T. Fierens

Bridging the fit-out gap

Exploring the relationship between tenants and landlords to enable circular practices in office buildings

TU Delft

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Exploring the relationship between tenants and landlords to enable circular practices in office buildings

By

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TU Delft

Abstract

Sustainable development faces substantial challenges, with the built environment emerging as a major contributor to resource consumption. Office retrofitting, commonly known as changing the office fit out, is a common process in corporate real estate and accentuates these challenges due to its linear model of extraction, production, consumption, and disposal of building materials. This model leads to considerable waste and greenhouse gas emissions. This research examines the inefficiencies of the current linear model and explores transitioning to a circular office fit-out, which aims to minimise resource use and waste. The study focuses on the tenant-landlord relationship in corporate real estate, as these stakeholders are crucial for enabling circular fit-outs. The research question addressed is: “How can the tenant-landlord relationship facilitate the process from a traditional to a circular fit-out in office buildings?” Mixed methods, including literature review, case study documentation, and interviews, were used. What was found was that the relationship can enable circular practices if the stakeholders show positive behaviour, expertise, commitment, share information and communicate well, have a promoting business strategy around the fit-out product, and are pushed by society. Furthermore, the lease agreement showed to be crucial, and could enable circular practices even more than the actual fit-out design. Although these mentioned relationship determinants and arrangements are important, the research showed it is important to recognise the stakeholders individual responsibility towards circular practices. The research concludes with recommendations towards each stakeholder.

KEYWORDS – tenant, landlord, relationship, circularity, office, fit-out

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Tim Fierens

Delft, June 2024

Contents

Circularity is really a thing of recent years, before that it was just a matter of savings.

Expert interview (15)

1. Introduction

1.1. Problem exploration

Use of resources is one of the biggest challenges to sustainable development. The built environment is currently the industry with the highest resource demands in industrialized nations (Giljum et al., 2016). The industry utilises 50% of all materials consumed in Europe (Herczeg et al., 2014), produces 36% of all waste in the European Union (Eurostat, 2021) and 39% of our global greenhouse gas emissions (Abergel et al., 2019) as a result due to its linear model: we extract, produce, consume, and dispose building materials and resources.

The consequences of this linear model are particularly evident in the extensive environmental impact of office retrofitting. Office retrofitting , commonly known as changing the office fit-out, is concerned with the scenery and settings of workplace space. As noted by Krumm et al. (2000), the workplace is an important element for corporations that should be aligned with the needs of the core business. Corporations must ensure that the scenery and settings of their offices are in harmony with other organisational elements. Consequently, a common choice among corporations is to construct entirely new offices sceneries to achieve optimal alignment with their organisational goals. Since office retrofits are typically performed every 5 years (Savills, 2023), this results in a shorter lifecycle of an office fit-out compared to the potential materials' design life and, in most cases, a continuous flux of waste (Arup, 2022).

Office retrofitting thus result in substantial waste generation, with studies indicating high figures of over 6 tonnes of waste per 100m^2 when changing an office fit-out (BBP, 2018; Fini & Forsythe, 2020). The inefficiencies in this process not only burden the environment but also pose economic challenges for organisations (Verhoeff et al., 2014). As a result, the increasing frequency of office retrofits, as highlighted by Fini and Forsythe (2020), necessitates a shift towards a more circular strategy to optimise processes and mitigate material and resources waste.

In this context, a circular office fit-out presents itself as a promising catalyst for change. Unlike the traditional linear model, the circular model aims to minimise resource input and prevent resource losses (Geissdoerfer et al., 2017). A circular office fit-out is designed and operated based on the circular economy principles, aiming to keep the materials in the fit-out at their highest value at all times (Baccarini & Bateup, 2008; Reike et al., 2018).

Recognising the corporate real estate (CRE) industry's impact on resource use, waste creation, and greenhouse gas emissions necessitates a rethinking of current practices. The difficulty is systemic, requiring a holistic approach to Corporate Real Estate Management (CREM) to support sustainability. Stakeholders are critical to the success of a circular fit-out deployment. The degree of support for the transition to a circular fit-out depends on how the primary stakeholders relate to one another.

1.1. Problem statement

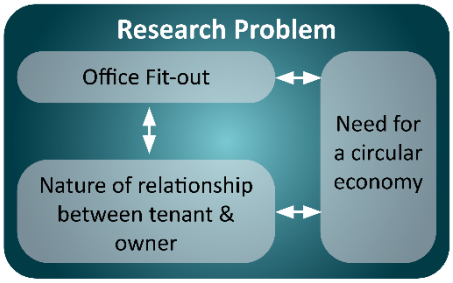

Figure 1.1. Problem statement *(author, 2024)*

The relationship between tenants and landlords is a critical factor in the transition from traditional to circular fit-outs in office buildings. This transition involves a fundamental shift in the fit-out process, emphasizing sustainability, waste reduction, and resource efficiency. However, the tenant-landlord relationship is multifaceted, involving formal and informal arrangements that can either facilitate or hinder the adoption of circular fit-outs (Axon et al., 2012; Rasila, 2010). There is a need to understand the dimensions, determinants and arrangements of this relationship. In this manner, the partnership might guide toward the much-needed transition. After all, they are the two primary players and have the ability to make or break the transition.

This shift can only be properly guided if the distinctions in process between traditional and circular fit-outs are understood. To guarantee a successful adoption, the challenges and opportunities connected with circular fit-outs must be identified. These challenges and opportunities influence the structuring of formal and informal arrangements between tenants and landlords.
Addressing these dynamics and aligning the interests of tenants and landlords is essential for a successful transition to circular fit-outs. The research aims to explore these aspects comprehensively and provide insights into that can facilitate a circular approach in the office fit-out process.

1.2. Relevance

Societal relevance

This research looks at the importance of sustainable development in the built environment, for which there is a great need as set out in several of the 17 Sustainable Development Goals (SDGs), such as SDG 12 *Responsible Consumption and Production* and SDG 11 *Sustainable Cities and Communities* (United Nations, n.d.). The focus is on material consumption during the use phase of corporate real estate. Given the frequency with which office fit-outs are changed, this leads to huge material consumption and waste that needs to be reduced. Circular office fit-outs are a promising alternative.
The transition to circular fit-out brings challenges, but can bring long-term economic benefits, such as cost savings and waste reduction. In essence, the research highlights the interplay of sustainability, responsible consumption, economic benefits and understanding stakeholder relationships in building a more sustainable society.

Scientific relevance

The research focuses on circularity in the built environment during the use phase to develop recommendations that promote sustainability and increase scientific understanding of resource consumption. While there is a reasonable amount of scientific literature on e.g. energy consumption during the use phase of buildings, there is only limited literature on material consumption. To the best of this author's knowledge, there is no scientific literature at all on the specific concept of a circular fit-out. Hence, this exploratory research is relevant to discover the specifics of corporate office fit-outs and their much needed transition to a circular economy. The research aims to do so by deepening the understanding of the tenant-landlord relationship in corporate real estate, adding depth to the understanding of the stakeholder aspects of circularity.

1.3. Research questions

To address the dynamics in the tenant-landlord relationship, the following main research question will be answered in this research:

How can the tenant – landlord relationship facilitate the process from a traditional to a circular fit-out in office buildings?

The sub-questions aim to break up and understand specific aspects of the main question, each serving its own purpose and requiring different research methods. Together, they contribute to answering the main research question.

SQ1. Circular fit-out: How does a circular fit-out differ from a traditional fit-out?

Purpose	To define a traditional fit-out and how it differs from circular office fit-out.
Method	A literature review
Answer	Chapter 2

SQ2. Relationship: What defines the tenant-landlord relationship in corporate real estate?

Purpose	To define and identify the arrangeable and non-arrangeable elements of the tenant-landlord relationship.
Method	A literature review
Answer	Chapter 2

SQ3. Process: What challenges and opportunities are linked to the adoption of circular fit-outs?

Purpose	To identify the challenges and opportunities associated with implementing circular practices in office fit-outs
Method	Case study documentation, semi-structured interviews and expert validation
Answer	Chapter 4

SQ4. Determinants: What are the determinants between tenant and landlord that enable circular practices in office fit-outs?

Purpose	Identify the relationship determinants (non-arrangeable) from SQ2 that mitigate the challenges or enable the opportunities identified in SQ3.
Method	A cross-case analysis, generic analysis and expert validation
Answer	Chapter 6

SQ5. Improve: What formal and informal arrangements between tenants and landlord can promote circular fit-outs?

Purpose	Identify the relationship arrangements from SQ2 that mitigate the challenges or enable the opportunities identified in SQ3.
Method	A cross-case analysis, generic analysis and expert validation
Answer	Chapter 6

Figure 1.3. is a graphic representation of the main concepts:

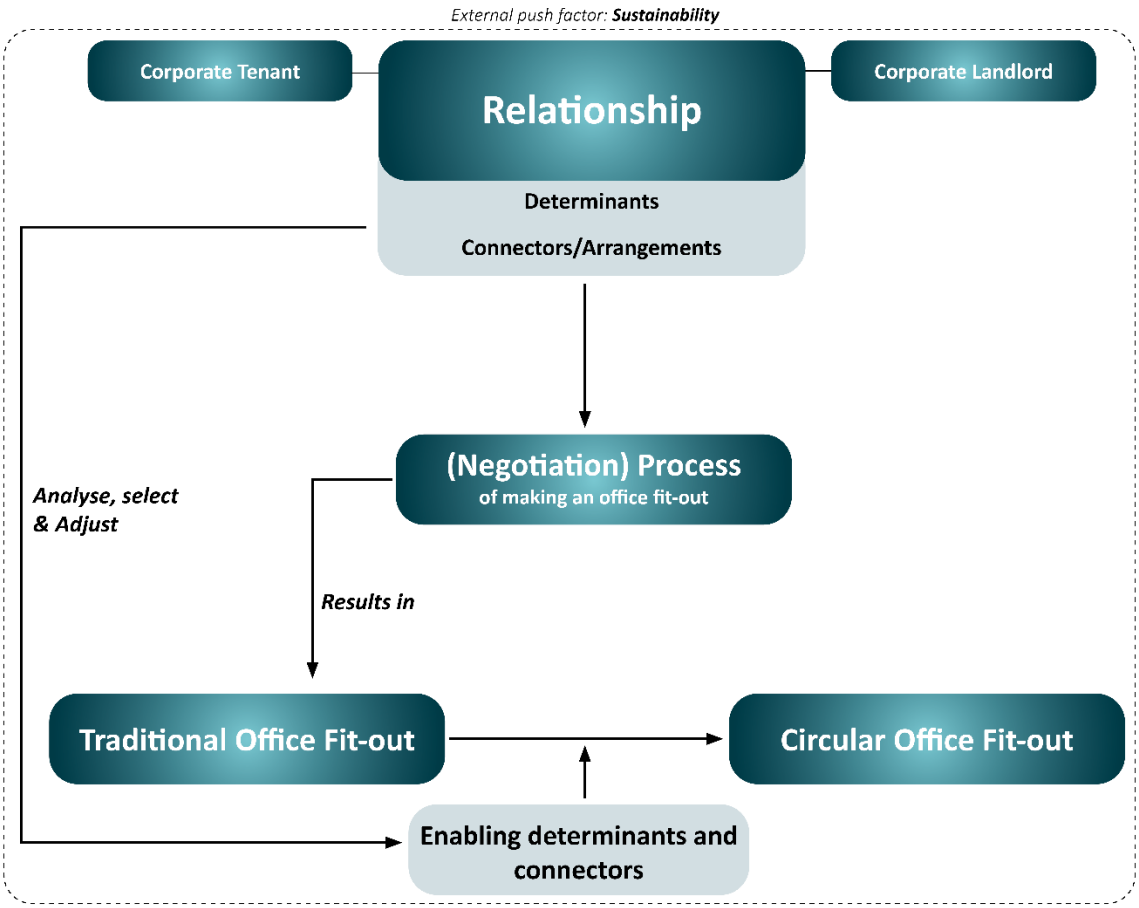

Figure 1.3. Conceptual Framework *(author, 2024)*

1.4. Research design

To answer the research questions, an **exploratory qualitative research** approach was chosen. The research consists of a theoretical and empirical part. The aim was to identify the formal and informal arrangements made between the tenant and landlord that promote the transition to circular practices in office fit-outs. Qualitative research methodologies were most appropriate for this research because it examines processes and the (inter)relationships of the stakeholders. Qualitative research methods allow this research to explore these social actor's meanings and interpretation, and for the researcher to become an 'insider' and to discover the social actor's culture and worldviews (Blaikie & Priest, 2018). The qualitative research methods in this research were a literature review, cross-case analysis, semi-structured interviews and an expert meeting.

The research was structured into three distinct phases: a desk research phase, an empirical research phase, and a validation and synthesis phase. Figure 1.4.1. illustrates the research methodology framework, outlining each phase in terms of the methods selected, the data collection techniques used, their connection to each research question, and the anticipated outcomes.

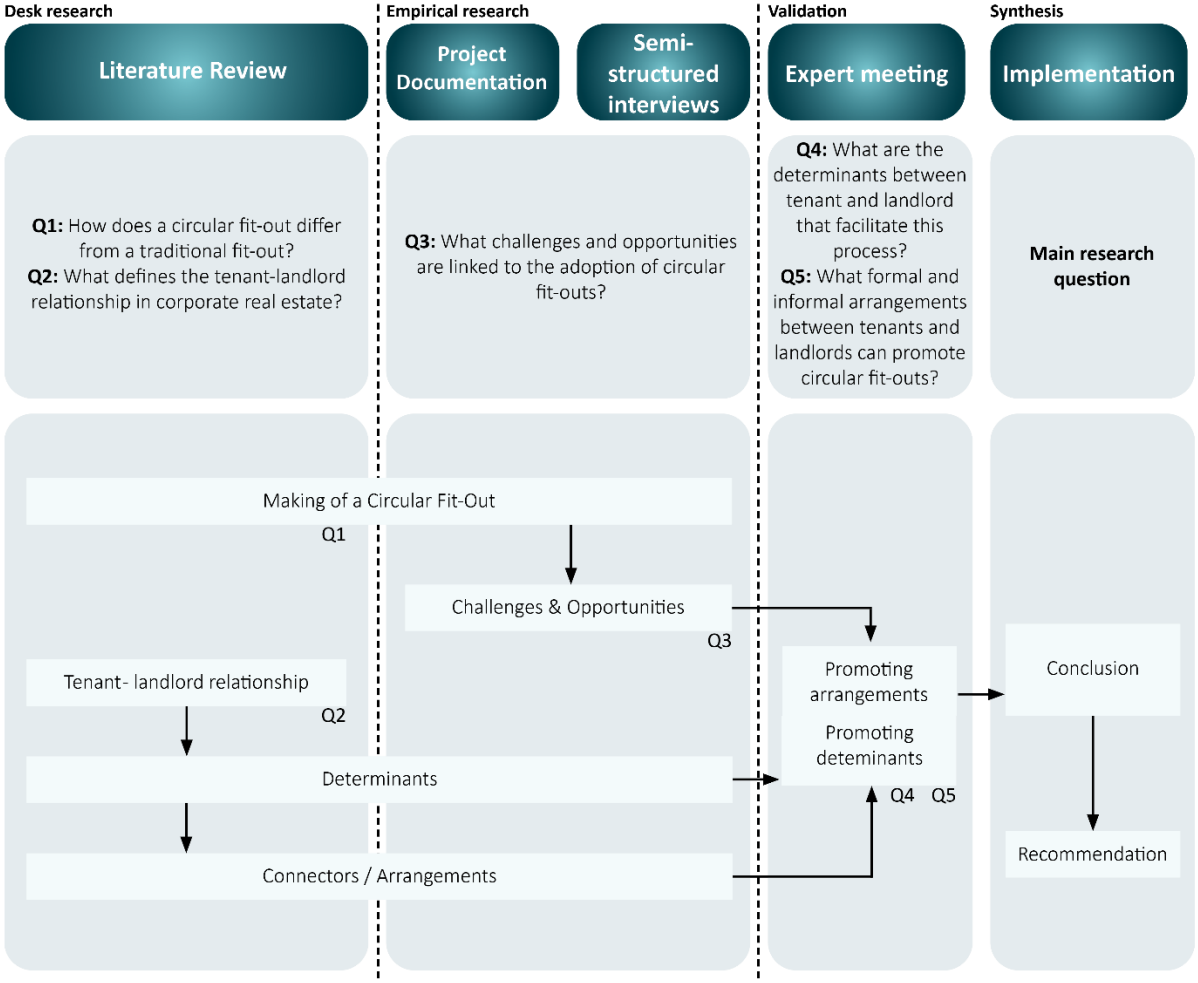

Figure 1.4.1. Research methodology framework (author, 2024)

Phase 1 – Desk research:

The research begins with a literature review to determine the state of the art. Analysing the tenant-landlord relationship necessitates a thorough understanding of what is already known. The purpose of this literature study is to get a better understanding of two topics: a circular office fit-out and the tenant-landlord relationship in corporate real estate and answer the corresponding research questions (SQ1 & SQ2). The results of the literature review are used as input for the subsequent phases of the research.

Phase 2 – Empirical research:

The second phase of the research is empirical, focusing on preliminary addressing research questions SQ3 and partly SQ4 and SQ5. This phase involves researching case studies of office fit-outs with semi-structured interviews and project documentation serving as the primary research method. These interviews provide direct insights into the tenant-landlord dynamics, helping to clarify the relationship determinants and connectors previously identified in the literature. Additionally, the interviews help reveal the various challenges and opportunities associated with creating a partially circular office fit-out.

Phase 3 – Validation & Synthesis:

The third and final phase involves validating and synthesizing the findings. This phase includes a cross-case analysis, a generic analysis and expert validation, leading to their synthesis (SQ4 & SQ5). This phase also includes validating the results of SQ3. Ultimately, this phase produces two main outcomes: a list of tenant-landlord arrangements (connectors) and relationship determinants that enable circular practices in office-fits outs. These outcomes collectively address the primary research question. Table 11 shows the research method that are used per sub research questions.

RESEARCH QUESTION	LITERATURE STUDY	PROJECT DOCUMENTATION - INTERVIEWS	EXPERT MEETING
SQ1: How does a circular fit-out differ from a traditional fit-out?	✓		
SQ2: What defines the tenant-landlord relationship in corporate real estate?	✓		
SQ3: What challenges and opportunities are linked to the adoption of circular fit-outs?		✓	✓
SQ4: What are the determinants between tenant and landlord that facilitate this process?	✓	✓	✓
SQ5: What formal and informal arrangements between tenants and landlord can promote circular fit-outs?	✓	✓	✓

Table 1.4.2. Applied research methods per research question (author, 2024)

1.5. Scope

The research is limited to analysing finished partial circular office fit-out projects. The fit-out consists of the stuff layer, space plan layer and to a certain extent the services layer, based on the shearing layers concept by Brand (1994). As far as the stakeholder analysis is concerned, this will be limited to two the main stakeholder (tenant-landlord), but the third main actor, the service provider (project manager of the fit-out) is taken into account.

