefore, a short lease term of less than a year is important to ensure the requested flexibility. As the post-pandemic office will be primarily used for collaboration and creative activities, the space should be focused on providing this. Additionally, as the biggest challenge is again confidentiality the space should be dedicated and secluded. However, as this space can be considered an extension of the core space the focus will be less on supporting the culture as the presence is close enough to feel connected with the company. Additionally, the presence of a small area to conduct focus work is also less relevant. In case this is needed, the employees can make use of these spaces that are located in the core. However, again the appropriate support should be present to connect with employees that are not physically present and support the creative process.

The implementation of this solution requires an external space provider to be located within the office. Additionally, the solution works optimal if the multi-tenants of the building are given priority over the use of this co-working space.

### **Space distribution**

This shift in distribution of office space is again positioned within the tree-tiers framework of the generic office portfolio. In general, this concept enables the corporate to reduce space from the core portfolio through providing space that will be located in both peripheral layers. This exact distribution between the layers is the result of an evaluation of the total space required, the minimum required core space and the difference can be positioned within the first periphery. The second peripheral layer can be considered on demand space and can be used for moments in need when the demand exceeds the available supply of both the core and 1<sup>st</sup> periphery. However, when repositioning the portfolio space within the current framework, the tiers do not fully support the new type of flexibility that is presented within this solution. The selected part of the disposed core space that will be taken up by the space provider located in the building, cannot fully be seen as 1<sup>st</sup> periphery space, considering the direct link between the core space. This indicates a tier to be positioned in between the core and 1<sup>st</sup> periphery, see Figure 14.



Figure 14: Shift in office portfolio in terms of the flexibility framework for the solution 'internal co-working'  
Right: Abstraction of positioning organization

### **Applicability to company/portfolio characteristics**

The applicability of this solution is assessed on the characteristics of the work that is executed in the office, the corporate priorities, the lease/own ratio of the office portfolio and the present asset types.

#### *Type of work*

The solution is applicable to companies that execute work that have the following characteristics. Work can be executed with a moderate level of specific facilities that are present within the office as the most specific facilities are in very close presence within the peripheral spaces. Additionally, highly confidential tasks are less suitable to be executed due to the near presence of other companies.

#### *Corporate priorities*

This solution can be implemented for companies that value cultural support within their portfolio highly. Additionally, the shared space concept of this solution is expected to contribute to the sustainability level of the portfolio and is therefore this also suitable for companies that value this highly. At last, this solution is expected to be expensive, therefore the reduction of costs should not be considered important.

#### *Owned vs Leased*

Companies with an office portfolio that have a high percentage of lease are more flexible and can therefore easier dispose of the office space that now becomes superfluous. Especially, as the space will be reduced from the core the presence of (short) leases is important.

#### *Asset types*

As this solution is developed to be placed within the building where the core is also located, in this case a high variety of asset types within the corporate real estate portfolio is not perceived to be a disadvantage.

#### ***Applicability in practice***

The contribution of providing an extensions of the core space through flex space to the added values is considered positively. However within the expert session remarks are made considering the applicability. As corporate, or user, it is difficult to demand the presence of a flex space provider within the building. Therefore not only the flex provider itself should be interested, the owner must also approve this. As a large corporate and thus potential large tenant it could be possible at the start of a project to negotiate this. However, considering a multi-tenant building that is already in use, the solution becomes less practical (personal communication, May 10<sup>th</sup>).

In the CREME session, the majority of the real estate professionals expressed the need for flexible solutions and the supply side showed interest in providing new flexible real estate concepts (Creme Nederland, September 30th). Therefore, this solution becomes more applicable in practice for new offices. Furthermore, large tenants are in a better position to demand for a serviced office provider to be included within the multi-tenant building.

### 6.2.4 Applicability for the various case studies

In the previous section the different solutions are set forth and the expected applicability of each of these solutions for a selected set of both company- and portfolio characteristics is proposed. The characteristics of the different insights can now be used to analyze the applicability of the solutions to the various case studies with use of their characteristics. A concluding table of the solutions and their applicability is presented in Table 26. These conditions are translated with use of the company and portfolio characteristics of the case studies as presented in Table 15. For the priorities of the office as formulated by the corporate, both the qualitative and quantitative post-COVID priorities are used as presented in Table 17 and Appendix D. Therefore the applicability of the different characteristics is both a mix of the provided information of the corporate and the translation with use of the researchers interpretation. The most important insights for each of these solutions are discussed below. Important to note is that this is only a selection of important characteristics that are used to assess the applicability on. However, in reality this is more complex.


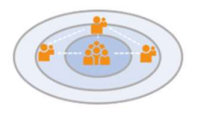

Applicability	Company characteristics		Portfolio characteristics		Case studies
	Type of office work	Priorities	Owned vs leased	Asset types	
<b>Solution A</b> Working from anywhere 	- Highly confidential work + No dependency office facilities	- High priority of cultural support + High priority of sustainability	- Owned office buildings + Emphasis on leased portfolio (core)	- High variety of asset types	<b>Corporates</b>  Type of work - Security + JLL, RVB, ING  Priorities: - ING, JLL, Vattenfall, RHDHV (cultural) + RHDHV, RVB, JLL, Engie (costs)  Owned vs Leased - RVB, ING, Security + JLL, RHDHV, Philips, Vattenfall, Engie, Electrotechnical  Asset types - Electrotechnical, Engie, Vattenfall, Philips
<b>Solution B</b> External co-working 	- Highly confidential work + Low dependency office facilities	- High priority of cultural support - High priority of cost reduction + High priority of sustainability	- Owned office buildings + Emphasis on leased portfolio (core)	- High variety of asset types	Type of work - Security + JLL, RVB, ING, RHDHV  Priorities - ING, JLL, Vattenfall, RHDHV (cultural) - Electrotechnical, JLL (costs) + RHDHV, RVB, JLL, Engie (sustainability)  Owned vs Leased - RVB, ING, Security + JLL, RHDHV, Philips, Vattenfall, Engie, Electrotechnical  Asset types - Electrotechnical, Engie, Vattenfall, Philips
<b>Solution C</b> Internal co-working 	- Highly confidential work + Moderate dependency office facilities	- High priority of cost reduction + High priority of sustainability + High priority of cultural support	- Owned office buildings + Emphasis on leased portfolio (core)	- High variety of asset types	Type of work - Security + JLL, RVB, ING, RHDHV  Priorities - Electrotechnical, JLL (costs) + RHDHV, RVB, JLL, Engie (sustainability) + ING, JLL, Vattenfall, RHDHV (cultural)  Owned vs Leased - RVB, ING, Security + JLL, RHDHV, Philips, Vattenfall, Engie, Electrotechnical  Asset types - Electrotechnical, Engie, Vattenfall, Philips

Table 26: Left: Conclusion table applicability of different solutions.

Right: Applicability translated to cases.

As presented in Table 26 for solution A, the case study JLL is identified as positively applicable within all of the selected characteristics. The type of work is perceived to be not dependent on the office and not highly confidential. However, within the priorities a contradiction can be identified, although identified as applicable from the perspective of cost reduction, from the perspective of cultural support this corporate is not applicable. Therefore, the corporate must evaluate what priority is most important in order to define whether to implement this possible solution. Then the office portfolio consists of a 100% leased portfolio and the solution is thus easy to implement. At last, the portfolio is not characterized by a large variety of asset types.

Solution B, external co-working, is most applicable based on the characteristics for both JLL and RHDHV. However, within the priorities again a contradiction can be identified.

The last solution, solution C, internal co-working, can be considered most applicable for RHDHV as the corporate is identified positively for all of these characteristics.

When comparing the different solutions, solution A and C present the largest applicability for the different case studies based on their characteristics. The other way around, from the perspective of the case studies, JLL is most often mentioned as applicable based on the different characteristics, followed by RHDHV.

## 6.3 Application of the strategy to a specific company office portfolio

### 6.3.1 Implementation approach

In the previous chapter, a possible general realignment strategy is proposed containing a set of different solutions that could be implemented to proactively realign the office portfolio. These three different solutions realign the portfolio based on the average future demand of all case studies together. These solutions all integrate flexibility in the future office portfolio through reducing the size of the 'core' while taking into account the contribution the other demanded added values 'cultural support', 'increase productivity', 'increase sustainability' and 'increase technology'.

As mentioned before, the exact implementation of these solutions and the specific combination of solutions that contribute the most to realignment of the portfolio highly dependent on the corporate office profile, the perception of importance for the different real estate priorities and the specific future demand.