The circular fit-out process will thus be studied and approached from the perspective of these three main actors. Their relationship and the arrangements made between them are the focus of this research.

Although the process consists of 4 stages, as seen below, this research mostly focuses on the first stage of the strategic definition of the project, as most carbon reduction potential and circularity implementation can be gained in this phase. This is also the phase with the most intense interactions between the two main stakeholders. The carbon reduction potential reduces dramatically during the next stages, but it still remains relevant to keep the tenant – landlord relationship in mind in these phases, especially in relation to the third actor (the service provider).

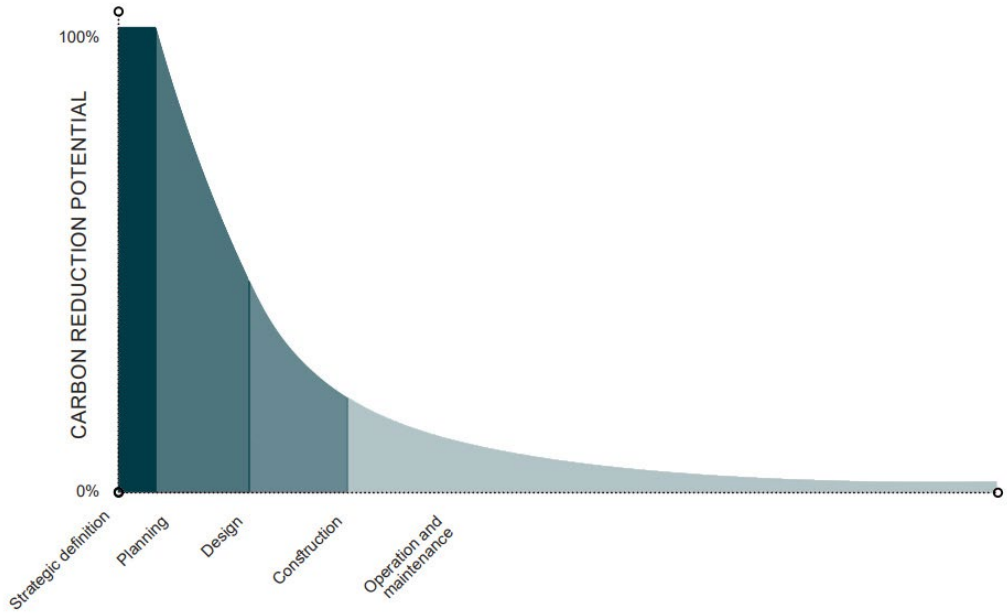

Figure 1.5. Carbon reduction potential of fit-outs *(adapted from Arup, 2022)*

1.6. Goals and objectives

This research aims to deepen the understanding and knowledge of circular practices in office fit-outs. In doing so, it aims to identify the challenges and opportunities related to the adoption of circularity in office fit-outs. More specifically, the goal is to identify the arrangements (connectors) and determinants in the tenant-landlord relationship that facilitate the transition to a circular office fit-out. Lastly, the goal is to determine which stakeholder is suited to tackle a specific opportunity or challenge.
In basic research, to deepen the understanding is to establish reasons for particular social action, these reasons being derived from the ones given by social actors (Blaikie & Priest, 2018). In this research, these social actors are the stakeholders around the circular office fit-out

Based on the above, this study concludes with an answer to the main research question - *How can the tenant – landlord relationship facilitate the process from a traditional to a circular fit-out in office buildings?* – and recommendations regarding the formal and informal arrangements between tenants and landlords that facilitate the adoption of circular office fit-outs.

1.7. Dissemination and audiences

The findings of this research will be particularly useful for the stakeholders involved in this process. Firstly, the landlord and tenant, and secondly, the fit-out partner. Depending on who wants to implement a circular design, the list of responsibilities can help facilitate the process. Moreover, the list of relationship determinants and connectors can help stakeholders understand their own relationship. Furthermore, this research is aimed at academics and professionals in the field. Additional research can help making the building operations and management more sustainable, especially regarding materials.

In summary, this research offers valuable insights into the relationship between tenant and landlord and their potential contribution to a more circular economy. It is therefore also of interest to all parties committed to promoting a more circular built environment.

2. Literature study

Through an examination of both academic and non-academic literature, this review will present and define some key features of the research. A list of relationship determinants and connectors (arrangeable and non-arrangeable elements) will be produced as a consequence of the review's definitions and knowledge. Determining the nature of the tenant-landlord relationship is crucial to facilitate the process of a circular fit-out.

In order to identify the connectors in the fit-out process and modify the process for circularity implementation, it is essential to have a thorough understanding of the connectors between the tenant and the landlord. It is crucial to note that the literature review is far from complete and that, in light of the problems that emerge during the research stage, the upcoming chapters require more in-depth reading and writing.

2.1. Circular Office Fit-Out

This section will try to answer the sub-question 1: How does making a circular fit-out differ from a traditional fit-out?

2.1.1. Context: Corporate Real Estate (CRE) & Corporate Real Estate Management (CREM)

Corporate Real Estate (CRE) refers to the real estate necessary to conduct business—the bricks and mortar of office buildings, manufacturing plants and distribution centres, retail stores, and similar facilities. It can include owned or leased space, buildings, and infrastructure (Corenet Global, 2015). Corporate real estate is recognized as a significant investment. In many corporations, real estate stands as the second-largest expenditure after personnel (Verhoeff et al., 2014).

Corporate Real Estate Management (CREM) is the management of a corporation's real estate portfolio by aligning the portfolio and services to the needs of the core business (processes), in order to obtain maximum added value for the business and to contribute optimally to the overall performance of the corporation (Krumm et al., 2000). Originally centred on providing physical spaces for corporate operations, the role of CREM has evolved. Beyond creating workplaces and identifying suitable locations, CREM now extends to enhancing organization productivity through workplace solutions, developing internal culture, and managing waste throughout the property life cycle, all contributing to organizational goals (Omar & Heywood, 2014).

2.1.2. Definition of an office fit-out

An office building's primary goal is to create a suitable workplace. An office or workplace is one of the CREM strategic elements, as it is a key contribution to knowledge creation and transfer within the organisation. It directly impacts organizational performance and employee productivity (Haynes et al., 2017). Creating an attractive and well-facilitated workplace is essential for attracting and retaining top talents (Arentze et al., 2019). Shaping an office involves considering both macro and micro decision-making factors to meet organizational demands. Macro factors include determining the location of the head office, such as the country or city, while micro factors pertain to office-related aspects like specifications, environment, and layout (Haynes, 2012). A varied range of office space planning designs have been developed over the years to accommodate diverse individual and organizational needs (Baccarini & Bateup, 2008). Office space design (or office fit-out design) can be characterised by the six shearing layers of Brand (1994):

1. Site
2. Structure
3. Skin
4. Services
5. Space plan
6. Stuff

An office fit-out is concerned with the two most inner layers; the space plan layer and the stuff layer. The interior layout, which includes partitions, ceilings, floors, and doors, as well as all finishes, is referred to as the space plan layer. The stuff layer includes all fixtures, furniture, and equipment such as chairs, desks, lighting, and so on (Baccarini & Bateup, 2008). A fit-out may sometimes extend to a third layer, the service layer. This layer includes all wiring, plumbing, HVAC, as well as elevators and escalators (Brand, 1994). Within the scope of an office fit-out, the services layer tends to be limited to all office-specific electrical, communications wiring and HVAC installations. Furthermore, the structure layer and skin layer are often defined by vast and open spans that allow for any form of fit-out, so that modifying or changing the fit-out does not influence the primary structure of the building (Forsythe & Wilkinson, 2015). The office fit-out hence is concerned with the scenery and settings of workplace space. It converts the building structure into office space. Individual workspace areas, support spaces (such as meeting rooms, conference rooms, waiting areas, storage, and so on), and circulation space are all part of an office fit-out. Office fit-out projects often include the design and installation of the interior walls, workstations, furniture, and specialized joinery (Baccarini & Bateup, 2008).

It is also important to clarify the difference between an office fit-out, an office retrofit and an office refurbishment. As mentioned above, an office fit-out is the scenery and setting of a workspace. A fit-out project is initially undertaken in the late stages of building construction. If a fit-out is replaced or modified during the use phase of a building, it can be referred to as an office retrofit. The definition of a retrofit is to install new or modified parts or equipment in something previously manufactured or constructed (Merriam-Webster, n.d.). In the built environment, it usually refers to interventions to adjust, reuse, or upgrade a building to suit new conditions or requirements (Wilkinson, 2012). Building retrofitting is commonly used in relation to lowering carbon footprints, decreasing energy consumption, and improving occupant happiness (Forsythe & Wilkinson, 2015; Gou, 2016). However, tenants usually do not have full control over the building when it comes to retrofitting. Therefore, interior retrofitting is a common way for tenants to redesign their spaces (Gou, 2016). Interior retrofitting in this research will be referred to as office retrofit, as it involves improving one or two layers of the building, but not all.
An office refurbishment has a broader scope, and is most likely to be initiated on the owner's behalf. According to the RICS, refurbishment is defined as the extensive repair, renewal and modification of a building to meet economic and/or functional criteria equivalent to those required of a new building for the same purpose (Mansfield, 2002). It covers works that involve renovation, upgrading, retrofit, improvement, and repair of existing and occupied buildings. Hence, an office refurbishment covers almost all layers of the building.

2.1.3. Components of a fit-out

Based upon the definition of an office fit-out (2.1.2.), the components of a fit-out can be divided according to the layers of Brand (Arup, 2022; Baccarini & Bateup, 2008; 1994; Envision, 2021):

Space Plan Layer:

- Flooring

- Partitions, internal walls
- Doors
- False ceiling
- Wall cladding

Stuff Layer:

- Furniture
- Secondary flooring
- Lightning and ICT
- Proptech
- (Branded) Materials and décor
- Kitchen, lavatory

Services Layer:

- Electronical and communications wiring, installation technics

Some components overlap between 2 layers, such as, for example, technological hardware, which can be attributed to both the stuff layer and the services layer.

2.1.4. Categories of an office fit-out

There are four classifications of fit-outs, summarizing the different stages of completion and modification of office spaces: Shell and Core, Category A, Category A+ and Category B.

1. The shell and core fit-out is the basic stage of building customisation, focusing on the structure layer and skin layer of a building. It also includes parts of the services layer, but only the essential services like electrical and plumbing. The goal is to create a flexible space for various tenant needs. Category A and above fit-out levels indicate the finishing and functionality required for occupancy when negotiating with an owner/operator.
2. The category A fit-out (CAT A) is the owner-provided base condition of an office space, covering essential infrastructure and finishes for occupancy. It includes crucial services like electrical distribution and HVAC systems, along with basic finishes such as raised floors and suspended ceilings. CAT A creates a functional environment, serving as a blank canvas for tenants to customize according to their needs (Envision, 2021).
3. The category A+ fit-out, also known as Plug and Play, is an owner-offered fit-out category between CAT A and CAT B. It includes features like meeting rooms, furniture, workstations, and IT infrastructure, offering a ready-to-use office for tenants with minimal adjustments and costs. However, it lacks a personalised finish tailored to the occupier's brand (Leiper, 2023).
4. The Category B fit-out (CAT B) customises the office space to meet tenant-specific needs, transforming the CAT A base into a fully tailored working environment. It includes constructing partitions for rooms, meeting areas, and break rooms, with upgrades to services like IT infrastructure and specialized lighting (CBRE, 2022). Aesthetics and branding are emphasized in CAT B, as it features interior finishes aligned with the tenant's vision. The tenant typically undertakes and finances CAT B fit outs with the owner’s approval (Leiper, 2023).

Some authors also mention a Category C (CAT C) fit-out, but this remains conceptual (Envision, 2021; Paterson, 2023). The idea is that Cat C fit-outs match Cat B fit-outs in scope, excluding brand-specific materials/decor. The owner/operator provides and maintains the C fit-out, minimising the need for extensive renovations at the lease end. The aim is to reduce fit-out frequency and consider the

environmental impact. Additionally, Cat C fit-outs should be easily dismantled for efficient recycling or reuse during turnover. The main principle behind this rationale is the concept of the circular economy.

2.1.5. Lifespan of office fit-outs

Office fit-out projects are undertaken on a regular basis, both as a result of new office buildings being constructed and, more often than not, as a result of office retrofitting. Over the life of an office building, regular retrofits occur to accommodate shifting leases or to realign the CRE with the CREM strategic goals. Whereas a major refurbishment cycle for office buildings is projected to last 25-30 years, a far more regular retrofit cycle for office fit-out applies (Forsythe & Wilkinson, 2015).

In 2023, the length of the average UK office lease was two years and 10 months in the first quarter. Before the COVID-19 outbreak in the beginning of 2019, the average lease was nearly four and a half years (Quinio, 2023). In general, leases in mainland Europe are five years (Savills, 2023), but they get shorter every year (JLL, 2020). This does not mean a fit-out changes every five years. Tenants might renew their contract and keep their fit-out.

However, an office retrofit is not only driven by the tenant's business operational needs. Office retrofits are also driven by owner requirements of mitigating obsolescence, upgrading assets, reducing vacancy rates and improving rental income (Wilkinson & Reed, 2006). Different marketing strategies or maintenance on a global level also contribute to an increased rate of retrofit (Arup, 2022). Office grading systems also reinforce office retrofits. Office buildings are classified in an A-to-C grading system. A-grade office buildings have high-quality finishes and often command higher rental rates than B or C-grade buildings. Because the A-grade standard mandates a complete renovation of the office fit-out for the new tenants, each new lease necessitates an office retrofit (Fini & Forsythe, 2020).

Furthermore, legal stipulations, the dilapidations protocol in particular, add complexity to the retrofit cycle. It is the process in a corporate property lease's conclusion where the lessee must restore the property to its original state. As a result, it enforces the departing tenant to take down their fit-out. This includes the removal of building services, furnishings, partitions, and finishes, and the subsequent installation of the pre-lease fittings, fixtures, and finishes (RICS, 2021).

Given the above, the rate of office retrofit results a shorter lifecycle of an office fit-out compared to the potential materials' design life and, in most cases, a continuous flux of locally unmanaged waste (Arup, 2022).

2.1.6. Waste generation and management of office fit-outs

In waste management in the built environment, researchers make the distinction between construction and demolition waste (C&D) and renovation and retrofit waste (R&R) (Sommitr, 2022). An office retrofit undertaking involves both the removal of current fixtures and the installation of new ones. Essentially, a retrofit project is akin to a simultaneous demolition and new construction project. Consequently, it's generates C&D waste. Nevertheless, it's important to note that an office fit-out retrofit project deals with an existing facility, potentially requiring it to remain fully or partially operational (Li & Yang, 2014). Hence, office retrofits are classified as R&R waste, as it imposes much more constraints on both occupants and builders during the project process and consequently waste management (Li & Yang, 2014; Sommitr, 2022).

Little substantial research is available on the amount of R&R waste generated, especially on changing the office fit out (Li & Yang, 2014). An Australian study on reusing and recycling of the office fit-out stated 6,3 tonnes fit-out waste is generated for each 100m^2 of office space in Sydney. According to their findings, annual lease renewals and changes generate around 25,000 tonnes of fit-out waste every year solely from the inner city of Sydney, taking into account a substantial proportion of A-graded office space (Fini & Forsythe, 2020). This corresponds with research from Better Buildings Partnership (BBP) in the UK indicating office retrofits generating 6,2 tonnes of waste per 100m^2 (BBP, 2018). The gravity of this context prone to waste is heightened by the limited reuse and recycling of fitout demolition waste, with an recycle and reuse rate typically ranging between 20-30%. The majority, approximately 70-80%, is directed to landfill sites (Fini & Forsythe, 2020; Li & Yang, 2014; Sommitr, 2022; Waste Management Review, 2018; Yu & Mok, 2021). Efforts are made by industry associations, such as BBP, RICS, and Green Building Council, to divert office fit-out waste from unsustainable landfilling (Fini & Forsythe, 2020). Despite a targeted 80% conversion rate (reuse and recycle) of these associations, existing industry manuals like "Designing Out Waste" lack detailed guidance for office retrofits and they do not consider the waste as a recurring issue during a building's operational life.

A way to manage fit-out demolition waste is mapping out all processes and streams (Kurdve et al., 2015). The process-mapping examines the demolition operation while the building is in use, pinpointing factors that impede the sustainable deconstruction of office interiors. Conversely, the stream process can be applied to upstream and downstream processes.
The upstream perspective focuses on the office fit-out products, assessing production features that obstruct the environmentally friendly disposal of these elements (Fini & Forsythe, 2020). Especially the upstream production stage and the design factors are best perceived as enablers of effective waste management (Wang et al., 2015). Incorporating design for disassembly/deconstruction and design for reuse/recycle are strategies to reduce landfill use. These strategies focus on design, and aim to have the highest order reuse and recycling of materials (BBP, 2018; Fini & Forsythe, 2020; Wang et al., 2015).
Furthermore, downstream processes are also important to take into account too. The removal of a fit-out is directly related to the lease period, making it a construction with a short life. Downstream reuses of the fit-out thus need to be considered to extend its useful life (Fini & Forsythe, 2020).

Effective waste management, which includes all processes and flows, is emerging as an important factor in waste reduction. Integrating waste management within the broader context of the circular economy involves approaches such as closing the loop. Waste generation must be significantly decreased by 2030 in order to line with the European Circular Economy Action Plan and the EU Waste Framework Directive. The goal so far was to have recycling and reuse of non-hazardous C&D waste reaching at least 70% by weight by 2020 (European Commission, 2018). As previously noted, recycling and reuse rates for office retrofits currently vary between 20 and 30%. Important to note is also that the EU does not make the distinction between C&D and R&R waste.

2.1.7. Definition of circularity

The word circularity refers back to the circular economy (CE), a concept has a broad conceptual foundation. The fact that current definitions of a circular economy are broad and include all actions performed in a society may explain why there is no consensus among experts on how to define a circular economy (Grafström & Aasma, 2021). One of the most widespread definitions of the circular economy is the definition by the Ellen MacArthur Foundation (EMF). The EMF states that the circular economy is one that is restorative and regenerative by design, which aims to keep products,

components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles (EMF, 2013).

The circular economy is a direct response to the linear economy model of extracting, producing, consuming, and disposing building materials and resources. It attempts to answer these negative outcomes of the linear model by minimising resource input and to preventing resource losses (Geissdoerfer et al., 2017). Circularity is often characterised with reference to hierarchically ranked R-imperatives as an important operationalisation principle. Based on the work of Reike et al. (2018), 3 different loops can be identified:

First, there are the shortest loops (Refuse (R0), Reduce (R1), Resell/Reuse (R2), Repair (R3)), where products remain close to their user and function. It is the loop the closest to the consumer and producer and it can be linked to commercial or non-commercial actors involved in product life extension and prevention of waste creation. The sharing economy, repair shops, second hand buying and long lasting maintenance plans are daily life examples of these shortest loops.
Second, there are the medium-long loops (Refurbish (R4), Remanufacture (R5), Repurpose (R6)), where products are upgraded and producers are re-engaged. Medium-long loops are primarily envisioned as business activities with indirect relationships to consumers, such as commissioners or recipients of refurbished, remanufactured, or repurposed products. Within the built environment, the concept of refurbishment is common because it refers to the overall structure of a product, in this case a building, remaining intact while many parts are replaced or repaired, resulting in an overall "upgrade" of the product.