For this strategy implementation, the focus is on the demonstration of a possible implementation of the strategy on the office portfolio of a case study. In order to remain focus on the portfolio perspective and increase clarity hereof, the perception of importance of this case study is not taken into consideration and again the demand of the multi-case study is taken. The electrotechnical case study is used for this purpose as this company has shared their office portfolio data for this study.

Therefore, the solutions of this general strategy are solely assessed and selected on their contribution to the different added values with use of the prior developed assessment framework. No weights are given and these are all perceived equally important for the realignment strategy. Therefore, the assessment of the contribution of these solutions on the measurable items is based on the researchers perception and not on the perception of the corporate. In reality this must be considered.

The contribution of these solutions are assessed with use of a scoring method. If a solution contributes positively this is indicated with a '+', neutral with a 'o' and negative with a '-'. The final score is made numerical, with a positive contribution accompanied with a 1, neutral with a 0 and negative with a -1. The total score will reflect on how well the possible solution contributes to the priorities. Again, only based on the perspective that all added values are equally important and ranked based on the researchers perception and not theoretically underpinned.

After selecting the combination of solutions that contributes the most, this is implemented on the office portfolio of the electrotechnical company. Therefore, first the current portfolio is analyzed and hereafter the future demand is translated accordingly. Then it is studied how the proposed strategy could be implemented. Finally, a conclusion is provided with the most important findings from this case implementation.

### 6.3.2 Solution assessment

As stated before the first step of the implementation of the general strategy is to assess the solutions on their contribution to the different priorities with use of the assessment framework. Each of the solutions is assessed separately and an indication is given whether the contributions to these measurable items are positive, neutral or negative. For this assessment the contribution to all added values are considered equally important. The outcome of the assessment of all solutions is presented in Table 27. The line of reasoning behind the perceived contributions is further elaborated on in the next sections.

### Post-Covid

Added value	Measurable item	Working from anywhere	External co-working space	Internal co-working space
Increasing productivity	Distance employee	+	0	0
	Informal and concentration space distribution	+	0	0
	Retaining human capital	+	0	0
Increase of flexibility	Organisational flexibility	0	+	+
	Financial flexibility	+	-	-
	Technical flexibility	-	-	-
Cultural support	Interaction	-	-	+
Sustainability	Reduction of m2	+	0	+
	Mobility	+	+	0
	Shared resources	-	+	+
Technology	Technological support	+	0	0
Total score		4	0	2

Table 27: Overview of the assessment of the three considered solutions for the selected real estate added values

#### 6.3.2.1 Assessment solution A: working from anywhere

The principle of solution A, working from anywhere, is the implementation of working from anywhere post-COVID. Anywhere could be the employees home but also another location according to their preference. However, the 'anywhere' is a location that the corporate does not supply for but is used by the employee as workspace and therefore reduces the space demand from that perspective within the office portfolio. This provides the possibility to reduce space from the current portfolio without moving space to other locations to be provided by the corporate.

Solution A is perceived to contribute positively to the added value *increase of productivity*. This is supported by the positive contribution to all of the measurable items that belong to this added value. This solution provides the opportunity for the employee to select this anywhere space according to their own demand. Therefore the 'distance to the employee' is positively perceived and in line with this 'retaining human capital' as well. The contribution to the informal and concentration space distribution is also positive as the anywhere space can be filled in with concentrated spaces. Where space from the core is reduced and the remaining space can be transformed into a space for collaboration.

For the added value *increase of flexibility*, the reduction of space in general from the portfolio results in financial flexibility for the corporate. However, the 'technical flexibility' is reduced as the corporate has no influence on 'anywhere' spaces. The 'organisational flexibility' is neutral as locating a part of the organisation outside of the office has both flexibility advantages and disadvantages. This solution is perceived to contribute negatively to the added value 'cultural support', as the level of physical interaction is lowered.

For the added value *sustainability*, the 'reduction of office space' contributes positively to this added value. The same accounts for 'mobility', as the 'anywhere' results from a location choice of the employee and therefore is more likely to be within a shorter distance than the original office space. Then the 'shared resources' are considered to be contributed to negatively as within the core office resources are split amongst a group of people which is more sustainable.



The *technological support* is perceived to be contributed to positively, as the corporate is encouraged to improve the technological environment in order to remain productive.

#### 6.3.2.2 Assessment solution B: external co-working

The principle of solution B, external co-working, is to provide dedicated space from a serviced office provider for a short period of time to a specific part of the organisation that is currently positioned within the core portfolio.

For the added value *increase of productivity*, solution B contributes neutral to the item 'distance to the employee' as within the selection process of the specific locations this can be taken into account. Then, the contribution of solution B on the 'informal and concentration space distribution' is also considered neutral as within the external co-working space similar options for using the appropriate space are present. For the 'retainment of human capital' the contribution is also considered neutral.

For the added value *'increase flexibility'*, the reduction of space from the core towards the peripheries increases the 'organisational flexibility', however the 'financial' and 'technical flexibility' are reduced. This can be explained by the increased costs of leasing from an external serviced office provider and the reduced influence of the corporate on the technical aspects of the space.

For *cultural support*, the solution negatively contributes to this as the overall interaction between the employees within the corporate is reduced.

Regarding *'sustainability'*, on average this solution does not 'reduce the overall m<sup>2</sup>' and therefore does not contribute to this aspect. The solution is expected to positively contribute to the item 'mobility'. This can be explained as the location of the service is expected to be positioned close to the original core and preferably to a transport hub in order for employees to easily access this location. Then the 'shared resources' are considered to be contributed to positively as the resources are shared with more organizations compared to the original office.

At last *technological support* is contributed to neutrally, on one hand the corporate is encouraged to improve the technological tools to support the non-physical work environment, whereas at the external location the provision of technological support is less advanced than in the core.

#### 6.3.2.3 Assessment solution C: internal co-working

The principle of solution C, internal co-working, is to shift the dedicated co-working space more towards the internal environment as close as possible to the original core, preferably within the same building.

For the added value *increase of productivity*, this solution is perceived to have a neutral effect on the contribution to the 'distance to the employee', as the flexible workspace is located within the same building. Then, the contribution of 'informal and concentration space distribution' is considered neutral as within the co-working space similar options for using the appropriate space are present. The same accounts for 'retaining human capital', as the attractiveness of the facilities remain similar to the former situation.

For the added value *increase of flexibility*, the reduction of space from the core towards the peripheries increases the organisational flexibility, however the items financial and technical flexibility are reduced. This can be explained by the increased costs of leasing from an external

serviced office provider and the reduced influence of the corporate on the technical aspects of the space. Additionally the short term perspective makes these adaptations less attractive. For *cultural support*, the solution positively contributes to this as the overall interaction between the employees within the corporate is similar however there is a greater variety of encounters between the employees.

For *sustainability*, the solution 'reduces m<sup>2</sup>' as space is moved from the core into the 1<sup>st</sup> periphery and the proximity of 2<sup>nd</sup> periphery space is taken into account, therefore a minimum level of space will remain in the core. A neutral contribution is expected 'mobility', as location of the serviced office provider is within the same building as the core. Then, the shared resources are considered to be contributed to positively as the 'resources are shared' with other organizations and individuals. The *technological support* is contributed to positively, as the corporate is encouraged to improve the technological environment in order to remain productive and support the distanced employees. However specific tools are located in the core space and are thus within proximity.

### 6.3.3 Solution selection

According to the scores in Table 27, the solution 'Working from anywhere' scores the highest and thus delivers the largest contribution on the various added values. The 'internal co-working space' scores second highest and the external working space has the lowest score of three. However, it is important to note that the outcome of this table does not implicate that since ranked highest, 'working from anywhere' is to be implemented for realignment of the office portfolio. The selection of the most desirable strategy is more nuanced.

As can be seen within the table, the different solutions contribute to certain added values and not to others. Additionally, the selection does not have to be limited by the implementation of a single solution since a strategy can be based on various steps. As different solutions contribute to different added values, a mix of these solutions could also lead to an optimum. Therefore, in reality the corporate must take into account what values are most important for the corporate. As within this case implementation the values are perceived equally important, therefore the most optimal combination of solutions can be considered those that contribute all added values. As solutions can strengthen one another, they can also work against each other. Therefore a critical evaluation of those that are deemed most applicable needs to be made. Furthermore, the applicability in practice must also be taken into account.

'Working from anywhere' received the highest score based on the contribution to the various added values. Additionally, from the expert session this solution is also relatively easy to put into practice as the pandemic already adapted and provided the necessary structure, both digital and physical, to support this way of working. Therefore this solution is selected. In order to see whether one of the co-working solutions strengthens 'working from anywhere' the additional added values and items that these solutions contribute to are evaluated. A solution is considered to be strengthening when it contributes positively to added values that 'working from anywhere' does not contribute to, in line with this, the other way around is also taken into account.

Within this line of reasoning, the external co-working solution adds additional value to the organisational flexibility and shared resources, however it decreases the financial flexibility. The internal co-working solution adds additional value to the organisational flexibility, interaction, and shared resources, however this solution also decreases the financial flexibility. Now this has been set out, it is possible to decide what combination is most contributing.

The combination of 'working from anywhere' with the 'internal co-working' (1) solution is more strengthening than the combination 'working from anywhere' with 'external co-working' (2). As only

in this first combination of solutions, there is a positive contribution to the added value 'cultural support'. Although the combination of 'working from anywhere', 'internal co-working' and 'external co-working' (3) is possible, there no additional contribution towards one of the added values. Therefore, it is the second combination, 'working from anywhere' and 'external co-working', that is perceived to have the most potential for the realignment strategy of this case.

Additionally, the critical notes on the applicability of these solutions in practice from the expert session must be taken into account. Therefore, when implementing 'working from anywhere', this must be accompanied with direction from the corporates regarding the management of spreading the curve of office demand. For 'internal co-working' the most important difficulties are within the acceptance of a flexible office provider within a multi-tenant office building that is already in use.

### 6.3.4 Application of strategy to the portfolio

In the previous chapter, the solutions 'working from anywhere' and 'internal co-working' are selected as integrated flexible solutions that together contribute the most to the selected added values. In order to implement these solutions first the current portfolio is analysed. Then is studied how the proposed strategy could be implemented within the portfolio and implemented.

#### 6.3.4.1 Portfolio analysis

The real estate portfolio of the electrotechnical company consists of many different types of assets worldwide. For this analysis only the offices are considered. Furthermore, only countries are selected where the culture and office use are similar to that of the Netherlands. In respect of this, the identification of these specific countries in the portfolio of interest are defined together with a corporate solution consult in JLL and are mainly Scandinavian and Northern European countries. In Table 28 the resulting portfolio consisting of 16 offices that will be considered in this analysis including several key characteristics. The office names and countries are anonymized for confidentiality reasons. About 90% of the office space is located in Country A.

Office code	Country	Property type	Main business use	Size [m2]	Desk ratio [workspaces/employees]	Total lease duration [months]	Remaining lease duration [months]	Total costs [%]
MO1	A	Office	Main office	17.500	0,7	322	57	27,8%
BO1	A	Office	Back-office	2.300	0,9	<i>No data</i>	<i>No data</i>	5,6%
BO2	A	Office	Back-office	22.700	1,4	136	70	28,1%
BO3	A	Office	Back-office	6.500	<i>No data</i>	75	10	8,0%
BO4	A	Office	Back-office	8.300	0,8	124	58	10,3%
BO5	A	Office	Back-office	5.800	<i>No data</i>	75	10	7,2%
MO2	B	Office	Main office	2.000	1,4	<i>No data</i>	<i>No data</i>	2,7%
SO1	B	Office	Sales office	200	0,2	163	8	0,4%
MO3	C	Office	Main office	1.400	0,8	379	356	2,9%
MO4	D	Office	Main office	1.500	1,1	60	52	4,7%
MO5	E	Office	Main office	200	1,2	36	8	0,4%
MO6	F	Office	Main office	400	0,7	108	47	0,6%
MO7	G	Office	Main office	800	0,7	<i>No data</i>	<i>No data</i>	0,4%
MO8	G	Office	Main office	900	0,8	<i>No data</i>	<i>No data</i>	1,0%
SO2	G	Office	Sales office	20	1,0	60	8	0,0%
BO6	H	Serviced Office	Back-office	30	1,0	36	19	0,3%
Average:				4.400	0,9	610	59	

Table 28: Office portfolio of the electrotechnical company considered in this case study

The portfolio is now first regarded in terms of the different tiers defined within the flexibility theory of Gibson and Lizieri (1999). For this purpose, a definition of the core and peripheries is necessary. Gibson and Lizieri (1999) make a distinction in terms of lease duration, but also state other criteria, such as that the assets of high strategic or cultural value are part of the core. For this company the office “MO5” in country “A” has such value. For the other offices a practical approach is taken based on the lease duration to divide them into the core, first and second periphery. The offices with a total lease duration of more than three years are considered to be part of the core. Other offices are part of the periphery tiers. When examining the data, it can be concluded that very short lease contracts or pay-per-use offices are not included. Only the core and first periphery can therefore be considered in this analysis. The additional shift from these assets to the second periphery however can still be regarded. For some offices, the lease duration data is missing. These are assumed core based on their similarities in terms of size and location compared to the other offices in this category.

Flexibility tier	Offices	Percentage of space
2 <sup>nd</sup> Periphery		-
1 <sup>st</sup> Periphery	MO4, BO1	0,3%
Core	MO1, MO2, MO3, MO5, MO6, MO7, MO8, BO2, BO3, BO4, BO5, BO6, SO1, SO2	99,7%

Table 29: Office portfolio of the electrotechnical company divided over the flexibility tiers

In Table 29 is shown that almost the entire this portfolio can be placed in the core tier. Only the main “MO4” and back-office “BO1” could be considered flexible. The two offices both have a very limited size compared to the other offices. This means among others that presently at least the financial flexibility of the office portfolio of the electrotechnical company might be limited.

#### 6.3.4.2 Implementation of the realignment strategy

The combined solution of working from anywhere and internal co-working is now applied to the office portfolio of the electrotechnical company. In the case of working from anywhere this means a reduction in the assets in any of the flexibility tiers since these are taken over by for instance working at home, while for internal co-working means a shift from the core tier to the peripheries. Both lead to a reduction of the core portfolio. A key difference between the two solutions is that working from anywhere could be implemented on the short time quite straightforwardly, while internal co-working likely requires the lease of alternative office space or renegotiation of existing contracts.

The average ratio from the multi-case study between workplaces and collaboration space is roughly 60%-40%. It is assumed that this holds for the electrotechnical company as well. Within the presented strategy the amount of workplaces within the core portfolio will decrease. In the multi-case study the different future metrics and portfolio management ratios were communicated, see Table 25. It was indicated that the desired reduction in desk ratio accompanied with the increase in flexibility is at least 20%. For the increase in required collaboration space about 15% is assumed for the purpose of this analysis. That means the new ratio of workspace and collaboration space would be 48%-46%, meaning an overall reduction of 6% in office space.

The average desk per employee ratio for the considered office portfolio is at the moment 90% as shown in

Table 28, which is on the higher end of what was communicated in the various case interviews. That means currently about 10% of the employees already work from anywhere, neglecting other possible reasons for a flex ratio below 100%. The 20% decrease in workspace in the office core portfolio means that the desk ratio reduces from 90% to 72%. This 18% decrease in workspace will be covered

equally by the solutions working from anywhere and internal co-working according to the general strategy proposed in the previous section.

The office portfolio is now again regarded to see what strategic actions could be taken to implement these changes. Working from anywhere might be implemented immediately. However, the benefits in terms of flexibility of the real estate portfolio only becomes effective once existing lease contracts end. Also the shift to internal co-working can only be made once lease contracts end. Figure 15 shows the percentage of office space that is locked in lease contracts, which reduces over time due to ending lease contracts. As can be seen, approximately 20% falls free within the first year. Then, the majority of the remaining assets has lease contracts with a remaining duration of 4 to 5 years.

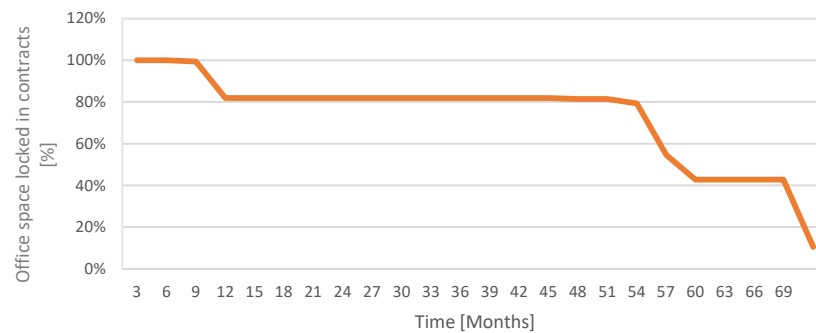


Figure 15: Reduction of the percentage of assets that are locked over time due to ending lease contracts

To see what strategic actions could really be implemented a closer look is necessary. About 90% of the office space is located in country A. The offices in this country are relatively close together. These offices therefore provide some opportunity for rearrangement once lease contracts end. As discussed before, the main office MO1 is of strategic value is therefore not taken into account from shifts towards more flexible tiers. Also the two sales offices (SO1 and SO2) are excluded as these have a different functionality than just providing workspace and collaboration space. Table 30 shows a possible implementation strategy based on these principles over time.