Third, there are the long loops (Recycle (R7), Recover (R8), Re-Mine (R9)), where products lose their original function. The large loops represent only waste management activities, because it involves recycling, various forms of (energy) recovery, and re-mining. These loops are considered the worst possibilities, as, according to the definition by EMF, they lose their highest utility and value. Nonetheless, materials or particles obtained from the longer loop of recycling can be used as inputs to shorter loops (Reike et al., 2018).

In the built environment, the primary focus has been on eliminating resource losses from the system (R3-R9). However, resource reductions (R0-R3) become extremely important when one considers the long life cycles of buildings, the slow renewal of the building stock and the amount of resources consumed during the use phase of a building (Jylhä, 2021). Here, the focus is on resource reduction in the use phase of corporate real estate (CRE).

The practical implementation of a circular economy can be divided into three levels: micro, meso, and macro (Masi et al., 2018). The use phase within CRE lies mostly within the micro-level as it refers to the firm specific initiatives that usually emerge within the first loops (R0-R3): Refuse, Reduce, Reuse. Within the use phase of CRE, examples of refuse could be not using energy or certain disposable materials, while reduction implies minimizing these inputs and minimizing waste (e.g. energy consumption reduction or water conservation). The reuse principle could refer to reusing furniture and equipment, or for example adaptable workspace configuration. More generally, initiatives connected to the first loops could include zero-waste product design (Grafström & Aasma, 2021). It is important to note that within the built environment, the use phase of buildings is not limited to just the first loops. As mentioned earlier, a building can be refurbished (R4) (often referred to as updated), remanufactured (R5) (when buildings are taken apart and rebuilt somewhere else) and also repurposed (R6).

2.1.8. Circular fit-out

Based on the definition of an office fit-out and the concept of circularity, a circular office fit-out refers to the scenery and settings of a workplace space that is created by and operated on the circular economy principles (10R) rather than a traditional linear arrangement (Baccarini & Bateup, 2008; Reike et al., 2018). Applying the shortest loops to the fit-out would mean smarter use of materials and smarter design and manufacturing. The aim of this loop is to design out waste and pollution created by fit-outs. Second, the medium loops are aimed at extending the life of the fit-out and all its components. The goal is to keep materials and products of the fit-out in use. Third, long loops are intended to give the materials in the fit-out a useful use after the fit-out is discarded. The intention is to favour the use of renewable energy and renewable materials (Arup, 2022).

The essence of a circular fit-out is to keep the materials in the fit-out at their highest value at all times (BBP, 2018). To achieve this goal, however, both upstream and downstream processes must be modified. Upstream, circular design, business and policy approaches must be implemented. Downstream, effective waste management must be executed (Arup, 2022).

2.1.9. Standards of a circular fit-out

There are no specific standards for circular office fit-outs. However, there are standards for traditional fit-outs that assess for various criteria inherent in the key circularity principles. These standards take into account criteria such as materials, energy, waste & pollution and assess accordingly. The five most common rating tools are:

- BREEAM Fit-out & Refurbishment
- LEED Interior Design & Construction
- Fitwel
- WELL Building Standard
- SKA

The benefits of rating tools in fit-out projects include providing a clear framework for sustainability outcomes, facilitating target setting, and enabling communication of performance to stakeholders. Owners and occupiers can use these tools for informed comparisons between different fit-outs, gaining independent assurance of outcomes. Rating tools like BREEAM, LEED, SKA, Fitwel, and the WELL Building Standard assess projects against various criteria, translating scores into ratings such as gold, silver, or outstanding. BREEAM and LEED are established in the UK and US markets, respectively, with SKA focusing specifically on fit-outs in the UK. Fitwel and WELL Building Standard prioritize health and wellbeing, complementing environmentally-focused tools (BBP, n.d.).

2.1.10. Answer to sub-research question 1

SQ1. How does a circular fit-out differ from a traditional fit-out?

A traditional office fit-out primarily follows a linear model, addressing the immediate needs of the space without necessarily considering long-term sustainability. It involves creating a workplace environment with a focus on current functionality and aesthetics. Traditional fit-outs often prioritise the use of new materials, have a limited emphasis on reuse, and may not fully integrate considerations for reducing waste and environmental impact.

On the other hand, a circular office fit-out aligns with the principles of the circular economy, adopting a more sustainable and holistic approach. A circular fit-out aims to minimise waste and pollution by incorporating the 10R principles of the circular economy: Refuse, Reduce, Resell/Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, and Recover. This approach involves smarter material use, design, and manufacturing to reduce the environmental footprint of the fit-out.

In a circular fit-out, the emphasis is on keeping materials and products at their highest value at all times. This is achieved through a combination of upstream and downstream measures. Upstream; circular design, business, and policy approaches are implemented to ensure that materials are sourced sustainably, and products are designed for longevity, reuse, and recyclability. Downstream, effective waste management is crucial, ensuring that materials are properly sorted and recycled, contributing to a more sustainable lifecycle.

Lastly, it is important to note that while there are established standards for traditional fit-outs, specific standards for circular office fit-outs are not explicitly defined. Existing rating tools primarily focus on sustainability criteria but do not explicitly address all principles of circularity. However, they remain useful as a starting point.

2.2. Tenant – Landlord relationship

This section will try to answer the sub-question 4: What defines the tenant-owner relationship in the context of corporate real estate? The chapter describes the dimensions that shape the relationship, the determinants that define the relationship and the connectors that bind the tenant and the landlord. The chapter ends with an overview of the connectors and determinants.

2.2.1. Relationships in business

In general business terms the landlord-tenant relationship is a business relationship between a selling organisation (landlord) and a buying organisation (tenant) (Rasila, 2010). This includes business-to-business contacts, which is significantly different from traditional business-to-consumer markets. A key distinction is the challenge in identifying the customer within the purchasing organisation and determining who benefits from the transaction.

While the official customer is often the organisation buying services or products, it is important to identify the individuals within the organisation who are responsible for the contract, similar to the individuals making the decisions (Kotler & Armstrong, 2023). Furthermore, these individuals are not always the end users of the purchased goods or services, as defined by Kotler and Armstrong (2023) who refer to them as "users".

In smaller organisations with a single site, defining users and decision-makers is straightforward, but complexities arise in larger companies with multiple sites. External factors, such as corporate real estate departments, can influence decisions. From a facilities management perspective, categorising into client, customer, and end-user is possible. The end-user is the individual using the premises, aligning with the business-to-business market's "user." The customer represents the occupying organisational unit, and the client is a corporate-level actor (Rasila, 2010).

As previously stated, the customer is the tenant and the landlord is the supplier in a landlord-tenant relationship. The physical premises, or, from the customer's perspective, the office environment provided by the landlord to the tenant, are the offering. This involves the physical space that the tenant has rented so that its employees may work in the premises and sometimes it also involves the equipment to carry out the work. However, workplaces are more than just physical structures; they include a service component. This service aspect introduces a third actor into the business relationship. Alongside landlords and tenants, various service providers typically operate within and in relation to the workplace environment (Rasila, 2010).

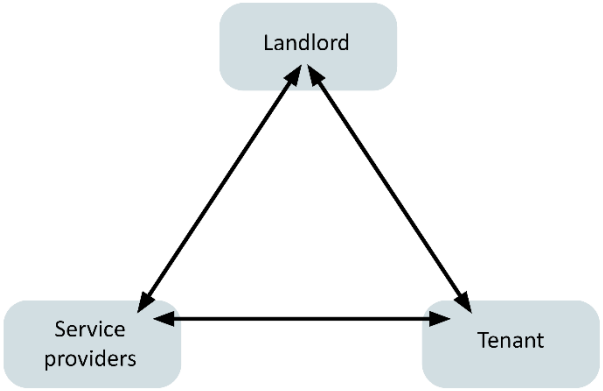

Figure 2.2.1. Actors in a landlord-tenant relationship. *Adapted from Rasila (2010).*

2.2.2. Negotiation process in business

The negotiation process between a tenant and a landlord in leasing corporate real estate involves considering various factors in the current commercial office market. The analysis begins with an understanding of historical trends and the projected economic forecasts, which is expected to impact office-space vacancy and rental rates. Tenants assess their long-term needs and make strategic real estate decisions during this period (Dow & Porter, 2004).

To determine the viability of a lease, tenants need to conduct thorough due diligence, considering factors related to their organisation, the landlord, and market conditions. Understanding the business plan, evaluating alternatives, knowing the submarket, the office building, and being aware of the landlord's characteristics are important steps in making informed decisions (Dow & Porter, 2004).

Effective negotiation strategies require utilising knowledge and timing as leverage. Initiating dialogue with the landlord well in advance of lease expiration, typically around 18 months, allows tenants to maximize their negotiating position (see figure 2.2.2.1. below) in case they would want to renew their lease. Leverage can also be derived from the tenant's creditworthiness and a strong relationship with the landlord.

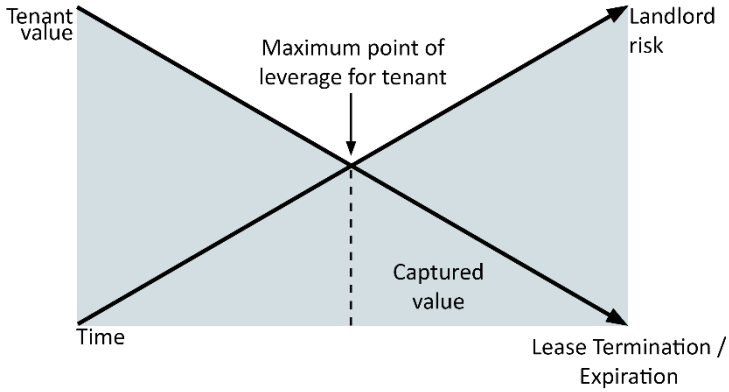

Figure 2.2.2.1. The inverse relationship between a tenant's value to the landlord and the landlord's risk. *Adapted from Dow and Porter (2004).*

The negotiation process ultimately comes down to getting the best deal with as little risk as possible. An example is negotiating building operating expenses (OPEX). Both landlords and tenants commonly seek to avoid taking responsibility of the OPEX due to their susceptibility to inflation. Landlords want to negotiate leases that exempt them from OPEX responsibilities, while tenants aim to minimise their involvement in OPEX by actively avoiding responsibility (Halvitigala, 2018).

A well-executed negotiation can lead to additional capital for improvements, increased lease term flexibility, and expansion opportunities for the tenant. It can also be mutually beneficial for the landlord, resulting in increased long-term asset value and stabilized future rent flow. Overall, a carefully crafted negotiation process can lead to a win-win scenario for both parties involved (Dow & Porter, 2004).

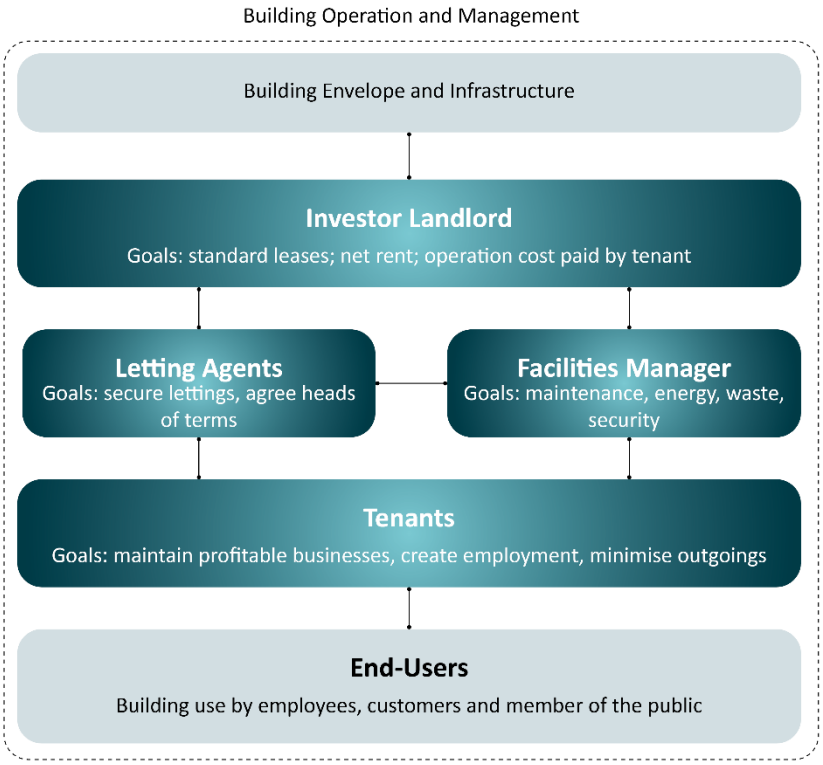

Figure 2.2.2.2. A simplified diagram of the relationships between stakeholders when negotiating an office lease. Dark blue represents the parties negotiating with each other, light blue represents the people/product they are negotiating on behalf of/about. *Adapted from Axon et al. (2012).*

2.2.3. Dimensions, Determinants and Connectors in Buyer/Supplier relationships.

Many studies, especially in service management and business-to-business marketing, have addressed the buyer-supplier relationship (Holmlund, 2008). Since the tenant – landlord relationship is essentially a buyer-supplier relationships in a servitized environment (Bastl et al., 2012), this previous research is particularly valuable as a starting point for a theoretical analysis of the tenant-landlord relationship.

Dimensions affecting business to business relationships

What constitute a good/strong or a poor/weak relationship is closely related to the concept of relationship quality because they deal with analysing and evaluating relationships. Quality as a construct is not central. What is central is how the quality of the relationship dictates its development, how likely it is to end, and what revenues, costs, and profitability it incurs (Holmlund, 2008). Therefore, relationship quality as a concept can be used to answer the sub-research question because it determines the relationship in all its aspects. In her study on relationship quality in business-to-business relationships, Kempeners (1995) puts forward a relationship quality model. This model allows all relationship determinants to be divided into four groups or dimensions. In decreasing order of importance: relational, personal, organisational and environmental.

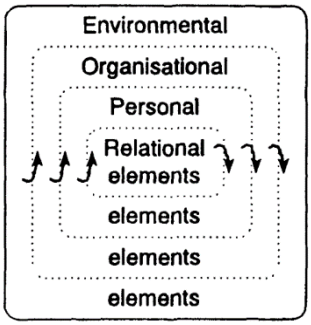

Figure 2.2.3. The relationship quality model (Kempeners, 1995)

Kempeners' model is in line with the perceived relationship quality model of Holmlund (2008). There are 3 quality dimensions in this model: the technical, social and economic dimensions.

The most important dimension is the relational dimension. Kempeners (1995) defines the relational dimensions as a higher order construct consisting of three determinants: commitment, trust and satisfaction. She argues that the three are interlinked because satisfaction with a product leads to commitment, which in turn leads to trust. Within the social dimension of the model of Holmlund (2008), the distinction is made between social interactions on the individual level and on the company level. The company level corresponds to Kempeners' relational dimension, consisting of trust, satisfaction and inter-firm cohesion.

The second dimension is the personal dimension. In Holmlund's model, this is again the social dimension, but now on the individual level. This covers all social interaction on an individual level and consists of appeal, trust, acquaintance, respect, congeniality and pleasure (Holmlund, 2008). In Kempeners' model, this refers to behaviour, personal attributes, and expertise (Kempeners, 1995).

Thirdly, there's the organisational dimension (Kempeners, 1995). This covers the economic and technical dimensions in the model of Holmlund (2008). This dimension covers the economic, technical and organisational determinants related to the circular office fit-out product. This includes the four P's of product, price, place and promotion. Price just not covers the price of the fit-out, but also the related cost, such as cost related to quality failure and indirect relationship cost related to e.g. handling complaints.

Lastly, there is the environmental dimension. Holmlund (2008) does not cover this dimension in her model. According to Kempeners (1995), companies engage with one another in an environmental setting. This is a more or less predetermined setting for the corporation. The environmental context might impact a relationship. Five determinants of the inte"raction environment can be distinguished, which are market structure, dynamism, internationalisation, position in the manufacturing channel and the social system.

Relational Determinants:

The relational dimensions consist of determinants such as trust, commitment, satisfaction, attraction and cohesion between companies (Holmlund, 2008; Kempeners, 1995). In a study by Rasila (2010) conducted on the customer experience in a tenant – landlord relationship in leased office spaces, the following 7 determinants came forward out of combining theoretical determinants with empirical evidence:

Determinants affecting the relational dimension	
Commitment	Similar to trust; commitment to the other partner vs. the premises, continuity, willingness to invest.
Ethical profile	Abiding laws and codes is taken for granted, as is opportunistic nature of the other.
Sharing of information	Not too much operative information or too many requests for information.
Communication	Response rate, understanding each other's strategic needs.
Conflict	Ready for compromises
Balance of power	In a good relationship there's a balance of power.
Personal attributes	Personal factors add value if the chemistry works

Adapted from Rasila (2010).

There is overlap between the determinants of Holmlund (2008) and Kempeners (1995) and those of Rasila (2010). Trust and commitment are seen as one and recur by all 3 authors. Attraction is not included by Rasila (2010) as it seems to be an antecedent of relationship quality, nor is satisfaction. Cohesion between firms is subsumed under commitment by Rasila (2010). Firm cohesion refers to the relational bonds between two firms and is a continuation of commitment.

Rasila's determinants emerge from a study of the relationship between tenant and landlord in leased office spaces, and they are largely consistent with the determinants of the other 2 authors. Therefore, these 7 determinants will be used to define the relational dimension of the tenant-landlord relationship. However, the personal attributes determinant is more closely related to the personal dimension. Satisfaction, on the other hand, was not included by Rasila (2010) and will therefore take this place.

Personal Determinants:

A relationship must ultimately be based on the interactions of the individuals who engage. At least two people are involved, but more often than not, numerous people from various company areas and levels are involved (Kempeners, 1995). The following various personal determinants influence the relationship in a direct way.

Holmlund (2008) stresses the importance of pleasure, such as socialising, informality, having fun, and other aspects of enjoyment. While there is no contract, it is also important to clarify mutual interests and duties for seamless interactions. Congeniality is also considered when interacting with the other person. The above can be categorised under behaviour. Personal attributes such as appearance, lifestyle and similarity to the other person is another important determinant of personal dimension. Finally, expertise is seen as an important determinant of sales performance, and more generally of the personal dimension (Kempeners, 1995).

Determinants affecting the personal dimension		
Kempeners (1995)	Holmlund (2008)	Outcome
Behaviour	Appeal	Personal attributes (physical)
Personal attributes	Trust	Behaviour
Expertise	Acquaintance	Expertise
	Respect	
	Congeniality	
	Pleasure	

Some determinants occur 2 times or fall under a larger set such as behaviour. Therefore, the final determinants for the personal dimension have been reduced to personal attributes, behaviour and expertise.