Time [months]	Strategic actions	Core				Distribution of workspace		
		Total [m2]	Workspace [m2]	Collab [m2]	Internal co-working [m2]	Total costs [%]	Core	Working from anywhere
Pre-COVID		70.550	42.330	28.220	0	100,0%	90,0%	10,0%
Now (0)	• Increase in working from anywhere. Using the space made available for collaboration.	70.550	38.097	32.453	0	100,0%	81,0%	19,0%
During COVID (0-12)		70.550	38.097	32.453	0	100,0%	81,0%	19,0%
Post-COVID (12)	• Not extending lease of BO3 and BO5 • New office with 85%-15% lease and internal co-working space	68.705	36.252	32.453	3.497	100,7%	77,1%	19,0%
12-60		68.705	36.252	32.453	3.497	100,7%	77,1%	19,0%
60	• Not extending lease of BO4 • New office with 90%-10% core and internal co-working space	67.875	35.422	32.453	4.327	101,0%	75,3%	19,0%
60-72		67.875	35.422	32.453	4.327	101,0%	75,3%	19,0%
72	• Not extending lease of BO2 • New office with 93%-7% core and internal co-working	66.286	33.833	32.453	5.916	101,6%	71,9%	19,0%

Table 30: Possible implementation of the realignment strategy to increase flexibility for the electrotechnical case

This strategy is made for a static business size and situation, so that factors such as employee growth or inflation or not included. These factors should be taken into account in a complete analysis. The main steps within this strategy are as follows:

#### Pre-COVID

In the situation pre-COVID 90% of the workplaces are within the core of the portfolio. The remaining 10% is already working from anywhere in the pre-COVID situation. This was discussed in previous paragraphs. The total office space results from Table 28 and equals 70.550 m<sup>2</sup> of which 60% is workspace and 40% is collaboration space.

- Now (0 months)

At this moment in time employees are already working at home. The office has not been adjusted for this way of working however. Instead, the office portfolio could anticipate on the new way of working post-COVID. Especially because at this time, the nuisance of a renovation would be minimal. The office could therefore be made suitable for working from anywhere immediately. This means a shift from 10% to 19% of the 'workspaces from anywhere'. This shift immediately allows sufficient office space under lease to fall free to reach the desired 15% increase in collaboration space (from 28.220 m<sup>2</sup> to 32.453 m<sup>2</sup>).

On a full-time contract this would mean an increase from half a day to about one day per week working from anywhere at the start of the post-COVID phase. The costs of working from anywhere for the company, such as a financial contribution to employees to set-up a home office, are expected to be negligible compared to the costs of office space. The total costs of the office portfolio therefore remain the same.

- Post-COVID (12 months)

For this study it is expected and assumed that the post-COVID phase starts in twelve months. This is the moment that the anticipated distribution of core office and working from anywhere of 81% and 19% at this time would truly go into effect. At this time, also the lease contracts of the offices BO3 and BO5 end. These lease contracts are not extended. Instead, new office space is leased in an office building where a serviced office provider will also be located. A ratio of 85% workspace and 15% internal co-working is aimed for in this new office. This leads to 3,9% of internal co-working which is a reasonable step towards the final aim of 9%. It is not expected that a large part of the employees in other offices within the country will also make use of this space. It is therefore not feasible to implement the desired change towards internal co-working with a single new office.

The co-working area will of course be used by other companies as well and will therefore be larger than the space used by the electrotechnical company. The idea is that also other companies are located within the office complex that will make use of this internal co-working space. The costs of utilizing a co-working space are roughly estimated to be 30% higher than regular long leased office space. The costs of the real estate portfolio therefore slightly increases with this step.

- 60 months:

As was shown before, only after five years more existing lease contracts end that include a significant office space. The office BO4 is first. The strategy aims for a new office space that is 90% of the original size while the other 10% is shifted towards internal co-working. The total size core portfolio plus co-working therewith remains the same. Of course, at this time growth of the company or other factors might lead to the decision for an office with alternative size. In any case, at this moment the opportunity exists to shift to more co-working space.

- 72 months:

This step is largely the same as the previous one but now for the office BO2. A ratio of office space and internal co-working space of 93% versus 7% is aimed at. This results in the goal of about 72% core workspaces, 19% working from anywhere and 9% internal co-working. As can be seen from Table 30 the total size of the office core has decreased from 70.550 m<sup>2</sup> pre-COVID to 66.286 m<sup>2</sup> at six years post-COVID, which equals the 6% total desired decrease in office size that was discussed before. The workspace in the core has decrease with 20% over this time and the collaboration space has increase with 15%. The total costs of the office portfolio have slightly increased as co-working space is expected to be more expensive than long lease space. However, in return the office portfolio of the electrotechnical company has a much higher flexibility at this point.

### 6.3.5 Conclusion application strategy to portfolio

From the application of these solutions on the portfolio different conclusions can be drawn. Based on its office portfolio it can be concluded that for the electrotechnical company the general realignment strategy to increase flexibility of the real estate portfolio after COVID could be implemented over six years. This duration is driven by the shift from core office portfolio to internal co-working, which is dependent on the duration of existing lease contracts. It makes sense that the shift to flexibility takes time due to the present inflexibility of the portfolio. On the other hand, working from anywhere can be implemented immediately. The office space under lease that comes available from this shift allows for an immediate fulfilment of the desired increase in collaboration space accompanied with this new type of working.

This also means that in the first year only the contribution of working from anywhere to the added values is in effect. Therefore from the start this solution already contributes apart from the increased level of flexibility to the level of sustainability, productivity and technology.

The benefits of the solution of internal co-working, most important increasing cultural support, only become in effect after a couple of years. Therefore, other solutions might be necessary to counter the negative effect of working from anywhere on this aspect on the short term.

## 6.4 Strategy reflection

The general realignment strategy proposes three different solutions that could be implemented to proactively realign the office portfolio. These solutions all integrate flexibility in the future office portfolio through reducing the size of the 'core' while taking into account the contribution the other demanded added values 'cultural support', 'increase productivity', 'increase sustainability' and 'increase technology'. The proposed solutions could be used for the majority of the case studies as a starting point. This can be explained through the method behind the development of this general strategy. Here, that what is most relevant to realign for, the realignment direction, is selected based on the average demand of all case studies.

In the implementation of this strategy on the electrotechnical case portfolio these solutions were assessed and a combination of solutions was selected that contributed the most to the added values. Here, in order to enhance clarity for the focus on the effect on the portfolio, the priorities of the corporate were not taken into consideration. However, important to note is that the realignment of

the portfolio highly depends on the corporate office profile, the perception of importance for the different real estate priorities and the specific future demand.

Therefore, when applying this strategy for all case studies, the specific priorities should be weighted accordingly in the assessment to select a combination of solutions that provides more specific realignment. Then these solutions can be further defined for implementation according to the specific demand through for example percentages of collaboration space or core space.

As the relevance of this realignment strategy for all case studies is previously explained by the selection method of the strategy direction. The applicability could be defined in further detail with use of the portfolio and company characteristics as defined in Table 26. In this table is presented that both JLL and RHDHV are most often considered applicable for the different solutions based on their company and portfolio characteristics. These characteristics are the presence of only offices within their portfolio, thus no diversity of assets, and the lease ratio of 100%. Additionally, the type of work conducted within their offices is not dependent on specific office facilities and has a relatively low level of confidentiality.

When translating these insights to a broader level, this realignment strategy could be interesting to investigate for companies other than the case studies that are in need of an integrated flexible portfolio. As the company- and portfolio characteristics of the case studies can be defined by large corporates with multiple office in the Netherlands especially for those this could be interesting. More precisely the applicability of the solutions are best for corporate real estate portfolios that consist of a low level of asset diversity and a high level of leased assets. At last, if the work executed in the office is relatively low in confidentiality the solution are also more applicable.

Additionally, important insights derived from the implementation of this strategy on an office portfolio. The solution working from anywhere can be implemented immediately, the office space under lease that comes available from this shift allows for an immediate fulfilment of the desired increase in collaboration space accompanied with the new type of working. Therefore, in the short term the amount of core office space will likely not be down- or upsized. However, together with the expectation that large corporates, as confirmed in the case studies, will implement working from anywhere post-COVID, and the other two solutions to reduce the core space are dependent on the ending of lease contracts, the real opportunities of disposing core office space and the specific contribution of these solutions will only be present in the coming years. Therefore other measures must be taken to contribute for these in the meantime. Therefore, the importance for proactive realignment has only been enlarged as the implementation showed that even with a portfolio that has the applicable characteristics, it takes a long time to implement the level of flexibility demanded. Additionally, the delay in implementation of the other solutions must be



## 7. Conclusion

In response to the effect of the pandemic on the future demand for office real estate, corporates are in need of a strategy to realign their portfolio accordingly. This research approached this multifaceted problem amongst others by taking a closer look at 9 case studies to answer the main research question:

*“How can a strategy be developed that larger Dutch corporations could implement to proactively realign their corporate real estate office portfolio to their post pandemic corporate and real estate priorities?”*

### Conclusions of the theoretical research

In the first part of this research a literature study is conducted that explored the most important topics for this research; strategic management in accommodation theory, the different real estate strategies, corporate strategies, and the alignment of corporate- and real estate strategies. These findings are used to develop a framework for the empirical study.

### Theoretical framework

This research adopted a strategic perspective and therefore focused on the realignment of the corporate real estate portfolio with the strategic goals at the corporate level. The theory of Van der Zwart, Arkesteijn & Van der Voordt (2009) has therefore been adopted. In theory an integrated analytical framework is developed and positioned in the DAS-Framework to steer and to support the strategic analysis based on the concept of strategic alignment between the corporate and real estate strategy. This overarching framework is adjusted with various selected theories to fit this specific research and to be able to propose a realignment strategy, see Figure 16.

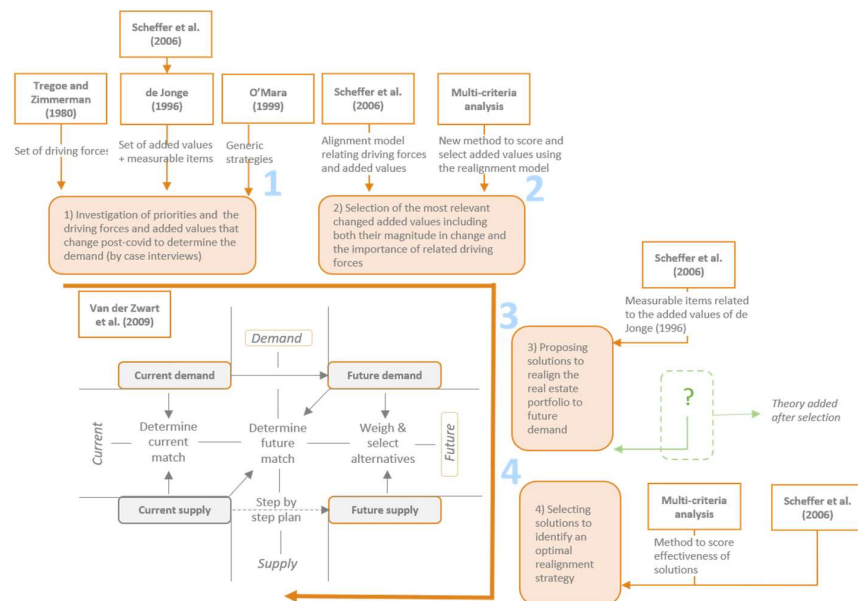


Figure 16: Theoretical framework applied in this research

A dominant theory that is used herein is the theory of Scheffer, Singer and Van Meerwijk (2006), which proposes the use of the driving forces and added values as defined by respectively the research of Nourse and Roulac (1993) and de Jonge (1996). However, based on the findings in the qualitative part of the empirical research, it was found that the specific added values and measurable items as proposed by Scheffer, Singer and Van Meerwijk (2006) were not completely representative for the regarded situation as further described in the discussion. The main reason is that the selection of criteria used in that study are based on research performed in a different era where trends such as sustainability and technology were less dominant. Therefore, this conceptual framework that represents the method to develop the possible realignment strategy has been proven to be adequate. However, the added values are outdated and need to be modernized to be able to translate the future office demand properly. This research already presents a selection of these modernized items, as further elaborated below.

### ***Conclusions of the empirical research***

In the empirical part of this research nine case studies have been conducted on large Dutch corporates with multiple offices in the Netherlands that represent a variety of market sectors.

The first empirical research question answered in this study is the following: *“How are corporate and real estate priorities of the larger Dutch corporations in different sectors affected by COVID-19?”*

#### **Changes in priorities**

Both a qualitative and quantitative analysis provided insights on the information obtained from the various case studies. From the qualitative analysis the most important conclusions are that the trends that are most often indicated to be affected by COVID are ‘sustainability’, ‘digitization’ and ‘the emphasis on services instead of products’. For the majority of the case studies an acceleration of ‘sustainability’ and ‘technology’ was also communicated within their corporate strategic priorities, second to this is ‘flexibility’. For the office strategies, all case studies indicate COVID to have an effect on either the real estate or office strategy on the following overarching themes, ‘sustainability’, ‘technology’, ‘relocation’ and ‘space reduction’. From the quantitative analysis the added values ‘support culture’, ‘increase flexibility’ and ‘increase productivity’ are defined to increase the most in importance.

The second empirical research question is the following: *“What are the most relevant changes in real estate priorities that define the Post-COVID portfolio demand seen over the different case studies?”*

#### **Selection most relevant added values**

In order to select the most relevant changes in real estate priorities, the following two criteria are developed; (1) the real estate priorities that are expected to change the most in importance and (2) that are also considered to be of permanent nature. When supported by theory, this can be defined as the priorities that are expected to change the most and are in line with the strategic corporate priorities that are perceived to be most important post-pandemic. These real estate priorities or added values are expected to be most impactful and permanent and therefore most important to develop a realignment strategy for. Again both a qualitative and quantitative method.

In the multi-case qualitative analysis, a broader perspective is taken on as the selection is based on priorities that are identified from communication instead of predefined items from literature. The qualitative multi-case selection identified ‘sustainability’, ‘flexibility’ and ‘technology’ as most relevant real estate priorities. For the quantitative multi-case analysis, a selection method has been developed, over the different case studies the added values ‘culture’ ‘flexibility’ and ‘productivity’ are considered most relevant. The final selection, a synthesis of both selections, proposed the most important added values to be ‘support culture’ ‘increase flexibility’, ‘increase productivity’, ‘increase

sustainability’ and ‘increase technology’. From this can be concluded that both methods were complementarily and the triangulation applied in the data gathering and in the selection method was effective to explore this phenomenon.

The third empirical research question is the following: *What real estate measures can be implemented to realign real estate portfolios of large corporations to these selected most relevant changes in priorities?*

### Starting point solutions

The above selected added values represent the priorities for which a realignment strategy must be developed. From these five added values, the ‘increase of flexibility’ has been identified to be fundamental for the realignment strategy and is used as starting point for the development of the different solutions. This can be explained as follows. The item is selected to be most relevant within both the qualitative and quantitative analysis. Second, this was the only added value that was found to increase in importance post-COVID for all of the case studies without exception. Third, the in-depth analysis shows that the need for an integrated flexible approach is expressed by the various companies where flexibility was often the underlying reason for scoring high on other added values as well.

### Solutions and flexibility framework

Therefore, the flexibility framework of Gibson and Lizieri (1999) that defines three tiers of flexibility in a portfolio is used to put both the future demand and the operationalization of the strategic solutions in theoretical perspective. Three different solutions are explored that are initiated from the perspective to ‘increase flexibility’ of the future office portfolio through reducing the size of the inflexible ‘core’ tier, these are visualized in Figure 17.

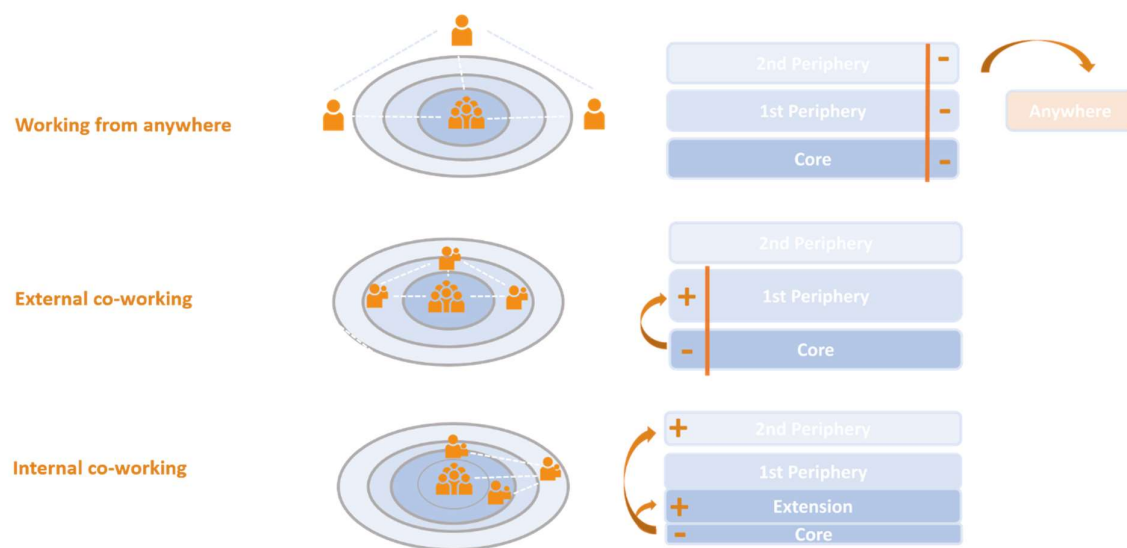


Figure 17: Solution overview. Visualization space distribution with use of tiers.