Organisational Determinants:

The buyer-supplier relationship is influenced by their respective organisational structures. Identified organisational determinants related to the stakeholders are the size, structure, and strategy. The organisational determinants in relation to the product are product, price, place and promotion.

The relative size of the two companies is crucial. For example, larger tenants with more resources are more likely to dominate landlords and facility service providers than smaller tenants. When two companies are similar in size, power is more evenly distributed and an equal connection exists (Kempeners, 1995).

Determinants affecting the organisational dimension		
Kempeners (1995)	Holmlund (2008)	Outcome
Size	Reliability	Size
Structure	Innovation	Structure
Strategy	Conformance	Strategy
Product	Aesthetics	Product
Price	Endurability	Price
Place	Competitive price level	Place
Promotion	Volume	Promotion
	Profit margin	
	Latent relationship rewards	

Holmlund (2008) distinguished between the technical and economic dimensions, but in essence, both lie under the organisational dimension. The technical dimension pertained to product characteristics such as dependability, innovation, and conformity, whereas the economic component included profit margin, competitive price level, volume, and latent relationship rewards. The above can be blended again because the determinants overlap.

Environmental Determinants:

Companies engage with one another in an environmental setting. This setting is more or less given situation for a company. The setting might impact the relationship. Several features of the interaction environment can be differentiated. Holmlund (2008) did not discuss the environmental determinants, so the 5 determinants by Kempeners (1995) will be used.

1. Market structure

Market structure is influenced by buyer and seller concentration, as well as the number of alternate partners. Maintaining relationships with multiple competitors can be challenging but is essential (Kempeners, 1995). Furthermore, the market structure usually favours either the buyer or supplier. Until the early 1990s, the market was in favour of landlords, thanks to institutional leases dominating the market. These leases typically spanned 20-25 years. This structure gave investors significant control, and it posed challenges for corporate tenants seeking shorter and more flexible leases aligned with their business goals. This resulted in a mismatch in lease terms for the tenants (French & Jones,

2010). However, this altered in the aftermath of the late 1980s economic downturn. Landlords had to be more accommodating, which resulted in shorter leases and a variety of lease types. Tenants were started to be seen as customers. Furthermore, the property collapse of the late 2000s increased the demand/supply imbalance. As a result, the market between landlords and tenants shifted from an investor's market (boom) to an occupier's market (bust) (French & Jones, 2010). This continues today, as landlords compete to find solid, long-term tenants. Landlords are focusing on recruitment and retention initiatives such as greater incentives, amenity and customer experience strategies that cater to tenant desires (JLL, 2021).

2. Dynamism

The level of market dynamism influences the relationship. Buyers in dynamic marketplaces often utilize competitive buying methods to avoid being bound to a partner (Kempeners, 1995). Dynamic markets are the opposite of markets in a state of equilibrium. When there is a perfect balance between the supply and demand for an office building, the market is in an equilibrium, as opposed to be fluctuating and dynamic. Keynes and other economists contend that economic markets frequently fail to achieve equilibrium between supply and demand (Erbaugh et al., 2021). This is no different in the property market, which, due to its distinctive characteristics, lacks equilibrating pressures powerful enough to push the market toward stable, predictable, and convergent outcomes (Agboola, 2015). As a result, the property market is a dynamic market.

3. Internationalisation

The level of internationalisation in a corporate environment impacts both buyers and supplier, as well as the company's organisation, which may require overseas sales agents or country-specific knowledge (Kempeners, 1995). This applies to landlords looking to attract international tenants for their office buildings.

4. Position in the broader market.

The buyer-supplier connection is influenced by both parties' relationships with other landlords or tenants (Kempeners, 1995).

5. The social system

The social system refers to the location-specific government and trade regulations that can affect the relationship. This includes all regulations on buildings and country-specific tax regimes. When comparing 2 different social systems, cultural differences are also an important factor to consider (Kempeners, 1995).

2.2.4. Relationship connectors in Buyer/Supplier relationships.

There are six relationship connectors depicted in Figure 2.2.4. They encompass the key features of business exchange. These connectors include legal, economic, political, sociological and psychological dimensions that are crucial to commercial exchange relationships (Cannon & Perreault, 1999). Most importantly, unlike the determinants, these six connectors can be arranged, making them the basis for discussing formal and informal arrangements in later phases of the research. The determinants in this model will not be used.

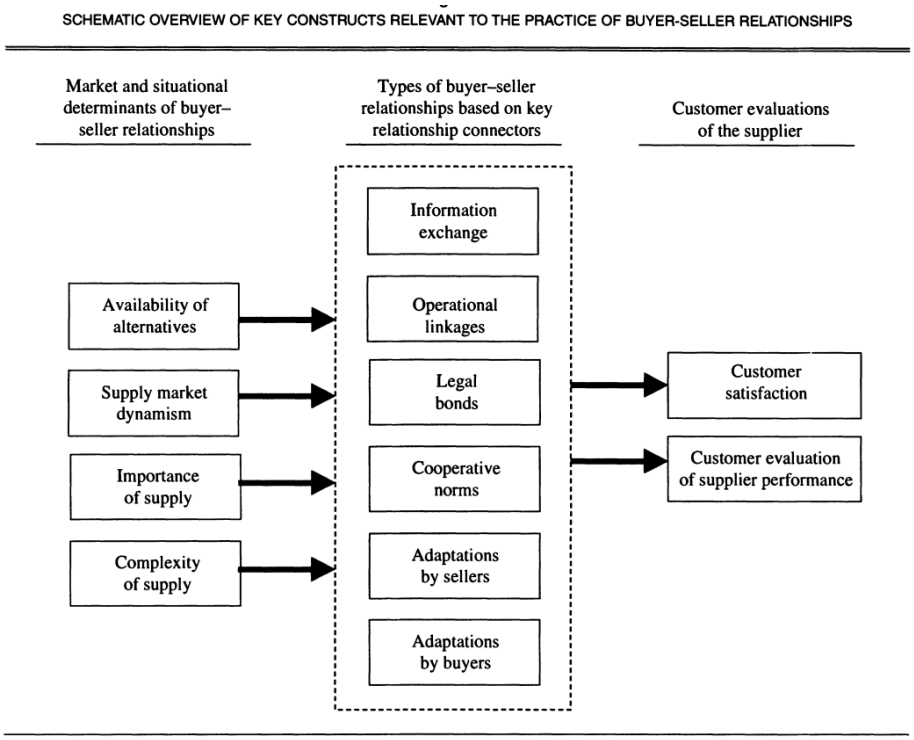

Figure 2.2.4. Key constructs (connectors) in the buyer-seller relationship (Cannon & Perreault, 1999)

Information exchange

Information exchange in a buyer/supplier relationship is the open sharing of useful information between both parties. This may involve sharing proprietary details, engaging in joint fit-out design, disclosing cost information, and discussing future development plans beyond the current project. Advances in technology and a focus on quality have prompted firms to reconsider the trade-off between risks and rewards associated with extensive information sharing. While increased information exchange can enhance relationship quality and facilitate new developments, it also poses the risk of opportunistic behaviour. Theoretical perspectives, such as those in bargaining literature and relational exchange theories, support the significance of open information sharing for better outcomes, trust-building, and commitment in business relationships (Bastl et al., 2012; Cannon & Perreault, 1999).

Operational linkages

Operational linkages in buyer-seller relationships measure the extent to which the systems, procedures and routines of both buying and selling organisations are interconnected to facilitate operations. These linkages range from independent operations to highly coupled systems that explicitly or implicitly define roles for both parties. Operational linkages refer to activities and processes that improve the flow of goods, services or information between the two parties. Examples in CRE include joint property technology and joint facility management procurement. The extent of

interconnected systems can be standardised across multiple partners, contributing to lower transaction costs for both parties (Bastl et al., 2012; Cannon & Perreault, 1999).

Legal bonds

Legal bonds in buyer-seller relationships are detailed and binding contractual agreements that specify the obligations and roles of both parties and go beyond basic commercial rules. These agreements serve as a governance mechanism and create hierarchy. While formal contracts provide legal protection and regulate relationships by establishing a plan for the future, they can also limit flexibility to adapt to changes in the environment. Contractual agreements are considered important in inter-organisational relationships because they help reduce environmental uncertainty (Bastl et al., 2012; Cannon & Perreault, 1999).

Cooperative norms

Cooperative norms reflect the expectations the two exchanging parties have about working together to jointly achieve mutual and individual goals. Cooperative norms imply that both parties recognise the need to work together for success. This construct reflects the belief in appropriate cooperative behaviour between the exchanging parties (Bastl et al., 2012; Cannon & Perreault, 1999).

Relationship-Specific Adaptations by the Seller or Buyer

Relationship-specific adaptations in buyer-seller relationships involve adjustments to processes, products, or procedures tailored to the specific needs of the other partner. Unlike other connectors focusing on joint behaviours, this emphasizes individual behaviour specific to the other party in the relationship. The adaptation pattern, whether one-time or gradual, reflects important relationship qualities. Such adaptations are reciprocal and can contribute by reducing costs, increasing revenues, or creating dependence. Common in business practice, they include customised products and design adjustments by both buyers and sellers to suit each other's needs, creating trust-building and commitment in the relationship (Bastl et al., 2012; Cannon & Perreault, 1999).

2.2.5. Overview: Relationship Determinants & Connectors

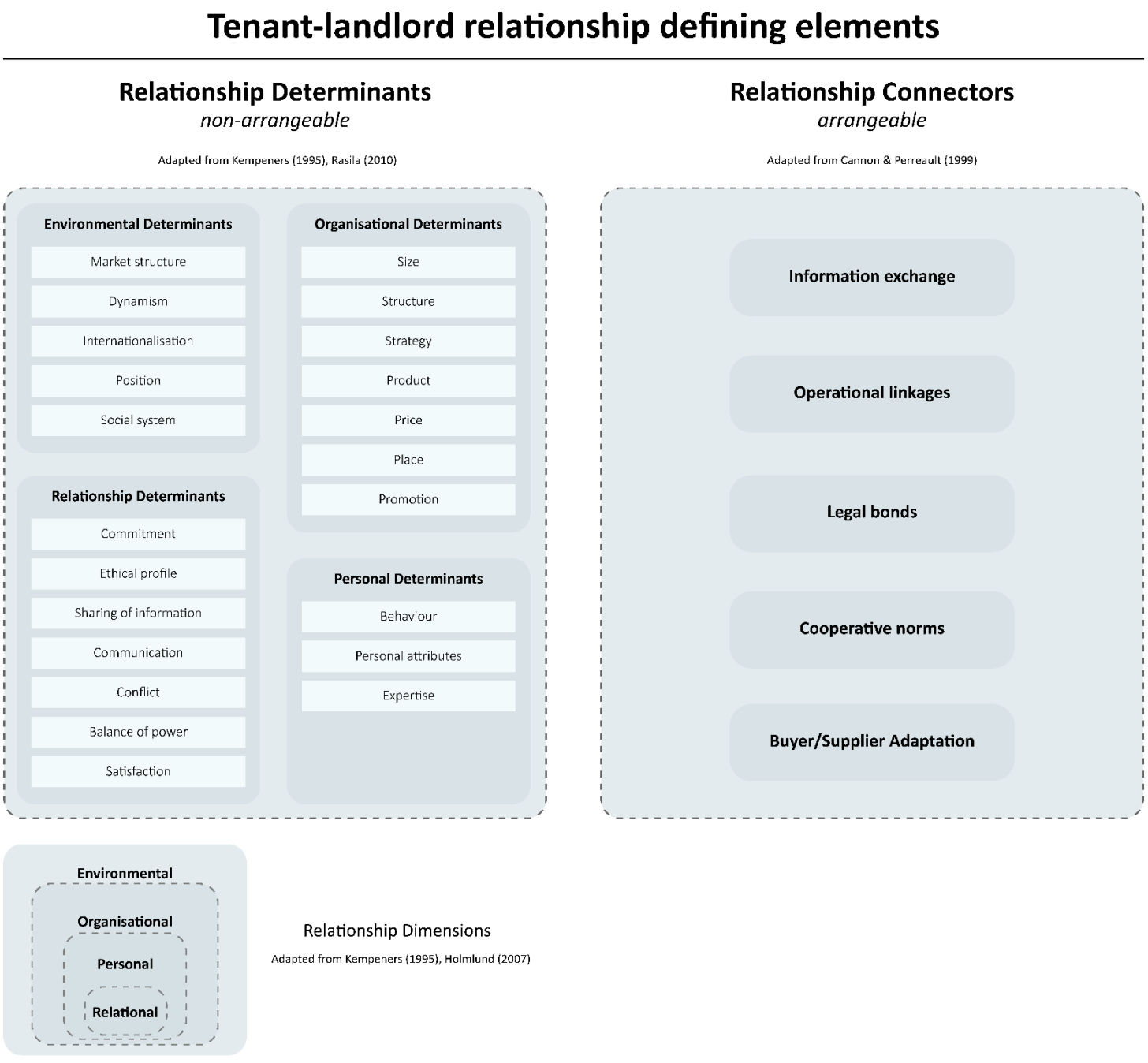

Figure 2.2.5. Relationship elements overview *(author, 2024)*

2.2.6. Answer to sub-research question 2

SQ2. What defines the tenant-landlord relationship in corporate real estate?

The tenant-owner relationship within corporate real estate is an interplay involving multiple stakeholders and dynamics. In the business-to-business context, several elements define this interaction.

At its core, this relationship involves a selling organisation, the landlord, and a buying organisation, the tenant. The landlord, or supplier, provides office space and services, while the tenant, the customer, leases the space. The offering extends beyond mere physical premises, encompassing the broader office environment and introducing a service component that involves various service providers.

The relationship usually starts with a negotiation process, considering historical trends, economic forecasts, and office-space dynamics. Tenants conduct thorough due diligence, assessing long-term needs and strategically making real estate decisions. Effective negotiation strategies depend on timing, leveraging the tenant's value, and maintaining a strong relationship with the landlord.

The relationship dimensions shape this relation. There are 4 dimensions. The relational dimension involves determinants like commitment, balance of power, and satisfaction. The personal dimension encompasses personal attributes, behaviour, and expertise. Organisational dimensions are influenced by determinants such as size, structure, strategy, and product-related considerations. The environmental dimension determinants cover market structure, dynamism, internationalisation, position in the broader market, and the social system.

Relationship connectors serve as the features of business exchange that can be arranged. There are 5 relationship connectors. Information exchange involves open sharing, operational linkages measure interconnectedness, legal bonds include detailed contractual agreements, cooperative norms reflect expectations of joint success, and relationship-specific adaptations involve adjustments customised to specific needs.

In essence, the tenant-owner relationship involves negotiations, diverse stakeholders, and various determinants and connectors that together shape the quality of this business relationship.

3. Research methodology

This chapter outlines the research methodology used to address the research questions. It details the approach in several key areas: (1) data collection methods, specifying how data will be gathered; (2) data analysis techniques, describing how the collected data will be examined; (3) data management plan, outlining the procedures for data handling and storage; (4) ethical considerations, ensuring the study adheres to ethical standards;

3.1. Data Collection

3.1.1. Triangulation

This research implements the four principles of data collection by Yin (2011). The first principle includes the use of multiple sources of evidence. Triangulation is a reasoning for choosing multiple sources. In this study, triangulation of different data sources will be applied, allowing the collection of information from multiple sources that can confirm the same findings. The second principle refers to creating a case study database. The third principle refers to maintaining a chain of evidence. This increases the construct validity of case study information. The fourth principle is to be careful about using data from social media sources, which is evident in academic research (Yin, 2011). This study takes an abductive technique, combining theoretical and empirical questions.

The data triangulation includes a literature review, project documentation of the case studies, and interviews, both with the stakeholders and experts. The major purpose of the desk study is to collect existing data on the theoretical basis and present understanding of the research issue. Case studies, consisting of interviews and project documentation, are used to see how theoretical notions show in real-world settings, analysing whether they support or contradict the literature results. As a result, the literature review assists in interpreting the relationship phenomena that are identified throughout the case study. Expert interviews are used to validate the outcomes of the case studies.

The data collected will thus be both primary and secondary data. The literature study will mostly cover secondary data, while the interviews are primary data.

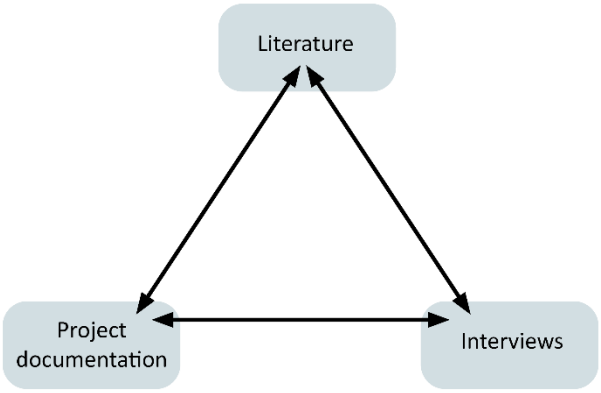

Figure 3.1.1. Research methodology triangulation (author, 2024)

3.1.2. Desk research

The research begins by reviewing existing literature to understand the current state-of-the-art of the tenant-landlord relationship and circular office fit-outs in corporate real estate. The literature platform Scopus by Elsevier is mostly used to extract useful information from. Keywords are chosen, and numerous search results are obtained. Articles are judged relevant based on their title, study area, and abstracts. The TU Delft education repository is also used. However, while the concept of circularity and circular economy is extensively developed in academia, the connection with an office fit-out is mostly absent. As a result, reports from firms in the field are a helpful complement in bridging these two concepts. Additionally, snowball searches is also executed to find additional relevant publications which are in the reference list of the start-article (snowball) (Radboud University Library, n.d.).

3.1.3. Case study design

According to Hamida (2023), a case study is a research approach that uses different empirical research methods to study a real phenomenon within contextual boundaries. Case studies are relevant the more that the questions require an extensive and “in-depth” description of some social phenomenon. (Yin, 2011). In this research, the main research question is a ‘how’ question, indicating it needs an in-depth description and analysis of the social phenomenon of the tenant-landlord relationship. There are 3 types of case studies: explanatory, exploratory and descriptive. In line with the exploratory nature of the research, the case studies will be mostly exploratory (Yin, 2011). Multiple case studies will be conducted, based upon project documentation and semi-structured interviews. These will be presented as separate, single-case studies and after that a single set of “cross-case” conclusions will be drawn (see figure 3.1.3.1.). Case study results, like experimental findings, can only be applied to theoretical concepts, not populations or universes. The conclusions will result in a collection of recommendations for approaching the relationship.

Multi-case design allows for the comparison of distinct case characteristics, perhaps revealing extremes in the discrepancies discovered in the cases. It is also important to consider the cases' context, as this determines the differences. Furthermore, the researcher's background influences the research. However, if the study is replicated, it is likely that the majority of the findings will be the same, thanks to safeguard measures such as expert validation (Yin, 2011). Case study evidence can come from many sources; such as documentation, internal company documents, interviews, direct observations, participant-observation, physical artifacts… (Yin, 2011). In this part, project documentation and interviews sources will be used to gain ‘evidence’.

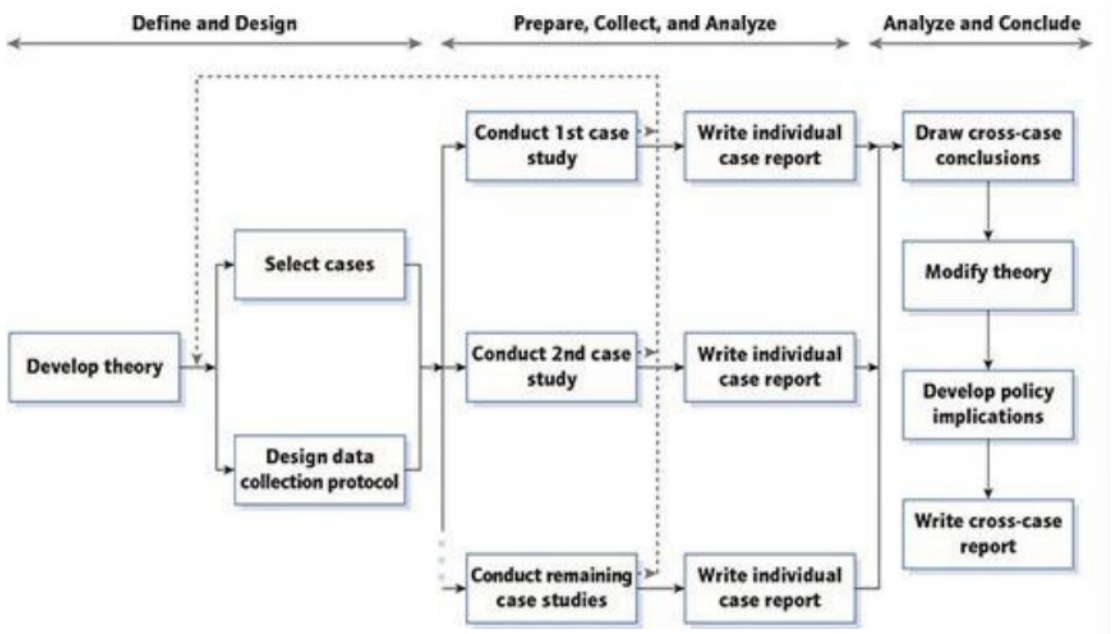

Figure 3.1.3.1. Multiple-Case Study Procedure (Yin, 2011)

Case study selection criteria

The selection criteria for the physical artifact / built project of the case studies were based on the two primary themes from SQ1 and SQ2, the process from traditional to circular fit-outs and the tenant-landlord relationship. Data collected on the implemented R-principles, year of construction and type of leased building were useful in determining the most important criteria, allowing for increased replicability of the findings. The criteria are grouped into two categories: required in all instances and desirable.

For two reasons, only five case studies were anticipated to be selected using these criteria. First, more than one case study defines a multi-case study design. This is necessary to assure replicability, as it is not possible to generalise from a single case. Second, each case study includes semi-structured interviews. As a result, there were time and resource limits for conducting and analysing more cases.

	CRITERIA	REASON	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
REQUIRED	The office fit-out is realised	Allows to evaluate the process	✓	✓	✓	✓	✓
	The office fit-out incorporates at least 1 R-principle	Scope	✓	✓	✓	✓	✓
	The office space is leased	Scope	✓	✓	✓	✓	✓
	The office is part of a multi-tenant building	Multi-tenant buildings and single-tenant buildings have different characteristics	✓	✓	✓	✓	✓
DESIRABLE	The office fit-out is recent (max 2 years old)	Allows to examine the current practices	✓	✓	✓	✓	
	Select complementary cases that present different R-principles or derivatives of the rethink principle	Studying different R-principles could reveal different opportunities and challenges	✓	✓	✓	✓	✓
	Access to the lease agreements	Leases usually contain design guidelines imposed by the landlord for office design	✓	✓	✓		

Figure 3.1.3.2. Case study selection criteria *(author)*

As this research is conducted in collaboration with an organisation, 3 case studies were looked for within the portfolio of realised projects of the graduation organisation. 2 case studies were sought outside the organisation to diversify the incorporation of circularity principles and the approach to a fit-out project. These cases were specifically selected based on alignment with a specific circularity principle and were found through a webinar and word-of-mouth recommendations.

A discussion with an in-house circularity expert (14) and literature on the concept of circularity and circular economy led to the conclusion that it is difficult to measure the extent to which a fit-out is circular. Therefore, distinct alignment with the circular principles is an appropriate analysis criterion. As a result, the different cases demonstrate a variety of approaches to incorporating different circularity principles. The 10R framework was used as a basis (Reike et al., 2018). Only the principles from the shortest loop (Refuse (R0), Reduce (R1), Resell/Reuse (R2), Repair (R3)) and one from the medium loop (Refurbish (R4)) were used in this framework. Remanufacture (R5), Repurpose (R6),

Recycle (R7), Recover (R8), Re-Mine (R9) was not considered because it does not cover the scope of an office fit-out project nor is it within the tenant's and/or landlord's sphere of influence.

The other four operationalisation principles in the table can be seen as part of the rethink principle, often seen as the 11th R-principle. Circular design is broken down into designs for disassembly and designs for adaptability. The procurement method is important in the early stages, while material passports prove valuable at the end of an office fit-out's use, to know what materials are in the building.

3.1.4. Semi-structured interviews

Interviews are one of the most important sources of case study evidence. Interviews help by suggesting explanations (i.e., the "hows" and "whys") of key events, as well as the insights reflecting participants' relativist perspectives (Yin, 2011). Semi-structured interviews allow for guided conversations rather than structured queries. The questions in a semi-structured interview is pre-determined, but with open answer possibilities. This part of the of the empirical research will allow to go in-depth on the 5 case studies selected. The interview questions will be designed to ensure that the concepts, terms and outline used are clear to the interviewee.
The semi-structured interviews will assist in compiling a list of opportunities and challenges that experts later can link with relationship determinants and connectors. Additionally, these interviews will enable the identification of specific determinants and connectors for each case, and the insights obtained will inform the development of the final list of recommendations in the subsequent phase.

Interviewee profiles & content

The semi-structured interviews involve the key stakeholders of the case study cases. The interviews try to identify both the opportunities & challenges and the determinants & connectors (arrangements) of the tenant-landlord relationship in enabling circular practices.

The following topics and elements serve as a framework for these interviews:

1. General: an overview of their position within the organisation, their daily responsibilities, their commitment to sustainability, and their involvement in the case study project.
2. Project: an overview of the formal and informal arrangements made for the case study project, and the opportunities and challenges related to the strategic definition stage.
3. Process: a detailed run through the negotiation process, and the opportunities and challenges that arise during the making of and execution of the project.
4. Relationship: How the interviewee perceives the relationship with the other stakeholders.

In each case study, the aim was to conduct two interviews with two of the three primary stakeholders: the tenant, the landlord, and the project manager (PM). This succeeded in 4 of the 5 cases. To gain further insights, discussions were also held with either the designers responsible for the fit-out or the brokers handling the lease. For the tenant's perspective, conversations took place with individuals responsible for overseeing the project internally, though they did not make all final decisions. This typically involved the facility manager, who managed the fit-out project but deferred final decisions to higher management, or a project manager dedicated to managing the company's fit-out and/or real estate projects. From the landlord's side, the asset managers of the respective office buildings were consulted as they handle aspects of leasing among other responsibilities. In one instance, a facility/property manager was interviewed, who also had knowledge on specific lease details. Ultimately, the focus was on engaging with those directly involved in the development of office fit-outs.

INTERVIEWEES	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Tenant		Project manager EMEA (4)		Facility manager Benelux (10)	Project manager (13)
Landlord	Asset manager (1)		Asset manager (7)	Facility / Property manager (11)	
PM	Cost manager (2)	Project manager (5)	Project manager (8)		
Additional	Broker (3)	Designer (6)	Designer (9)	Hospitality manager flex-office (12)	

Figure 3.1.4. Interviewee profiles (author, 2024)

3.1.5. Research of internal documents of case studies

The first three cases studied in this thesis research are projects from the organisation that collaborated with the researcher. This allowed access to all project documents associated with the fit-out project. The information from these documents serves to enhance and supplement the data gathered from the interviews.

3.1.6. Expert Meeting

This is the final phase of the research and is executed to answer sub-research question 4 and 5. The aim is to get valuable feedback from experts in the field. There will be 3 stages in this phase:

1. Experts are asked to validate the challenges and opportunities related to creating a circular office design. Experts can also identify a challenge as an opportunity and vice versa.
2. Experts are asked to link the challenges and opportunities to specific relationship determinants and relationship connectors, if the determinant or connector can tackle or enable the opportunity or challenge. This linking is done via the online workspace Miro during the meeting with the expert.
3. Lastly, experts link each challenge and opportunity to the tenant, landlord or fit-out consultant, based on who has the most power to solve or exploit the specific challenge or opportunity. This linking is done via the online workspace Miro during the meeting with the expert.

INTERVIEWEES	PROFILE	REASON
Expert	Industry professional (14)	Experience with developing circular buildings and interiors
Expert	Industry professional (15)	Experience with managing tenants and landlords in fit-out projects

Figure 3.1.5. Interviewee profiles (author, 2024)

Both experts had a relation to some of the case studies, but were not key stakeholders. However, in the expert interviews, they were specifically asked to answer the questions from an overarching perspective where possible.

All interviews took place either in person or via online meetings on Microsoft Teams, depending on the interviewee's preference. The choice of language—English or Dutch—was based on the interviewee's preference as well.

3.2. Data Analysis

Data analysis involves analysing data to fulfil the study's objectives. This research primarily employs abductive reasoning to formulate conclusions. Abductive reasoning helps integrate the theoretical insights into a more comprehensive interpretation and context (Blaikie & Priest, 2018). Essentially, it derives lessons from a set of observations. The method assesses data for which a firm theoretical basis is lacking to create an analytical framework. The use of exploratory interviews followed by in-depth and expert validation interviews is the practical elaboration of this method.

3.2.1. Coding

Initial analysis of the interviews involves a two-step coding process in social science research: creating data units and ordering these units. Names will be anonymised in the process of transcription of audio (when conducting a physical interview) or video/audio interviews. Coding of transcripts will be done using Atlas.ti software. The coding methodology can be divided into two distinct approaches:

Firstly, to tackle sub-question 3 concerning opportunities and challenges, an inductive approach was utilised. This involved generating new codes as necessary to identify each new challenge or opportunity. The inductive method was also applied in identifying the implemented circularity strategies.

Secondly, a deductive approach was used to address sub-questions 4 and 5. This method utilised a strict closed coding system derived from the theoretical framework of relationship determinants and connectors to analyse the transcribed data (See appendix 10.3.3. for the closed codes).

3.2.2. Cross-case analysis

A cross-case analysis is conducted to compare and contrast multiple case studies to identify patterns, themes, and variations. This approach enhances understanding by highlighting similarities and differences across different contexts or conditions. It is used to generate broader insights on which relationship determinants and connectors reoccur. Furthermore, it aides in understanding the different approaches to implementing circularity strategies and overcoming related challenges and enabling related opportunities.

3.2.3. Generic analysis

The generic analysis serves as a tool to weight relationship determinants and connecting elements based on repetition. It shows how often each relationship determinant and connector was mentioned directly and indirectly by interviewees, based upon the coding of the transcripts. High frequency suggests importance. However, frequency does not distinguish sentiment and includes positive, neutral and negative mentions.

3.2.4. Expert validation

Expert validation is performed to validate the opportunities and challenges related to circularity implementation. Further, this analysis is used to identify the determinants and connectors that enable circularity adoption by overcoming related challenges and enabling related opportunities. The generic and cross-case analysis simply identify the connectors and determinants that recur in the cases and in coding the transcripts, but it does identify which ones could actually enable circularity.

3.3. Data Management Plan

This research adheres to a data management plan (DMP), a necessity due to involvement with human research subject. This DMP can be found the appendix and aligns with the FAIR-data principles (Findable, Accessible, Interoperable, and Reusable) by Wilkinson et al. (2016). This is mandated by the research institute TU Delft overseeing this thesis. The plan will elaborate on why certain approaches are chosen. Details of the plan are provided in the appendix, covering data collection, management, and publication.

Storage is ensured on a OneDrive for Business with local backup. During interviews, only relevant personal information will be collected; non relevant information will be erased. Furthermore, only the drive's owner has access to the data. This research outcome will be publicly accessible in the TU Delft educational repository: https://repository.tudelft.nl/. Ethical considerations, outlined in subsequent paragraphs of the data plan, include obtaining informed consent from participants before the start of the respective interviews.

3.4. Ethical considerations

The ethical considerations of this research will adhere to the four principles of Internet/Web-mediated research: respect for the dignity of individuals, scientific value, social responsibility, and beneficence (Blaikie & Priest, 2018). These guidelines will govern the respectful and ethical treatment of all research participants, including interviewees and the organisations they represent. Identities will remain confidential and the research will not defame any party. This approach ensures that the study maintains scientific integrity and maximises benefits while minimising harm.

This research is particularly concerned with the willingness of the graduation company's clients and employees to share confidential information and personal opinions. Given the sensitivity of such data, responses must be kept confidential and details anonymised to safeguard participant identity. Steps will be taken to ensure that this information is kept safe, not shared with other parties, and handled in a manner that prevents data linkage to the graduation organisation.

3.5. Deliverables (including data sets)

- List of opportunities and challenges related to the adoption of circular practices in fit-outs.
- List of tenant-landlord arrangements and relationship determinants that facilitate a circular office fit-out.
- Stakeholder analysis regarding which stakeholder should take responsibility for which opportunity or challenge
- Supporting literature review and case study results, including identified circularity strategies.

4. Empirical research

Chapter 4 provides a description and examination of 5 case studies, on the basis of project documentation and semi-structured interviews with tenant representatives, landlord representatives and/or project managers. Each case covers multiple subjects.

First, there is the context of the case to determine differences and contextual boundaries. Second, as described in the literature review, the negotiation process and negotiation structure are important to describe because the characteristics of the landlord and tenant are important in making informed decisions and this allows to determine the relationship elements. Third, the scope of works is described to determine which circular strategies are used. Finally, the determinants and connectors of the relationship are identified based on context, the negotiation process and additional interview data.

4.1. Overview of the cases

The following table provides an brief overview of the cases:

	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Ownership structure tenant organisation	Private	Private	Government	Private	Private
Tenant organisation size	Large >50 people	Large >50 people	Large >50 people	Large >50 people	Small <20 people
Sustainability as part of tenant's core business	No	No	No	No	Yes
Ownership structure landlord organisation	RE Investor	RE Developer	RE Investor	RE Developer	RE Developer
Landlord size	Large	Small	Medium	Small	Medium
Size office	1000 m^2	850 m^2	3560 m^2	1150 m^2	350 m^2
Year Fit-Out installation	2023	2024	2022	2023	2014
New lease	Yes	No	Yes	Yes	Yes
Lease duration (years)	5	5	15	9	5+5
Relocation	Yes	No	Yes	Yes	Yes
Office energy label	A	A+	A	A+++	A
Fit-out already present	Yes	Yes	No	No	No
Relation to the graduation company	Lease + Fit-out	Fit-out	Lease + Fit-out	External	External

Figure 4.2.1. Meeting room with red carpet tiles (Colliers, 2024)

4.2. Case Study 1: Private Company

4.2.1. Context

An international company moved their Dutch branch from an office space in Woerden to an multi-tenant office building in Rotterdam in 2023. The new office space amounts for 1000 m^2, a lot smaller than the previous office space that amounted for more than quadruple the amount of square metres. The new office space aligns with the new ways of working concept, including different type of workplaces. Furthermore, the new Rotterdam office building has an energy label A and features a space that can be rented by all the tenants in the building for presentations and/or drinks (Colliers, 2024).

Initially, the company only wanted a new office fit-out at the previous office building. The previous office fit-out was 12 years old and had seen its best days. The landlord of the original office building in Woerden wanted to execute these fit-out works for the company. However, due to the pandemic and the new way of working concept, they needed less square metres. The company thus decided to relocate and look for another office. A search was done through a broker in a certain radius around the existing office. At the same time, the same broker had a client in the search area who wanted to dispose of a large number of square metres after the pandemic. They rented several floors in an office building and wanted to 'right fit' their office, but they could not terminate the lease without paying a fine (02, 03).

The broker brought both parties together. Negotiations were started to take over the lease. The negotiations about the lease eventually happened between the new tenant and the landlord. The new tenant wanted a direct lease with the building owner and no subletting (03).

4.2.2. Negotiation Process

The negotiation centred on two main points: early lease termination and exemption from fit-out removal. The landlord agreed to terminate the lease early if the tenant found a replacement and provided added value, such as a higher rent and longer lease term (01). This arrangement benefited the tenant by relieving them from the break option penalty and fit-out removal costs (03).

The landlord allowed the new tenant to keep the existing fit-out, which typically costs around 75 euros per square meter to remove. This agreement was negotiated directly between the old and new tenants, with the landlord and real estate agent involved (03). The landlord is pleased with the outcome: “We have a longer contract. We have a higher rent. We don't have to invest in the space upon transfer. It's only advantages." (01)

The new tenant desired a turnkey contract for the new office's fit-out to minimise workload, as the CFO was responsible for the move and office fit-out project due to the absence of a local office manager. The CFO did not want to take any old furniture from Woerden because it was outdated.

The existing fit-out in the Rotterdam office of the old tenant, only three years old, had been lightly used since it was purchased during the pandemic. The project manager stated: "So at a lot of desks, for example, you could still see the labels on the chairs. And where the company might have thought at the outset that they had to buy new furniture, the old tenant said, well, you can take this over from us, and the new tenant thought that this would be capital devastation as well as environmental waste. And financially, they both had a good deal. […] And they also both believed that they could not convince their employees not to reuse the interior." (02)

The office equipment's residual value was categorised into mobile elements (furniture) and fixed elements (floor, partitions, ceilings). The prior tenant donated the fixed elements, while the movable elements were sold to the new tenant at a predetermined price (03).

Negotiation Structure

The CFO of the company's Dutch branch appointed a broker to handle lease termination negotiations with the landlord, who also represented the previous tenant. The broker's company designed and executed the fit-out project, managed by a project manager. While the CFO made final decisions, budget approvals were made by the global officer.

On the owner's side, an asset manager represented the landlord, a major European commercial real estate corporation.