Each solution proposes a different approach to reduce the core space. Where ‘Working from anywhere’ is developed according to internal opportunities that have been highlighted as result of the pandemic, the other two solutions make use of external opportunities. As can be seen in the Figure 17, only for the ‘external co-working’ solution the original tiers of the framework of Gibson and Lizieri (1999) support the positioning of the flexible space. Therefore, for two solutions this framework fell short. First, in the solution of ‘working from anywhere’, the anywhere space can be

considered part of the office portfolio as it supplies in the space demand and therefore also takes up a part of the space demand from one of the tiers. However, as to this 'anywhere' no permanent or concrete property can be appointed, this space cannot be defined by the tiers. Therefore, an additional layer needs to be added to this framework that is not connected to the existing tiers. The second solution where the framework fell short was for the space of 'the internal co-working solution'. In this solution dedicated co-working space is provided by a flexible office provider within the same building as where the core is located. From this perspective, the external space provided could be considered a flexible extension of the core space. This extension space is more nuanced than solely 1<sup>st</sup> periphery space, considering the direct link with the core space. This indicates a tier to be positioned in between the core and 1<sup>st</sup> periphery. Therefore, the original framework has been adapted to be able to visualize the future level of flexibility, see Figure 18.



Figure 18: The post-pandemic tier framework.

#### Assessment framework and applicability overview

The exact implementation of these solutions and the specific combination of solutions that contribute the most to the realignment of the portfolio are highly dependent on the corporate office profile, the perception of importance for the different real estate priorities and the specific future demand.

In order to define the contribution of a solution to the selected added values in this research an assessment framework is developed. Herefore, the measurable items of Scheffer, Singer and van Meerwijk (2006) are used. However, the measurable items from theory are considered to be too generic as these do not reflect the direction of the future demand precisely enough. Therefore, for each of the five selected added values, measurable items are newly developed or adapted according to the interpretation of the future demand as deduced from the case studies. This in order to assess the possible solutions on their specific contribution. This results in the following assessment framework, see Table 31. Here, the specific corporate priorities should be weighted accordingly to select a combination of solutions that provides more specific realignment. Then these solutions can be further defined for implementation according to the specific demand. This could for example be an exact percentage of demanded collaboration space. Important to highlight is that this assessment framework only reflects the items for the added values as selected from the average of the case studies in this research. Therefore, in order for this framework to be used by other companies, the framework must be expanded and represent all added values and measurable items that could reflect the future demand for their office portfolio.

### Assessment framework

RE priority	Post- pandemic Measurable items	Weights	Score sol. 1	Score sol. 2	Score sol. 3
Increasing productivity	Distance employee				
	Informal and concentrated space distribution				
	Retain human capital				
Increase of flexibility	Organisational flexibility				
	Financial flexibility				
	Technical flexibility				
Cultural support	Interaction				
Sustainability	Reduction of m2				
	Mobility				
	Shared resources				
Technology	Technological support				
Total score					

Table 31: Assessment framework case studies

As stated above, the company and office profile influence the applicability of the different solutions. Therefore an overview is presented that defines the applicability of each of these in further detail with use of a selection of characteristics, see Table 32. This overview can be used to translate the applicability of the different solutions for the case studies. However, from a broader perspective, companies that are in need for an integrated flexible solution can also use these general conditions to assess their own company and portfolio characteristics accordingly.




Applicability	Company characteristics		Portfolio characteristics	
	Type of office work	Priorities	Owned vs leased	Asset types
<b>Solution A</b> Working from anywhere 	- Highly confidential work + No dependency office facilities	- High priority of cultural support + High priority of sustainability	- Owned office buildings + Emphasis on leased portfolio (core)	- High variety of asset types
<b>Solution B</b> External co-working 	- Highly confidential work + Low dependency office facilities	- High priority of cultural support - High priority of cost reduction + High priority of sustainability	- Owned office buildings + Emphasis on leased portfolio (core)	- High variety of asset types
<b>Solution C</b> Internal co-working 	- Highly confidential work + Moderate dependency office facilities	- High priority of cost reduction + High priority of sustainability + High priority of cultural support	- Owned office buildings + Emphasis on leased portfolio (core)	- High variety of asset types

Table 32: Applicability overview solutions

### Insights from implementation

The last step conducted in this research is the implementation of the strategy on the corporate real estate portfolio of the electrotechnical case study. Here, in order to enhance clarity and maintain focus on the effect on the portfolio, the priorities of the corporate were not taken into consideration. The solution working from anywhere can be implemented immediately, however the other two solutions to reduce the core space are dependent on the ending of lease contracts. Therefore, the real opportunities of disposing core office space and the specific contribution of these solutions will only be present in the coming years. Additionally, for the delay in implementation of these solutions temporary measures should be implemented to contribute to the respective added values.

## 8. Discussion

In this chapter the discussion of this research is presented. Therefore the topics discussed are the theories used, the limitations of this research, the validity and generalizability of the results, further research recommendations and at last the ethical considerations are presented

### 8.1 Theories

This research is built upon different theories, the insights on the use of the most important theories for this research are discussed below.

#### 8.1.1 Added values

The tool of Scheffer, Singer and van Meerwijk (2006) is based on the framework of Nourse and Roulac (1993), that uses driving forces to define corporate strategies and the seven added values of De Jonge (1996) for the real estate strategies. In this research, the tool is adjusted however the proposed driving forces and added values remained in use. In the selection of the most relevant real estate strategies the method of triangulation was applied. A quantitative selection method, selected the added values based on scores given. The qualitative selection is used to create a more holistic view of the phenomenon, and therefore not framed through the added values but based on themes that can be identified within the interviews as largest and most impactful changes. Both methods proposed a selection of themes and added values that were perceived most important to contribute for in the realignment strategy. However, two out of three selected themes, 'technology' and 'sustainability', from the qualitative selection were not in line with the seven added values of De Jonge (1993). Therefore, these added values have shown to be insufficient to define the future demand for office real estate. A reason for this could be that the selection of criteria used in that study are based on research performed in a different era where trends such as sustainability and technology were less dominant. Therefore, the selection of a modern theory would have been more suitable.

#### 8.1.2 Selection system

In this research, a Multi Criteria Analysis is used to support decision making for the selection of the added values and designed solutions. For the added values selection, the most extensive method is applied. Here the MCA results in a weighted normalized overall score expressed in percentages to allow for a comparison between the desirability of the considered measures. However, the difficulties that are present within this method derive from the ranking system applied. As the interviewees indicate the items with a level of importance from 0-3 both before and after COVID, this does not imply that for a different measurable item with similar scores this change is proportional. This level of inaccuracy can be reduced through increasing the amount of numbers to select from.

## 8.2 Limitations

The most important limitations of this research are presented below.

### *Perceptions*

For all but two of the case studies the interview is conducted with only one real estate professional. Therefore, the selection of the added values and the perception of the direction of a company is only based on the opinion of one corporate representative. The outcomes are not further verified within the company.

### *Position in time*

The position in time is linked to the limitation of the perceptions. Although all interviews are conducted within approximately one month difference, the most important limitation is based on the position of the corporate or interviewee in the process of reimagining their future values and strategies. This influences the perception of what values are important 'post-COVID'. Considering the interest to understand their post-COVID perception, rather than a perception bounded by a specific point in time, no exact time frame is indicated. However, from their communication could be deducted that a similar perspective was adopted. This perspective is that within one year the Post-COVID era will commence and is therefore also used in the strategy development. Additional limitations will be present when the duration of the pandemic increases, as this will alter their perception of the post-pandemic situation.

### *Sample size*

The sample size used in the empirical research is based on nine case studies. Although, in order to draw generalizable conclusions regarding for example the whole Dutch market, or a particular sector, the sample size should be larger.