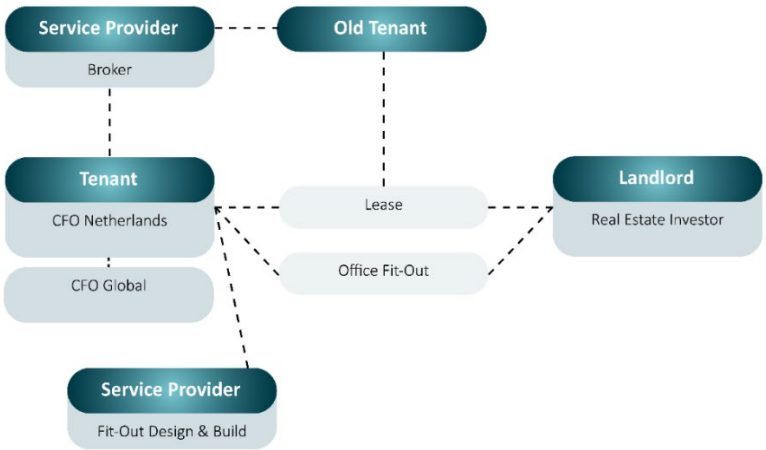

Figure 4.2.2. Negotiation structure (author, 2024)

4.2.3. Scope of the works

The scope of the fit-out project involved minimal changes to the existing fit-out, with the carpet floors and ceiling mostly untouched but thoroughly cleaned. Most inner walls, the cable ducts, server room, and pantry were reused, along with all desks and most furniture, eliminating the need for additional power and data points for workstations (Colliers, 2024).

The layout was adapted to the new tenant's needs by demolishing some metal stud walls to create new meeting rooms and adding new glass and metal stud walls and doors. 105 m² of walls were added. Existing desks were repositioned, and some painting was done. New mobile furniture for the meeting rooms was purchased, and small items like a new access system and cylinder locks were installed. Adjustments were made to the climate control system, electrical installations, and fire alarm system (e.g., lighting according to the new layout) (Colliers, 2024).

Furniture remained in the office during the work, moved as needed for wall demolition and protected with material. The project had two strict requirements: a fixed move date from Woerden to Rotterdam, making the schedule tight, and the need for new elements to match existing ones for a cohesive look. The old inventory from Woerden was sold to a buyer (02).

If the fit-out had not been assumed by the new tenant, then the owner would also have had to undertake renovations and bear associated costs: "The standard in the Netherlands is that you deliver [for a new tenant] to a shell-refurbished level. For nine out of ten owners, this means a levelled floor ready for the final finish. It includes painted structural walls and columns, typically in white. There is a finished restroom group with sanitary fittings. Usually, there's a suspended ceiling with lighting and installations, although these installations are not yet adjusted to the tenant's layout. This is the basic setup." (01)

Figure 4.2.4. Repair and refurbishment works (Colliers, 2024)

4.2.4. Circularity implemented strategies

STRATEGIES	IMPLEMENTED	ELABORATION
REFUSE		
REDUCE	x	Scaled back from about 4,000 sq m of office fit-out to 1,000 sq m of office fit-out.
REUSE	x	Reuse of all workstations, floor, ceiling and some internal walls.
REPAIR & REFURBISH	x	Repair, painting and cleaning work on ceilings, walls and floors.
DESIGN FOR DISASSEMBLY		
DESIGN FOR ADAPTABILITY		
MATERIAL PASSPORTS		
PROCURE SUSTAINABLE MATERIALS	(x)	Due to a shortage of time, an attempt to purchase reused furniture failed because the seller was unable to deliver on schedule.

4.2.5. Challenges and opportunities

Challenge: Personalisation constraints

One of the disadvantages of using existing furniture and fixtures is the lack of customising choices. The project manager stated, "You are obviously constrained in terms of colours, shapes, chairs, and tables. It's not their cup of tea right now. So it's not that the new tenant thought: Well, I would have bought the exact same chair for the table." However, coincidence can also play a role: "The interesting thing is that the colours of the existing carpet tiles were the colours of the new tenant. And those were extremely unusual tiles: orange, white, and red. So everyone thought they were incredibly special." So the company stated, "At least, it is our company colours", according to the project manager (02).

The landlord also indicates that personalised fit-outs are a weakness in a potential transfer to a new tenant: "Each tenant gives their own interpretation of the space. And from a sustainability point of view, that is of course quite a shame sometimes. Because sometimes you demolish really nice fit-outs. Because a new tenant just can't reuse it. But yes, we are very careful about saying: leave it behind. Because that can just cost you [as a landlord] a lot of money." (01)

Challenge: Time management

Another issue was the time constraint, which prevented the project manager from going to the second-hand market and purchasing the additional furniture and supplies that were needed. One example was an old inventory table that eventually could not match the quality requirements for the new office, necessitating the acquisition of a new one (02).

Challenge: Circle of Blame: The landlord addresses the challenge of fit-out responsibility by emphasizing that it ultimately falls on the tenant and the project furnisher. He points out the difficulties in reusing certain fit-out elements under his control, such as glued-down flooring and walls that require careful demolition for potential reuse. According to him, "not much remains" [of the landlord's fit-out elements] that can be easily reused, suggesting that discussions about reusing furniture and fit-out should involve the project furnisher rather than the landlord (01).

The landlord also states: "When it comes specifically to transferring the built-in package from one tenant to another, that responsibility will always stay with the tenants themselves." And although the landlord has the power to impose certain sustainability requirements for the fit-out, the landlord says: "Of course, that relationship [between tenant and landlord] is crucial for everything if you want to achieve these kinds of things [sustainability in fit-outs]. But, you see, the role lies more with the tenant and the requirements they have for the new layout and the project furnisher they appoint for it." (01) The landlord refers to their own experience: "Occasionally, you think, well, this is good enough to keep. And in more than half of the cases, you ultimately find out that a new tenant doesn't want it [the fit-out] after all." (01)

Opportunity: Financial advantages

An advantage of repurposing existing furniture in this case is that it is less expensive for both the seller and buyer. "They [the seller and buyer] felt this was the most cost-effective", according to the project manager (02). There's also a financial advantage for the landlord. When a tenant signs their lease, they usually receive a payment or discount from the landlord for their fit-out. If the new tenant can reuse the fit-out, the landlord's payment towards it is lower, offering the landlord financial benefits: "Look, we have one interest, and that is to lease that space. And whether that happens with a new fit-out or with reuse, ultimately it can bring us financial advantage if it's through reuse, because then perhaps the discounts we need to provide can be somewhat limited. But the goal is the same (01)." Therefore, the more fit-out works that is required, the higher the discount the tenant receives from the landlord for the fit-out. Additionally, the landlord usually arranges with tenants to buy out the fit-out stripping costs, covering demolition and potential leasing time loss incurred when a new tenant rejects the fit-out. Financial gain and no liability thus seems important to the landlord, and in that context they're willing to support office fit-out reuse.

Opportunity: Improvisation: Opportunity arises from improvisation: "When the end date arrives and we still don't have a new tenant, it often falls to me as the asset manager to assess: Is this fit-out something I have confidence in that we can work with going forward? Or is it so poor or so specific that it's really not worth keeping? In that case, I can say, remove everything. But what almost always happens is that I negotiate a buyout. So give us compensation that allows us to, in the worst case, remove everything." (01)

4.2.6. Identified relationship determinants

DETERMINANTS	IDENTIFIED	ELABORATION
Personal	x	Behaviour Expertise
Relational	x	Balance of power Sharing of information Communication Ethical profile
Organisational	x	Size Structure Strategy Place Product Price
Environmental	x	Dynamism Internationalisation Position Social system

Personal & Relational

Only the landlord had experience with the fit-out and the lease negotiations (**expertise**). The tenant relied on his broker and project manager. If the tenant now has a complaint or technical issue, the landlord has a service desk through which the tenant can communicate (**communication, sharing of information**). "But depending on the relationship you have with the tenant, yes, you also see that occasionally they call you directly." (**behaviour**) (01)

The landlord has a very high occupancy rate for the rental of their offices, which allows them to refuse tenants if their activities do not fit with those of the other tenants in the building, according to the landlord themselves. The landlord also indicates that they will continue to enforce this even with a longer occupancy rate. Therefore, the market being in favour of the tenant does not come into play. (**balance of power, ethical profile**) (01)

Organisational & Environmental

The price tag of the fit-out was mentioned several times by the project manager, just like the potential reduction in lease incentives was important for the landlord (**price**). Furthermore, the location of this office was of paramount importance, as it was not only convenient in terms of location but also matched perfectly in terms of colour for the fit-out takeover (**place**, **product, dynamism**) (02, 03).

For the landlord, the size of the tenant does matter: "The largest tenants are the best. When there's one tenant with a few thousand square meters, you often see that they have their own facility manager. Or a dedicated company for their maintenance issues. They are much more self-reliant than a small tenant in a shared building. Yes. The smaller tenant is much quicker to pick up the phone and call the owner. I have some tenants who just rent 10,000, 20,000 square meters. And I speak to them once a year, so to speak." (**size**) (01)

The landlord also has no problem sharing all data with the tenants: "For us as a publicly traded company, that's just part of what we do (**structure, strategy, position)**. So, sustainability is now part of it. And that's important for us because it can make our shares and our company more attractive […]. We're not necessarily more transparent, but to be attractive as a share for investors, you have to have a certain sustainability ambition." (**Internationalisation, social system**) (01)

4.2.7. Identified Relationship connectors

CONNECTORS	IDENTIFIED	ELABORATION
Information exchange	x	Access to each other's data (regarding operational consumption)
Operational linkages		
Legal bonds	x	5 year lease
Cooperative norms		
Buyer/Supplier Adaptation	x	Forgo the right to reclaim the office space in its original condition

Figure 4.3.1. Workplaces (Colliers, 2024)

4.3. Case Study 2: Private Company

4.3.1. Context

For their new office in Zwolle, an international company commissioned a new office fit-out for the third floor of their office building. The office building used to be a single-tenant let, but changing working patterns allowed the company not to rent the whole building anymore. They originally reduced all five levels to a tree, and then, when the office building's new landlord arrived in 2022, they reduced it to one office floor of about 850 m^2 (5).

This caused the office space that the company did still lease to be redesigned. The third floor consisted solely of enclosed small office spaces, 27 in total. The fit-out dated back to 2010. The new fit-out design provides an alternation of workstations in an open landscape office setting. In addition, there are small sound-insulated workstations, several meeting rooms and a large living space where lunch can also be served with an adjacent kitchenette (Colliers, 2024).

4.3.2. Negotiation Process

The tenant aimed to renew the lease for one floor and let the others expire. Despite the building meeting all criteria, they routinely analyse the market before renewing 5-year contracts. Limited options meeting the company criteria in their Dutch location to relocate meant they stayed. They require certified buildings close to public facilities and sufficient parking, avoiding locations with competitors. The tenant said: "There was not necessarily scarcity, just.... you can stay in your building and then you have a stronger negotiating position because you stay and that is good for the landlord. You can also go out on the market. Only if you go out on the market, it has to meet a list of requirements." (4) They had considered another building until a competitor moved in. They seriously

considered moving due to prolonged rent negotiations, which took a year instead of the usual 3-4 months. "The landlord just didn't cooperate at all. We would send a new clause or we would have reviewed a clause and it would take two, three weeks for them to respond." The tenant noted that fit-out design can only start after lease signing and that leasing to companies isn't the landlord's core business (4).

The tenant always negotiates to leave the fit-out to avoid demolition costs and benefit the next tenant. The tenant notes that when they rent a new office with a fit-out present, they try to integrate it. "Sometimes you can rent a building with a high-quality fit-out already installed. Then it's just a matter of adjusting the colours, and that often works." (4) However, combining all functions into a smaller space can make taking over the fit-out difficult. Their office style has shifted to open, activity-based spaces, tailored to the local cultures and local needs.

Negotiations included having an office operator on the ground floor for a flex-office, allowing shared meeting rooms with other tenants. The landlord was supposed to handle this, but it is still unresolved. They actively seek shared space opportunities through such platforms (4, 5). Until the new fit-out on the third floor was completed, they continued using the other two floors.

The design brief specified the new fit-out should be 'net zero,' involving significant additional funding, nearly doubling the budget per square meter compared to similar projects. Net zero was not achieved, nor was spending the whole budget. "We didn't spend the entire budget, which is not very common," stated the project manager (5).

This was the first project in the Netherlands where the company aimed to make the fit-out net-zero. They already had reference projects abroad. "In another abroad project, everyone in the organisation, from top to bottom, committed to making it a reference project. Everything was focused on that, and extra money was spent to make the right choices. This project was the first time we tried that [net-zero fit-out] in the Netherlands. We were aware that the first time is mainly about learning. If you want to achieve 100% success the first time, the entire organisation needs to be ready. I think the real estate department is ready, but, for example, the partner group and facility support aren't always there." The tenant also noted that the target for the real estate department is the choice of the building and energy consumption, not the fit-out at this point. (4)

Negotiation Structure

The tenant's representative is the Real Estate Projects Leader Europe, who oversees all fit-out and real estate projects for the company and has significant experience. The owner is a small Dutch real estate developer primarily focused on residential buildings but who also invests in offices. They are represented by the asset manager of the specific office building.

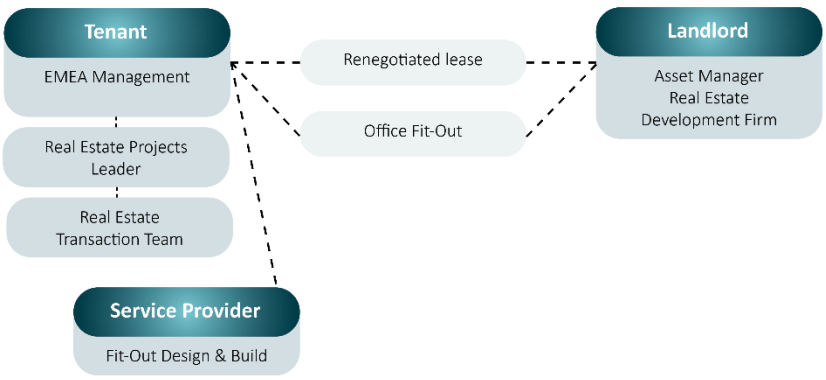

Figure 4.3.2. Negotiation structure *(author, 2024)*

4.3.3. Scope of the Works

The project resulted in the complete stripping of almost all interior walls, floors and much of the ceiling. A total of 820 m^2 of partition walls, 830 m^2 of floors and 502 m^2 of ceiling were removed (Colliers, 2024).

An ESG consultant and the project manager worked together using the 10 R-ladder to see how they could link each procured material to a specific R-principle (5). The initial steps of the R-hierarchy were not applied as nearly all materials were newly purchased without any reuse. The tenant said: “Nothing could be reused because, for example, walls were neither system walls nor plaster walls, but some kind of custom-built wall systems that could not be recovered.”(4) The primary emphasis thus was on sourcing new recycled materials that previously served a different purpose. The project also explored the future lifecycle of these materials post-use.

The disposal and sustainability criteria for the existing carpet were also assessed, resulting in the old carpet being recycled into new carpeting by the manufacturer. The new carpet contains 91.6% to 93.8% recycled and bio-based content and can also be recycled at the end of its lifecycle (Colliers, 2024). A recycled cellulose fiber spray was used for parts of the ceiling, and the removed ceiling tiles were reused to replace damaged ones, avoiding the need to buy new tiles. The recycling approach also included hard flooring, interior wall insulation, and certain wall coverings, outlining their recycling process after their service life (Colliers, 2024). Furthermore, the plan was to donate the old furniture to a circular furniture manufacturer and purchase new furniture from them, but in the end no circular furniture was purchased from them (4).

The tenant explains why they prioritise net-zero over circularity in their projects: "Office design isn't our core business. It's a result of the organisation's goal to be net-zero, which means reviewing all components and expenses. We've delivered on that by calculating a full footprint in some projects. We aim to make circular choices, but sometimes these choices are at odds with the primary goal of zero carbon." (4)

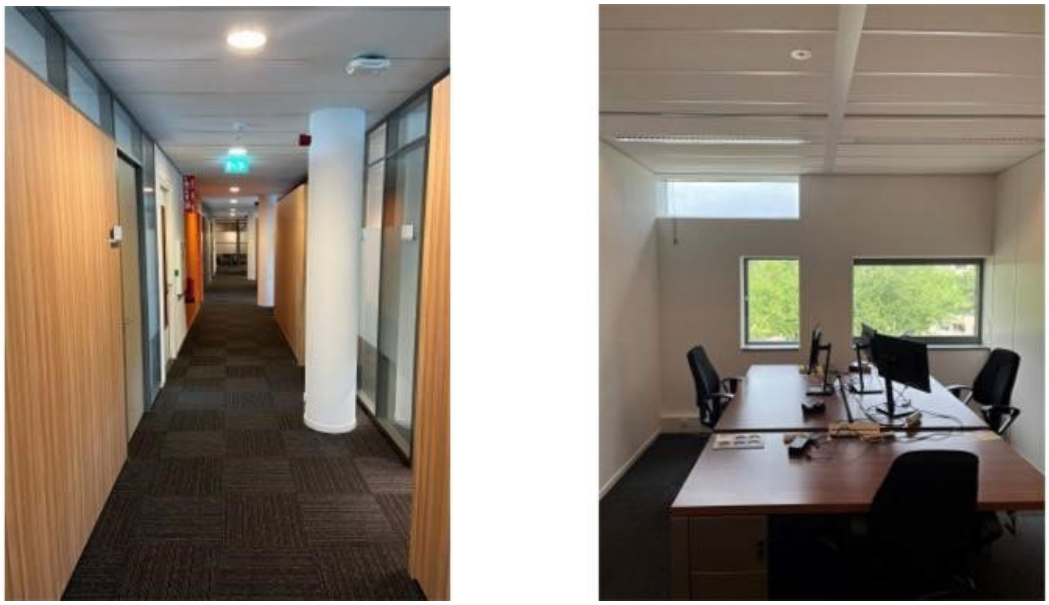

Figure 4.3.3. Old fit-out (Colliers, 2024)

4.3.4. Circularity implemented measures

STRATEGIES	IMPLEMENTED	ELABORATION
REFUSE		No new ceiling
REDUCE	x	Scaled back from five to one floor.
REUSE	x	Ceiling tiles were reused
REPAIR & REFURBISH		
DESIGN FOR DISASSEMBLY		
DESIGN FOR ADAPTABILITY		
MATERIAL PASSPORTS	x	Known what materials are in the building + arrangements with suppliers to take them back
PROCURE SUSTAINABLE MATERIALS	x	Procuring materials with a low-carbon footprint

4.3.5. Challenges and opportunities

Challenge: Time management

The long lease negotiations delayed the start of the design phase, which shortened the timeline. At the same time, the tenant had terminated the lease of the other 2 floors. So by a certain date, they had to move to the new floor. "I think that for a project with an ambitious timeline, I chose a weighty topic like circularity and sustainability as a pilot for this project. It's probably better to do that in a project where you're not under so much pressure, so you can make all decisions consciously from the beginning of the design process. You can look for the right materials and figure out how to reuse them. So I think the time factor played a role in this, and also it [net-zero fit-out] isn't a requirement yet," said the tenant (4). This is backed by the project manager, who said: "Well, you could see that to really think out net-zero that completely, you just take much longer. So in time we did say, okay instead of doing really net zero, we are moving towards net zero. And even that did slacken in time" (5).

Challenge: New suppliers & Uncertain quality

The tenant sought out circular furniture suppliers independently due to limited sustainable furniture options from their own preferred suppliers. However, these suppliers were deemed unprofessional by both the tenant and project manager. Previous experiences included bankruptcies and unsatisfactory delivery times, warranties, and high prices (4, 5). The tenant said: "I didn't feel comfortable advising my organisation [a refurbished product] where the price factor is so out of balance compared to other things you can evaluate. We have now chosen a new office chair with a very high circularity score. The new option is also very good. […] So I wrote my advice [to the company management] in favour of the new partner [new chairs instead of second hand]. You don't want to make yourself look bad." (4)

Delivery delays and uncertainty about the final product quality were also concerns. with the project manager emphasizing the importance of visualizing and testing furniture before procurement. ''We saw that schedules [of the potential second-hand furniture partner] were only half-delivered, which is actually very important. There would’ve also been a lot of reupholstering to do. And then [when

reupholstering] you still don't see the image of what it will become. So now we have really nice office chairs. But you can see them [in advance]. You can test them. You can feel them, so to speak. So you know what you're getting. Whereas if you say, well this is an old office chair, we're going to reupholster it and it's going to be super nice. Then you already have a lot of questions (5).'' Additionally, the challenge of outdated styles and aesthetics in refurbished furniture was highlighted, making it difficult to match modern ergonomic and aesthetic standards. “’You would have to make very timeless choices, but some things just look old-fashioned," according to the tenant. (4)

Opportunity: Design from materials

The tenant sees potential in designing fit-outs using available materials: "I think the biggest lesson is that, and this isn't a criticism of anyone in the process, we started designing from an image. And that image was filled with a colour palette and was a sexy rendering. So, when you look at materials, and it can't match your chosen colours, you quickly deviate from it. You can sketch an image using shapes, presenting the whole design language colourless, and then say, 'Now we'll fill it in with materials.' Then you look for sheet materials made of textiles, compressed coffee grounds, etc. What works best? What colour fits? How can we combine them effectively?" (4).

Challenge : Managing expectations & prejudice:

This office hadn't been renovated in 15 years. The tenant said, "In over 15 years, nothing was done. Naturally, you start to feel a bit left out at some point [as a local employee]. You want an office that looks nice too. So sometimes the local objectives are to have a great-looking, well-functioning office with the latest technology, which often takes precedence over sustainability goals."(4) Moreover, there are also prejudices about reuse. The tenant mentions that local departments often need convincing, and refers to two projects where refurbished furniture was used, which helped create acceptance among other offices due to positive employee feedback. "It depends on how you start the conversation. We've furnished two offices with refurbished furniture, so I could say, just ask what they thought. And the feedback was very positive. Those people didn't even realise they had second-hand furniture." The tenant added, "Many people in the Netherlands are becoming aware of sustainability and are generally open to it, as long as you promise them it will look nice, so to speak." (4)

Challenge: Personalisation constraints:

The tenant mentions that each office looks unique. "You always have to adapt locally. It needs to be relevant to the local team. You might be able to replicate it, but probably not." The tenant also emphasises the importance of brand identity: "Your office should be yours. If you want to maintain a specific culture, you have to ensure that your office reflects it." In relation to reuse, the tenant said: "You need to think differently about expressing your brand identity in a design with more neutral colours." On the other hand, the tenant referred to a product with neutral colours, stating, "The only thing that struck me right away was that it also seemed to lack a bit of soul." (4)

Opportunity: Attracting personnel

The tenant emphasizes that changing needs—both in terms of space requirements and evolving generational preferences—is influential in driving fit-out changes. The visible appearance is crucial for engaging customers and, importantly, for attracting talent by creating a pleasant working environment. This latter point is the primary reason the tenant opts for a flexible fit-out, as it accommodates the evolving demands of staff for their working environment and supports efforts to attract new talent (4).

4.3.6. Identified Relationship determinants

DETERMINANTS	IDENTIFIED	ELABORATION
Personal	x	Expertise Behaviour
Relational	x	Balance of power Ethical profile
Organisational	x	Size Structure Strategy Product Price Promotion
Environmental	x	Dynamism Internationalisation Social system

Personal & Relational

The tenant is highly experienced in fit-out projects (**expertise**)., whereas the owner's expertise lies primarily in residential real estate. When negotiating, the landlord had long response times regarding contracts, implying a lack of interest (**behaviour**). Additionally, the tenant sought to relocate to another office but couldn't find a suitable space in their desired location, necessitating collaboration on the project. (**balance of power, ethical profile**). (01)

Organisational & Environmental

The price tag and limitations of the fit-out was mentioned several times by the project manager, just like the more expensive circular furniture by the tenant (**price, product**). The tenant also describes the fit-out as a way to attract personnel and to create visibility among customers (**promotion**). Only that way, they believe to remain relevant and to attract workers (**social system**).

The tenant organisation's size enables the creation of pilot projects (**internationalisation**), to learn from developing net-zero office fit-outs (**size**). However, the company's unique partner structure, characterised by significant autonomy for each local branch, can sometimes impede the implementation of net-zero practices (**structure**). Nonetheless, the company's overarching strategy is to achieve net-zero status, and this commitment is evident in the selection of fit-out materials (**strategy**). Regarding the lease, the tenant mentioned: “Our leases get shorter, but we stay longer in the offices, which results in a smaller carbon footprint.” (04) The 5 year lease is standard within the company, and every 5 years this is reevaluated (**dynamism**).

4.3.7. Identified Relationship connectors

CONNECTORS	IDENTIFIED	ELABORATION
Information exchange		
Operational linkages		Flex office is not yet ready
Legal bonds	x	5 year lease
Cooperative norms		
Buyer/Supplier Adaptation		

Figure 4.4.1. Meeting rooms (Colliers, 2024)

4.4. Case Study 3: Government organisation

4.4.1. Context

A government organisation initially leased an office within the same corporate complex of another governmental organisation but aimed to secure its own independent space. By 2022, it moved to a 3,560 m^2 separate office space in Amsterdam, spanning three floors within a multi-tenant building. The building has an energy performance certificate A. Comprising both residential and commercial spaces, the building offers a total area of 4,320 m^2 of commercial space, with the government organisation assuming the role of main tenant upon relocation (Colliers, 2024).

4.4.2. Negotiation process

Brokers brought both parties together for negotiations. The landlord says that although they had several interested smaller tenants, they preferred to have one big tenant (7). The government organisation was also interested in renting for a long term. They concluded on a 15-year lease. This made it an extra attractive party for the landlord. "This is about such a large sum of money because it is such a long-term deal. That is also the only reason why we put so much time, effort and money into it [to get this tenant]. Look, the governmental organisation, it's part of the Dutch government. That's just a good tenant," according to the landlord. "You just know for sure that for a long time you will get your cash. That's very important to us. It's not any party you do not know. And along with such a period of 15 years, [that] makes it great." (7) The chosen location aligned seamlessly with the governmental organisation's operations and the image they sought to convey through this office (7, 8). Nevertheless, the landlord noted challenges in leasing out the other commercial space in the building due to specific stipulations imposed by the municipality and the neighbourhood potentially being unsafe at night. Only recently has the building reached full occupancy.

Regarding the fit-out negotiations, the landlord noted that it's a BREEAM building, but that they themselves have no other specific requirements, apart from the contractual arrangements. The landlord said: "We looked at the presented plan [for the fit-out] and they told us that it was indeed built according to certain green conditions. And it was actually initiated more from them than it was from us. But that was because they [the tenant] were already very active. So I don't have to be reactive." (7)

The government agency issued a European tender for the fit-out project, dividing it into furniture and other fit-out works. The furniture procurement required adherence to circular principles, whereas the other fit-out components had no specific sustainability criteria (8, 9).

The landlord expressed trust in the tenant's compliance with material standards, stating, 'If a new tenant goes in, who tells me how they are going to build so that it is all BREAAM compliant, then I believe it too. So I don't have a specific list of; I want you to use this material. I assume they kind of do. But we do check it. But with this tenant it went [well] because of how they themselves were in it.'' Generally, the landlord does not interfere with fit-out details unless they involve modifications to the façade or deviate from the contract (7).

The landlord noted their financial contribution to the fit-out, saying, 'We always try to do that [a contribution] a bit, but now we have given 26 months' rent to them to make a nice fit-out. Usually it is not such an astronomical amount.' (7) The tenant uses this contribution to pay for the fit-out, and any costs exceeding this amount are covered by the tenant. According to the lease agreement, at the end of the term, the tenant can leave the fit-out in place without needing to remove it (Colliers, 2024). During the lease, the fit-out belongs to the tenant. However, it is uncertain whether this becomes the property of the landlord at the lease's end or if the tenant can take them, especially considering the landlord's significant contribution.

In these negotiations, there has been above-average personalisation in favour of the tenant in the lease, according to the landlord. Yet the landlord does not think this is a problem; "No, I think it is actually a strength. This is such a specific large rental income that we have looked very specifically at every component. And that's different from, say, all these residential contracts, which are all the same. Those are all uniform. But here you do look at fit-to-tenant." (7)

Negotiation Structure

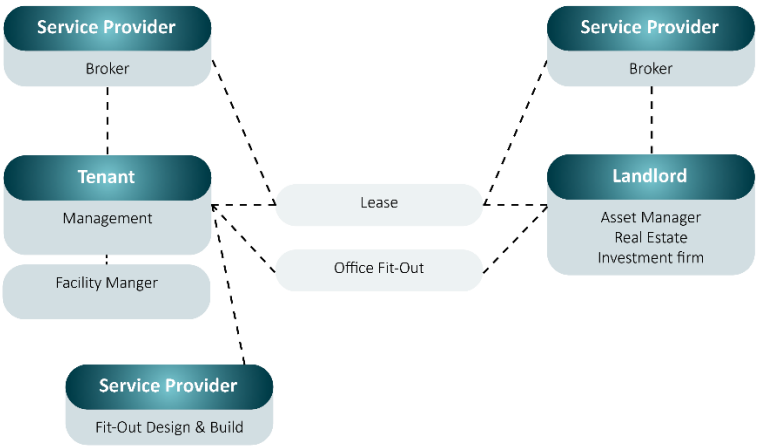

Figure 4.4.2. Negotiation structure (author, 2024)

4.4.3. Scope of the Works

The government organisation was the initial occupant of the new office building, which had no prior fit-out. However, the space wasn't completely unfinished; it included a suspended ceiling system with integrated strip grids. Additionally, a cable tray system was already installed in the ceiling, and a raised floor system had been put in place (Colliers, 2024).

From the start, sustainability was a key concern for the tenant, according to the project manager. The manager highlighted the use of carpeting made primarily from recycled materials. Moreover, a distinct procurement process was carried out for the furniture, requiring it to be sourced through circular means (8, 9). In this context, 'circular' refers to furniture that has been previously used, then repaired and refurbished to be resold by the manufacturer.

In the office, plaster walls were chosen as internal dividers. The project manager expressed a reservation about this choice, noting, ''I myself come from the system walls, i.e. relocatable system walls. You can't move plaster walls, that's demolition. So I'm very much like, hey, why not just moveable system walls? But yeah... Those are more expensive.'' The decision to use plaster walls was made because they offer better acoustic properties and are easier to finish. The project manager mentioned that the government organisation had a sufficient budget to afford a high-quality finish, leading them to choose plasterboard walls, as the system walls have more limited finishing options available (8).

While the ceiling was initially installed, it required a complete reconfiguration to match the new design. The air conditioning system also needed modifications to accommodate the newly created enclosed spaces, allowing for room-specific climate control. The design didn't align with the ceiling, and as noted, “That didn't match exactly. So to the pattern of the building, the design wouldn't always go with it.” (8)

The carpet has a provision for return to the manufacturer upon the demolition of the fit-out (8). This arrangement is outlined in the manufacturer's warranty terms, although it is not mentioned in the lease or fit-out contract (Colliers, 2024).

Figure 4.4.3.1. Delivered condition by landlord (Colliers, 2024)

Figure 4.4.3.2. Finished condition by tenant (Colliers, 2024)

4.4.4. Circularity implemented measures

STRATEGIES	IMPLEMENTED	ELABORATION
REFUSE		
REDUCE		
REUSE		
REPAIR & REFURBISH		
DESIGN FOR DISASSEMBLY	x	The carpet tiles are not bonded with tar or laid in rubber
DESIGN FOR ADAPTABILITY		
MATERIAL PASSPORTS		
PROCURE SUSTAINABLE MATERIALS	x	Procuring repaired and refurbished furniture (circular)

4.4.5. Challenges and Opportunities

Challenge: Legislation

The project manager discusses the economic aspect of depreciating fixtures: ''But if it's not your colour, you pull it out, right? That is a cost, but not a significant cost compared to the total staff costs. After all, the depreciation period is five years. So if government organisation says in five years, we are going to remodel, is that allowed? Because then it will be economically depreciated. Then that's allowed. After that period, it doesn’t really matter if you continue to use it for another five years." (8)

Challenge: Personalisation constraints

Both the landlord and the project manager identify the limited options for personalisation as a significant challenge in reusing materials for office interiors. "The spaces that are now bold and perceived as nice by today's society, that could be different in 15 years' time. And surely a new company wants to put its own signature on its space," the landlord explains. "I think you could take some things [e.g. furniture] with you. But I still think a lot of new tenants want to be able to put their own signature on something." (7)

The landlord also points out that allowing personalisation can foster longer tenancies: ''I firmly believe that if you give the tenant the chance to make something completely to his own liking, they will stay for a much longer period, because it is exactly what they wanted to build.'' (7)

Challenge: Fixed elements

Pre-existing structural elements like the ceiling and floor often limit design options. In this project, these elements could be altered, but had to be rebuilt at the end of the lease. For example, 300 square meters of new ceiling was removed and replaced with an open ceiling finished with acoustic spray. The project manager stated: "Why was that done? It's for the design—an 80 cm higher ceiling. It's recommended by [designer] colleagues, and eventually, you get approval from the client. But it's us who come up with these ideas. As their colleagues, we also think; now we have to demolish something new because we want a different aesthetic? Is that sustainable? No, it’s not. Not all choices are sustainable. Design considerations take into account several aspects, and the most crucial factor is creating a standout design. What makes you stand out is that you make very beautiful designs." (8)

Figure 4.4.5. Acoustically sprayed ceiling (Colliers, 2024)

Challenge: User behaviour

The project manager also emphasizes the importance of regular maintenance to overcome a careless user mentality and to extend the life of materials. "The user mentality needs to change. It shouldn't be a case of: Oh no, there's a stain; let's buy a new sofa or table. I believe that's just laziness. Plus, people think: What's a few hundred euros for a new chair? It makes us comfortable again." Regular maintenance not only preserves the condition of materials but also creates greater respect from users. While this approach may reduce the need for replacements, it does entail additional costs for maintenance sessions (8).

Challenge: Efficiency of reuse process

The project manager made reservations about reusing materials: "Cutting plasterboard between the tin and then bringing it back to the factory, you have to handle it carefully in transport. So instead of dumping it in the bin, you need bring it down by lift. Then you have to completely cover the lift door. And you have to lay it down in a truck. So the processing and scrapping is more expensive. And eventually at the factory, of course, they have a look at it at and decide, oh, there has been an electrical box put in here. So those pieces go away again, because the fire safety not okay." Moreover, the project manager points out the cost implications: new plasterboard costs less than recycled. Additionally, recycled plasterboard is typically only suitable for use as an underlay, limiting its application (8).

Challenge: Underdeveloped materials and installation methods

Due to quality issues, the manufacturer replaced all the carpet tiles that had been installed. These tiles were laid without adhesive, rubber, or tar, using only an anti-slip method intended to simplify future removal. However, the seams between the recycled tiles did not align correctly, prompting the manufacturer to replace them. The project manager states they have a good cooperation with this manufacturer and that they are certainly not an unprofessional party. In this context, the manager refers to the fact that the product itself is still in the development phase (8).

Opportunity: Supplier involvement

The project manager identifies the involvement of manufacturers as an opportunity, especially also in the demolition phase. ''If demolition is going to take place in 5 or 10 years, whoever is going to do it should take that [the original supplier] into account. If that's another party (than us) in a moment, they'll be like, everything to the dump. I hope that at that stage there will be people who take a look at the brand and call the supplier. Nowadays with bigger demolition jobs of ceilings, plaster, and floor coverings, they often approach the suppliers of the products who take it back and recycle it," explains the project manager. This direct involvement of suppliers is crucial as they recycle with an understanding of the product specifics (8). The project manager also notes the economic benefit the waste management industry gains from recycling, particularly in how materials like carpeting are 100% recyclable.

4.4.6. Identified relationship determinants

DETERMINANTS	IDENTIFIED	ELABORATION
Personal	x	Expertise Personal attributes Behaviour
Relational	x	Commitment Ethical profile Sharing of information Communication Balance of power
Organisational	x	Size Structure Strategy Product Price
Environmental	x	Position Market structure Dynamism Social system

Personal & Relational

Both the landlord and tenant had experienced team members for the fit-out and lease negotiations (expertise). The lease contract was non-standard due to the tenant's size and a 15-year period (commitment). Communication between the parties was strong. The landlord remarks, ''The communication is hearty [There were some problems with the new building]. We want to build a long-term relationship with them. So we try our best to accommodate their needs. In addition, there is a technical manager who is readily available to address any inquiries and can intervene promptly if necessary." (communication, ethical profile, sharing of information).

This is also substantiated by the project manager, who refers to defects when the office was handed over: ''The owner went along with that [our remarks] very much. The owner, he just became a good relationship because of that.'' These building defects necessitated collaborative problem-solving. Costs from these issues were recoverable from the developer, not the investor. The project manager noted that these defects resulted in daily contact and a positive ongoing relationship, even sharing personal moments like photos during "beer time" on Fridays. ''He has become a good relationship, the facility manager of the government organisation.'' (personal attributes) (7, 8)

The landlord highlighted the special consideration given to this tenant compared to others, showing extra leniency and understanding about the wear and tear over the long lease term: "If I am asked by store tenants if fit-out elements can be transferred to another party, I tell them to sort that out with each other. […] The government organisation's office looks really nice now. But after 15 years of use, if the ceiling system doesn't look the same as day one, I understand."

Organisational & Environmental

The government organisation's relocation to a new office on a very specific location [non-disclosable] showcases organisational and environmental factors. The organisation's substantial size required a large, energy-efficient space that catered to its operational demands and strategic goals (size, structure, strategy). By selecting a fit-out with circular furniture, the organisation reinforces its identity and demonstrates its commitment to setting a standard for environmental responsibility as a part of the government (position, social system).