## 8.3 Recommendations

This research presented a rather global perspective on the phenomenon and the strategy that could be implemented. This can be explained by the fact that this pandemic is a completely new phenomenon and scientific research is still underway but limited. Therefore for further research it is recommended to use these general insights and methods for further specification. Most important is the further concretization of the assessment framework based on the post-pandemic office demand. As this research only developed a selection of this framework for the selected added values over the different case studies. For a complete framework more research is necessary.

Hereafter, a next step could be to propose solutions based on specific categorizations. For example the development of possible realignment solutions focused on specific portfolio or company characteristics. As this researched focused on the large Dutch corporates, other interesting findings could be developed for smaller companies.

## 8.4 Ethical considerations

This research is conducted with respect to the following ethical considerations; validity, voluntary participation and consent and confidentiality. Each of these considerations is further explained below.

### ***Validity***



In order to develop a comprehensive understanding of the phenomena, the strategy of triangulation is applied where multiple methods of data sources are used (Patton, 1999). A selection of these are the analysis of market reports, literature, the conduction of interviews from different perspectives within the real estate sector (market parties, public parties, professionals, researchers), round table session and a creative expert session. Additionally, within the method used validity is actively implemented within the selection of the added values, where the interpretation of the quantitative and qualitative selection method are combined.

#### ***Voluntary participation and consent***

Considering the participation of human beings in this research, It is important that participation is voluntary and that when agreeing on participation the individual has been informed and understands the outcomes and consequences of participation (Rubin & Babbie, 2008). Therefore within the interviews the permission is requested to use and present data. Additionally, if requested, the data is presented to again provide permission.

#### ***Anonymity and confidentiality***

Anonymity and confidentiality are important ethical considerations within research. They ensure that the identity of a subject is protected together with their interests and well-being. In order to maintain both confidentiality and anonymity, the data that is gathered should not be publicly shared and when used their identity must be protected (Rubin & Babbie, 2008). Therefore, two case studies have been anonymized in both through the removal of real names in all documents, adjusting statements that could reveal their identity and granting numbers to confidential data, for example location A. In line with this, the extensive portfolio analysis is not concluded.

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# Appendix A Interview protocol

## Interview “COMPANY” ‘DATE’ ‘TIME’

Participation: ‘NAME PARTICIPANT’

### Research background:

*The past months COVID-19 has globally led to a societal disruption. Companies have been forced to adapt and facilitate the new reality of remote working. This is expected to bring about a structural change in businesses and leads to rethinking future office use and space. The strategic implementation of the office portfolio and its alignment with the business strategy is considered to create value. The change in priorities and reconsideration of the office indicates a mismatch between future demand and the current office portfolio. This leads to the need to develop a strategy to transform the current portfolio. The question I want to answer in my thesis is therefore: what strategy can companies implement to proactively realign their real estate portfolio to this new demand as a result of the pandemic?*

### Interview goals:

The goals of the interview is to gain insight into the following themes:

1. Accelerated and emerging trends due to COVID that affect ‘COMPANY’S SECTOR’
2. Change in corporate priorities of ‘COMPANY’
3. Changes in ‘COMPANY’ real estate and office strategy.
4. Provide insight into a possible change in the formulation of the metrics for portfolio management

### Subjects:

The following topics are discussed, these are accompanied with the number of the above presented goals in order to show the goal to which these belong.

1. What are the trends accelerated by COVID that affect ‘COMPANY’ and the industry?
2. A) What is the vision and mission of ‘COMPANY’. ‘INFORMATION FROM OPEN SOURCES’ Are these priorities expected to change? What is the order of importance for COVID-19 and how do you expect it to be after the pandemic?  
  
B) If we translate ‘COMPANY’ corporate strategy into the following "driving forces". Which points can be given to each of the "driving forces" before COVID regarding ‘COMPANY’ corporate? And does the importance of these "driving forces" change because of COVID? In which way, why?

Give points per driving force;  
0 points -> not applicable  
1 point -> less important  
2 points -> important  
3 points -> very important

Driving force 'COMPANY'	'COMPANY' defines business on	Before Covid	After Covid
Products offered	products and products similar to existing ones		
Market needs	provide for specific need of a market segment		
Technology	developing services and products derived from technical expertise		
Production capability	provide services/products that are possible from the production capabilities		
Method of sale	provide services / products that can be sold by convincing the consumer		
Method of distribution	provide services / products that are possible through the distribution system		
Natural resource	provide services / products that are generated from control and use of particular resources		
Size/growth	provide services / products that meet the size or growth objectives		
Return/profit	provide services / products that will meet the targeted return or profit measures		

3. A) How can 'COMPANY' real estate strategy and more specific the office strategy be described? What does the office portfolio look like?
3. B) Looking at the changes as indicated in the previous table, are these expected to have an impact on the real estate strategy, why and how?
3. C) Could you rate the extent to which the following 25 items are applied? Which points can be given to each of these items before COVID? And does the importance of these items change because of COVID? In other words how important are these items to manage the office portfolio, what are examples?

0 points not applicable

1 point -> limited

2 points -> fair to a lot

3 points -> intensive



Added value	Measurable item	Before Covid	After Covid
Increasing productivity	Selection of location		
	Innovative workplaces		
	Retaining human capital		
Cost reduction	Workplace costs		
	Accommodation costs		
	Facility costs		
	Benchmarking		
	Corporate finance		
Managing risk	Inflexibility of real estate portfolio		
	Selection of location		
	Value risk		
	Working environment		
	Environmental aspects		
Increase value	Development process		
	Acquisition and disposal of real estate		
	Redevelopment of real estate		
	Market analysis		
Increase flexibility	Organisational flexibility		
	Financial flexibility		
	Technical flexibility		
Cultural support	Workplace innovation		
	Communication		
PR & Marketing support	Image		
	Selling points		
	Sales strategy		

4. What are the most important metrics used in 'COMPANY' portfolio management? Are there changes in the formulation or value of the metrics?

## Appendix B      Scoring table all case studies

Due to confidentiality reasons Appendix B is not included in this report.

## Appendix C Driving forces – multi-case study

Scoring table of importance of driving forces for all case studies pre- and post-COVID

		Driving forces								
		Products offered	Market needs	Technology	Production capability	Method of sale	Method distribution	Natural resource	Size / growth	Return / profit
		←	→	↔	↔	↔	↔	↔	↔	↔
Electrotechnical	←	2	2	2	2	2	2	2	2	2
	→	2	2	2	3	2	3	2	2	2
	↔	0	0	0	1	0	1	0	0	0
Engie	←	2	2	2	2	2	2	2	2	3
	→	3	3	3	3	2	2	2	3	3
	↔	1	1	1	1	0	0	0	1	0
Vattenfall	←	2	2	2	2	2	2	3	2	2
	→	2	2	2	2	3	2	3	2	2
	↔	0	0	0	0	1	0	0	0	0
Philips	←	2	3	3	1	2	2	1	3	3
	→	2	3	3	3	2	3	3	3	3
	↔	0	0	0	2	0	1	2	0	0
ING	←	-	-	-	-	-	-	-	-	-
	→	-	-	-	-	-	-	-	-	-
	↔*	-	-	?	-	-	-	-	-	-
RVB	←	2	2	2	2	2	-	-	-	-
	→	3	3	3	3	3	-	-	-	-
	↔	1	1	1	1	1	-	-	-	-
JLL	←	2	3	3	0	2	2	2	3	3
	→	2	3	3	0	3	3	3	3	3
	↔	0	0	0	0	1	1	1	0	0
RHDHV	←	3	2	2	2	1	-	-	2	3
	→	3	2	3	2	1	-	-	1	3
	↔	0	0	1	0	0	-	-	0	0
Security	←	3	-	2	2	-	-	-	-	-
	→	3	-	3	2	-	-	-	-	-
	↔	0	-	1	0	-	-	-	-	-



















Legend:

←	Score before covid	→	Score after covid	↔	Percentage change in importance before / after covid	< 30% decrease	< 30% increase	> 30% increase
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\* Interviewees could not comment on corporate strategy, indicated no change due to Covid. Reports indicated the following change

## Appendix D Added values – multi-case study

Scores translated into percentages of importance of added values for all case studies pre-COVID and post-COVID

		Added values							
		←	Increasing productivity	Cost reduction	Risk control	Increase of value	Increase of flexibility	Supporting culture	PR & Marketing
	←	66%	73%	61%	59%	56%	33%	78%	
	→	89%	93%	78%	83%	78%	67%	78%	
		23%	20%	17%	24%	22%	34%	0%	
	→	55%	67%	50%	42%	67%	50%	67%	
	←	89%	67%	75%	50%	100%	83%	100%	
		34%	0%	25%	8%	11%	33%	33%	
	←	89%	47%	78%	0%	67%	100%	100%	
	→	100%	47%	89%	0%	89%	100%	100%	
		11%	6%	11%	0%	22%	0%	0%	
	←	89%	60%	73%	58%	50%	67%	67%	
	→	89%	67%	93%	58%	100%	83%	67%	
		0%	7%	20%	0%	22%	16%	0%	
	←	78%	53%	73%	33%	44%	67%	56%	
	→	89%	80%	80%	50%	56%	100%	56%	
		11%	27%	7%	17%	12%	33%	11%	
	←	67%	100%	100%	67%	67%	67%	67%	
	→	100%	83%	93%	83%	78%	100%	67%	
		33%	17%	0%	16%	11%	33%	0%	
	←	56%	67%	33%	0%	56%	50%	67%	
	→	89%	100%	80%	0%	89%	83%	89%	
		23%	33%	47%	0%	33%	33%	22%	
	←	67%	40%	67%	0%	56%	100%	67%	
	→	89%	33%	83%	0%	44%	100%	100%	
		21%	7%	16%	0%	12%	0%	33%	
	←	56%	67%	73%	59%	33%	67%	67%	
	→	56%	42%	73%	59%	44%	100%	100%	
		0%	25%	0%	0%	11%	33%	33%	

Legend:

← Score before covid

→ Score after covid

□ Percentage change in importance before / after covid

  < 30% decrease  
  < 30% increase  
  > 30% increase

## Appendix E Change scores per case study

Scoring table quantitative selection method per case study

### Electrotechnical

Electrotechnical		Added values		Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
				Change in importance	23%	20%	17%	24%	22%	34%
Driving forces	Expected score post-Covid		.....	.....	.....	.....	.....	.....	.....	.....
Products offered	2	.....	46%	40%	34%					
Market needs	2	.....			34%		44%			0%
Technology	2	.....	46%		34%		44%	68%		
Production capability	3	.....	69%		51%					
Method of sale	2	.....	46%		34%	48%				
Method of distribution	3	.....			51%					0%
Natural resource	2	.....		40%	34%					0%
Size/growth	2	.....			34%					0%
Return/profit	2	.....		40%	34%	48%				
			.....	.....	.....	.....	.....	.....	.....	.....
Average change score per added value:			52%	40%	38%	48%	44%	68%	0%	
Normalized change score per added value:			76%	59%	56%	71%	65%	100%	0%	

### Engie

Engie		Added values		<div><div>Productivity</div><div>Costs</div><div>Risk</div><div>Value</div><div>Flexibility</div><div>Culture</div><div>PR &amp; Marketing</div></div>							
		Change in importance		34%	0%	25%	8%	11%	33%	33%	
Driving forces	Expected score post-Covid										
Products offered	3	.....		102%	0%	75%					
Market needs	3	.....				75%		33%		99%	
Technology	3	.....		102%		75%		33%	99%		
Production capability	3	.....		102%		75%					
Method of sale	2	.....		68%		50%	16%				
Method of distribution	2	.....				50%				66%	
Natural resource	2	.....			0%	50%				66%	
Size/growth	3	.....				75%				99%	
Return/profit	3	.....			0%	75%	24%				
Average change score per added value:				94%	0%	67%	20%	33%	99%	83%	
Normalized change score per added value:				94%	0%	67%	20%	33%	100%	83%	

## Vattenfall

Vattenfall		Added values		Added values						
				Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
Change in importance		11%	6%	11%	0%	22%	0%	0%		
Driving forces	Expected score post-Covid	*****	*****	*****	*****	*****	*****	*****		
Products offered	2	*****	22%	12%	22%					
Market needs	2	*****			22%		44%	0%		
Technology	2	*****	22%		22%		44%	0%		
Production capability	2	*****	22%		22%					
Method of sale	3	*****	33%		33%	0%				
Method of distribution	2	*****			22%			0%		
Natural resource	3	*****		18%	33%			0%		
Size/growth	2	*****			22%			0%		
Return/proft	2	*****		12%	22%	0%				
Average change score per added value:		*****	25%	14%	24%	0%	44%	0%	0%	
Normalized change score per added value:		*****	56%	32%	56%	0%	100%	0%	0%	

## Philips

Philips		Added values							
			Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
		Change in importance	0%	7%	20%	0%	22%	16%	0%
Driving forces	Expected score post-Covid		*****	*****	*****	*****	*****	*****	*****
Products offered	2	*****	0%	14%	40%				
Market needs	3	*****			60%		66%		0%
Technology	3	*****	0%		60%		66%	48%	
Production capability	3	*****	0%		60%				
Method of sale	2	*****	0%		40%	0%			
Method of distribution	3	*****			60%				0%
Natural resource	3	*****		21%	60%				0%
Size/growth	3	*****			60%				0%
Return/profit	3	*****		21%	60%	0%			
Average change score per added value:			0%	19%	56%	0%	66%	48%	0%
Normalized change score per added value:			0%	28%	84%	0%	100%	73%	0%

## ING

ING		Added values							
			Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
		Change in importance	11%	27%	7%	17%	12%	33%	-12%
Driving forces	Expected score after Covid								
Products offered	2	*****	22%	54%	14%				
Market needs	2	*****			14%		24%		-24%
Technology	3	*****	33%		21%		36%	99%	
Production capability	2	*****	22%		14%				
Method of sale	2	*****	22%		14%	34%			
Method of distribution	2	*****			14%				-24%
Natural resource	2	*****		54%	14%				-24%
Size/growth	2	*****			14%				-24%
Return/profit	2	*****		54%	14%	34%			
Average change score per added value:			25%	54%	15%	34%	30%	99%	-24%
Normalized change score per added value:			25%	55%	15%	34%	30%	100%	-24%

## RVB

RVB		Added values							
			Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
		Change in importance	33%	-17%	0%	16%	11%	33%	0%
Driving forces	Expected score post-Covid								
Products offered	3	*****	99%	-51%	0%				
Market needs	3	*****			0%		33%		0%
Technology	3	*****	99%		0%		33%	99%	
Production capability	3	*****	99%		0%				
Method of sale	3	*****	99%		0%	48%			
Method of distribution	-	*****							
Natural resource	-	*****							
Size/growth	-	*****							
Return/profit	--	*****							
Average change score per added value:			99%	-51%	0%	48%	33%	99%	0%
Normalized change score per added value:			100%	-52%	0%	48%	33%	100%	0%

## JLL

JLL		Added values							
			Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
		Change in importance	23%	33%	47%	-	33%	33%	22%
Driving forces	Expected score post-Covid								
Products offered	2	*****	46%	66%	94%				
Market needs	3	*****			141%		99%		66%
Technology	3	*****	69%		141%		99%	99%	
Production capability	0	*****	0%		0%				
Method of sale	3	*****	69%		141%				
Method of distribution	3	*****			141%				66%
Natural resource	3	*****		99%	141%				66%
Size/growth	3	*****			141%				66%
Return/proft	3	*****		99%	141%				
Average change score per added value:			46%	88%	120%		99%	99%	66%
Normalized change score per added value:			38%	73%	100%		82%	82%	55%

## RHDHV

RHDHV		Added values		Added values						
				Productivity	Costs	Risk	Value	Flexibility	Culture	PR & Marketing
Change in importance		21%	7%	16%	-	12%	0%	33%		
Driving forces	Expected score post-Covid	*****	*****	*****	*****	*****	*****	*****		
Products offered	3	*****	63%	21%	48%					
Market needs	2	*****			32%		24%	66%		
Technology	3	*****	63%		48%		36%	0%		
Production capability	2	*****	42%		32%					
Method of sale	1	*****	21%		16%					
Method of distribution	-	*****								
Natural resource	-	*****								
Size/growth	2	*****			32%			66%		
Return/proft	3	*****		21%	48%					
Average change score per added value:		*****	47%	21%	37%		30%	0%	66%	
Normalized change score per added value:		*****	72%	32%	55%		45%	0%	100%	



## Security

Security		Added values		Productivity						
				Costs	Risk	Value	Flexibility	Culture	PR & Marketing	
		Change in importance	0%	-25%	0%	0%	11%	33%	33%	
Driving forces	Expected score post-Covid									
Products offered	3	*****	0%	-75%	0%					
Market needs	-	*****								
Technology	3	*****	0%		0%		33%	99%		
Production capability	2	*****	0%		0%					
Method of sale	-	*****								
Method of distribution	-	*****								
Natural resource	-	*****								
Size/growth	-	*****								
Return/profit	-	*****								
Average change score per added value:			0%	-75%	0%		33%	99%		
Normalized change score per added value:			0%	-76%	0%		33%	100%		

## Appendix F Case studies

Due to confidentiality reasons Appendix F is not included in this report.