The negotiation process for the lease and fit-out underscored the landlord's personalised approach and substantial contribution to the fit-out (product, price). The landlord also explicitly mentioned making an extra effort to attract this particular client, considering the market conditions, the tenant's status and the less desirable location of the property compared to other office buildings (market structure, dynamism). (7, 8)

4.4.7. Identified relationship connectors

CONNECTORS	IDENTIFIED	ELABORATION
Information exchange	x	Regular communication, beyond what was agreed
Operational linkages		No access to each other's operational data
Legal bonds	x	15-year lease
Cooperative norms	x	Clause in the contract: The parties recognise the importance of sustainability and agree to support each other in achieving the jointly formulated or to be formulated objectives and to discuss progress on a regular basis (Colliers, 2024).
Buyer/Supplier Adaptation	x	Adjustments in favour of the tenant

Figure 4.5.1. Empty office floor with fixed ceiling and floor *(author, 2024)*

4.5. Case Study 4: Private Company

4.5.1. Context

In 2023, an international company relocated its operations to a new 1150 m2 office space in Aalst, occupying the entire second floor of a multi-tenant building. The decision to move stemmed from the impending expiration of their lease at their old office building, where the landlord was hesitant to undertake necessary renovations (06). Furthermore, with the pandemic drawing to a close, the prospect of returning to an outdated office failed to inspire the staff. After considering two options, they chose a brand-new office building in Aalst with an energy label A. During the transition, they rented flex office spaces from their new landlord's in the same building, who offers such spaces to both tenants and external parties. They terminated the lease during the pandemic and could not go back to their old office (06, 07). This headquarters project in Aalst was part of a larger real estate master plan. At approximately the same period, their warehouse in Aalst and adjacent office were updated. Both offices have a similar appearance inside, and work may be done from either one (06).

4.5.2. Negotiation Process

In the new office building, no fit-out was present, but the landlord provides a fully furnished ceiling and a raised floor with wiring underneath, which cannot be altered. The ceiling must remain untouched, the floor should be covered with carpeting (07).

Initially, the fit-out consultant suggested an extravagant new design, with everything being brand new and highly expensive. However, the tenant disagreed with this approach. "We told them we really want to reuse what we have. And that should be integrated into the design. And we want to scale it down a bit. Because it's too spectacular. For our corporate image, we want to reuse what we have," explained the tenant (06).

The tenant emphasized the importance of choosing materials and neutral colours in relation to reuse, noting, "We made sure we worked with materials that will remain appealing in 10 years from now. Our goal was that when we eventually leave, that for the next tenant, we made material choices that would not stand out too much. We chose everything so that we are certain that [what is installed] will be allowed to stay. These are all solid materials. We are confident that the next tenant will be allowed to keep it. That it will not have to be completely demolished again. The walls, kitchens, restrooms, and so on. That it can be reused." (06)

Regarding the choice of materials, the landlord stated: "There is no requirement for tenants to choose a carpet that must be recyclable if it is removed within five, six years. In general, there are no requirements regarding the specific fit-out materials or the contractors or whatever." (07)

Whether the fit-out may remain was negotiated upon during the lease negotiations. "The contract doesn't say that [the fit-out can stay]. And we asked the landlord to amend it. The landlord told us; in principle yes, but I'm not going to put that on paper. If my next tenant says, for me [the existing fit-out] is okay, then it can all stay. If my next tenant says no, I don't want that, then it's going to have to go out. Which we [as the tenant] would find very unfortunate." The tenant also noted that in their other office with adjacent warehouse, they managed to amend the contract so that the fit-out could stay. (06)

However, sometimes this is also decided on the spot. The landlord refers to another tenant that was supposed to strip out their fit-out when leaving, but allowed the tenant to leave it. "At our other office building, there were already exquisite internal walls with glass and embedded blinds. It was really pathetic to tear that down." according to the landlord. "If you can still use it, it's better for the environment anyway. It's more sustainable. We are working on that tremendously." (07)

A steering committee was established to ensure effective communication between the landlord and tenant. Led by the tenant's facility manager, it included representatives from both parties, as well as executives from various tenant's company departments. This committee organised weekly meetings to facilitate consensus and coordination with the construction team (06). The landlord's direct involvement with the fit-out refers to his role in decision-making and execution of certain fit-out tasks. The landlord stated: "If we cover part of the costs for the carpet, then we are also involved in the selection. However, that means we need to drive the process. We do steer contractors." Emphasizing transparency, the landlord demands access to fit-out plans and operational data, a stipulation outlined during negotiation (07).

Negotiation Structure

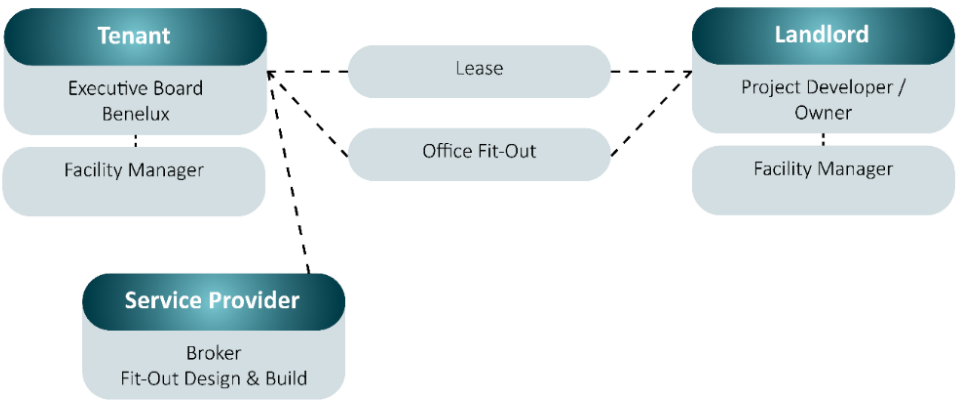

Figure 4.5.2. *Negotiation structure (author, 2024)*

4.5.3. Scope of the Works

The transition to the new office occurred in three stages. Initially, efforts focused on vacating the old office, with items inventoried for relocation or disposal. Most fixtures, including kitchen installations, were left in the old office, while furniture was taken for future reuse (06). In the end, all the desks and office chairs were repurposed since they were still in satisfactory condition and didn't require any repairs or reupholstering. However, everything underwent a thorough cleaning since the items had gathered a significant amount of dust while being stored at the moving company for an extended period.

The second stage involved relocating everyone to temporary flex office spaces since the lease for the old office had ended and the new one was not ready. These office spaces offered by the landlord are highly adaptable, thanks to demountable walls. The walls could be shifted, removed, or modified with doors and glass, and their design meant they could be repurposed elsewhere. Additionally, the manufacturer provides an option to repurchase the walls at a reduced rate, a detail that could be factored into the initial pricing of the office fit-out (07). The tenant also inquired about the possibility of using these demountable walls for their own fit-out, but their fit-out partner advised against it, so in the end they did not go ahead with it (06).

The final phase involved constructing the fit-out and relocating. The ultimate design was more conventional. Everything except the workstations and cabinets was new. The tenant prioritised the use of long-lasting materials throughout the fit-out and the installation of a minimal amount of walls, restricting them to the meeting rooms and phone booths. Regarding the newly-bought furniture, the tenant states: "We went along with a trend. Phone booths and seats for people and so on. We have to have that. But not too extreme" (06).

Besides outfitting this office, the tenant was simultaneously furnishing the other office adjacent to their warehouse. They realised the old office didn't leave enough chairs for both new locations, leading to the purchase of new office chairs for every workstation. Ensuring uniformity in appearance between both offices was a priority for the tenant, so the surplus old chairs were sent to their office in the Netherlands (06).

In the warehouse-adjacent office, the tenant worked with another fit-out partner. Together, they looked to emphasize circular design principles, choosing minimal permanent installations to facilitate future reuse. The tenant said: “We clearly said to [the new partner]: let us not drill anything into the walls. But let’s leave it loose. That way, we can recover all those wooden meeting tables, the phone booths, the tables, so when we leave we can recover them. They can basically all be taken apart, to be able to take them to the next office." (06)

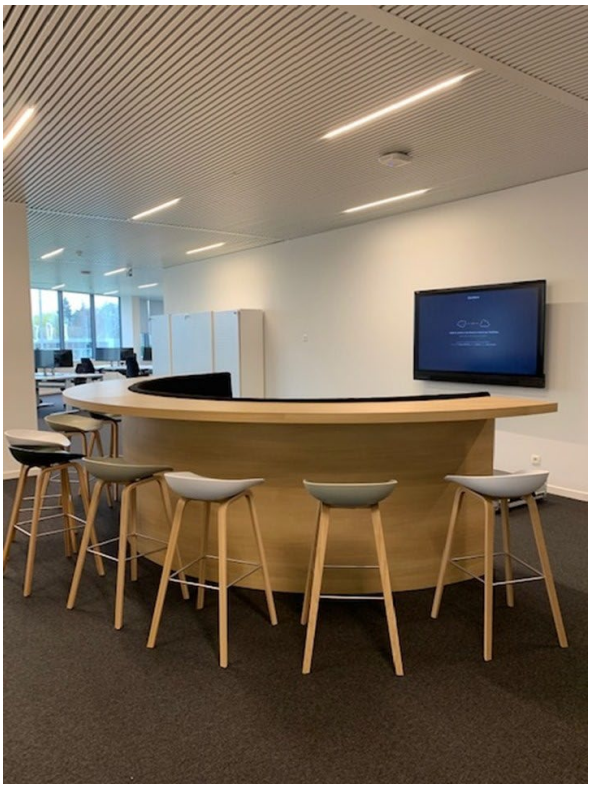

Figure 4.5.3.1. Bar area *(Tenant, 2024)*

Figure 4.5.3.2. Meeting Room *(Tenant, 2024)*

Figure 4.5.3.3. Wooden kitchen *(Tenant, 2024)*

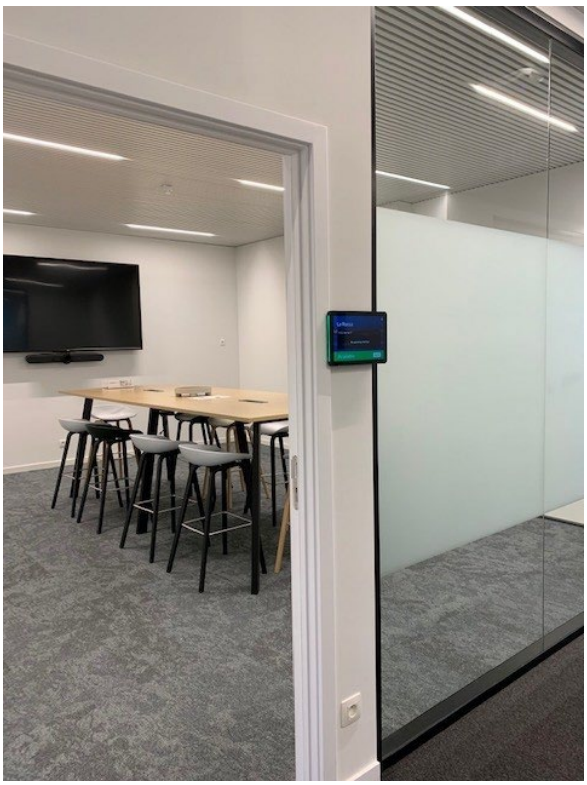

Figure 4.5.3.4. Meeting room with fixed walls *(Tenant, 2024)*

4.5.4. Circularity implemented measures

STRATEGIES	IMPLEMENTED	ELABORATION
REFUSE		
REDUCE	x	Scaled back
REUSE	x	Nearly all furniture was taken to the new office
REPAIR & REFURBISH		
DESIGN FOR DISASSEMBLY	x	Free-standing phone booths and furniture - minimal fixings to walls
DESIGN FOR ADAPTABILITY	x	Minimum number of internal walls – Flex office with demountable walls
MATERIAL PASSPORTS		
PROCURE SUSTAINABLE MATERIALS	(x)	Procuring materials that are durable and have a longer average lifespan

4.5.5. Challenges and Opportunities for circular fit-outs

Opportunity: Product-as-a-service

The tenant decided against incorporating the demountable walls in their fit-out, but these walls were utilised by the landlord in his fit-out for the flex-offices. The landlord purchased these walls and regularly reconfigures them to suit the needs of his flex-office clients. Moreover, the option for the manufacturer to buy back the walls provides a financial advantage, lowering the initial extra costs and eliminating disposal expenses later on (06, 07, 08).

Challenge: Personalisation Constraints

The degree of customisation available in an office building with numerous fixed features depends on the tenant's size in terms of rented office space. For instance, selecting a specific carpet is not possible if only a portion of the floor is rented, as uniformity needs to be maintained. The tenant contrasts their rental of the whole office building next to the warehouse, which allows extensive personalisation, compared to their situation in this office building. While they have greater flexibility in the fully rented warehouse-adjacent building, their capacity for customization is more limited in the current building where they are one of many tenants (06, 07).

Opportunity: Lease duration

In this case study, both short-term and long-term leases present opportunities for enhancing circularity. The tenant has opted for a short-term lease for the flex-office, minimising their space needs. Concurrently, their new office, as discussed in this case study, is secured under a 9-year lease, surpassing the average lease duration identified in the literature review. This facilitated the focus on selecting materials that are durable and have a longer lifespan (06, 07).

Challenge: Cultural acceptance

The tenant dealt with a shortage of office chairs by purchasing new chairs for both of their locations in Aalst to ensure uniformity in furnishing and aesthetics. This decision was made to prevent discrepancies that might lead to employee dissatisfaction or questions about why one location had newer chairs than the other. The surplus old chairs were then sent to their office in the Netherlands,

where they were less concerned about furniture disparities. This strategic move helped maintain a consistent look and feel across the offices, mitigating potential discontent among employees and avoiding any perceived favouritism based on office furnishings. The tenant said: "[If we would put only new chairs in one location], we would get a lot of comments as to why this is the case in one office and not in the other office. And we don't get these comments from our Dutch colleagues. They say: oh fine, thank you. Here (in Belgium) they are more concerned with why are new chairs there and why don't we have new chairs. It's all very sensitive." (06)

Opportunity: Improvisation

The landlord discussed instances where they chose to keep certain elements of a tenant's fit-out that were still in good condition, like glass walls with embedded blinds and leftover furniture, which was then offered to staff and contractors. Despite these deviations from the contract, the landlord stressed the importance of having clear contractual terms that require tenants to return the property in good condition. "I don't care. I have an expert site description. They just have to give it back in a good condition. We have a building now. The tenants are moving out. We are going to completely overhaul the building and renovate it. We are not going to charge anything additional [for leaving their fit-out]. But they have to give it back decently. We are not supposed to pick up any dirt from the previous occupant," according to the landlord. (07)

Challenge: Storage

The landlord discussed the accumulation of furniture and materials, explaining the necessity of having storage space to avoid discarding them. The tenant had to store furniture between two offices through a moving company, incurring additional costs and necessitating subsequent cleaning. At the moment, the landlord stocks the leftover, usable furniture that previous tenants wanted to throw away, storing it on vacant office floors in their building. This strategy is also seen as a potential service for new tenants, who might choose to use that existing furniture. However, this service is contingent on the availability of unoccupied space; if the building were fully leased, offering such storage would not be feasible. (06, 07)

Opportunity: Legislation

The EU Corporate Sustainability Reporting Directive (CSRD) mandates comprehensive sustainability reporting for companies, impacting tenants and landlords of office buildings. Scope 1 emissions cover direct emissions from owned or controlled sources, like heating in buildings and the company facilities. Scope 2 covers indirect emissions from purchased energy, such as electricity for lighting. Scope 3 encompasses all other indirect emissions, both upstream and downstream, e.g. the purchased materials, waste disposal… extending to the entire value chain of a company's operations (Directive(EU)2022/2464)

For tenants and landlords, this means they must report their respective emissions—landlords for the building's common areas and structural features, and tenants for their leased spaces and associated operations, such as the office fit-out. Both interviewees referred during the interview to reporting that can help reduce the environmental impact of office buildings and promote transparency in their sustainability practices (06,07).

Figure 4.5.5. Empty office floor serving as storage for abandoned office furniture (author, 2024)

4.5.6. Identified Relationship determinants

DETERMINANTS	IDENTIFIED	ELABORATION
Personal	x	Expertise Behaviour
Relational	x	Commitment Sharing of information Communication Ethical profile
Organisational	x	Size Structure Strategy Product Place Price
Environmental	x	Dynamism Social system Market structure

Personal & Relational

The tenant and landlord are both dedicated to sustainability efforts, such as reducing waste (commitment). The tenant is particularly proactive, regularly reporting on its environmental impact globally (06). Renovating multiple offices at the same time, the tenant's representative has significant experience in refurbishing their offices (expertise). While the landlord is knowledgeable about their buildings, they find the tenant's specific reporting needs challenging but recognise the importance of adapting to these environmental responsibilities. The landlord states about it: ""It's not intimidating. They [the tenants] are working on it. We have to accept it. And I think we actually have to be more and more conscious of that." (behaviour) (07)

The communication strategy between the landlord and tenants is streamlined by assigning specific individuals (typically the CEO or facility manager) from each tenant company to handle interactions. This ensures clarity and aids in resolving issues like potential miscommunications. The landlord explains, "If we don't facilitate between two tenants [to take over each other's furniture], sometimes there is a miscommunication, and then we run the risk of it all staying there."(07)
Contrastingly, the tenant highlighted a difference in communication experiences based on property type. Renting an entire building (their warehouse adjacent office) offers a sense of ownership and potentially smoother operations. "Here it goes smoothly too, but here we rent a floor. And there it is actually ours. Completely our building. So that's different. But here they definitely cooperate as well, for example if we need info for our reporting. But that is it. We are one of so many tenants," said the tenant. (sharing of information, communication, ethical profile) (06)

Organisational & Environmental

In the tenant relocation to a new office in Aalst, several factors illustrate broader trends. The company's size necessitated a large, modern space, reflecting its operational needs and corporate strategy (size, structure, strategy). Choosing a building with a corporate appearance and sustainable features aligns with their organisational identity and market trends favouring green buildings (dynamism). The negotiation process regarding the fit-out highlighted cost-effectiveness and environmental considerations, with a focus on reusing materials and choosing durable fit-out elements (product, price). This approach mirrors a societal shift and push toward sustainability (social system), stimulated both internally and externally. However, the social system differs slightly between countries, as cultural acceptance plays a role in reusing materials (place). Furthermore, the market structure also favoured the tenant, or as the landlord said: ''It's not an owner market at the moment, where you can enforce a lot. That obviously plays into in our relation [with the tenants].'' (07) (market structure)

4.5.7. Identified relationship connectors

CONNECTORS	IDENTIFIED	ELABORATION
Information exchange	x	Sharing of information regarding environmental reporting
Operational linkages	x	Flex office + access to each other's data
Legal bonds	x	9-year lease
Cooperative norms		
Buyer/Supplier Adaptation	x	Verbal agreement on leaving the fit-out in place if the tenant wants to take it over.

Figure 4.6.1. Phone booths of waste materials *(author, 2024)*

4.6. Case Study 5: Private Company

4.6.1. Context

In 2015, a private company expanded into a larger office, leasing half a floor of approximately 350 m^2 in an Amsterdam office building that had been upgraded to an energy label A. Previously vacant, the building underwent extensive renovations in 2013 to enhance energy efficiency and update the interiors. During the renovation, all installation systems were replaced, and the office spaces were stripped back to their shell structure before being handed over to tenants. The private company secured an option on the space while renovations were being finalised, providing them ample time to organize their relocation (13).

4.6.2. Negotiation Process

During the office space negotiations, the emphasis was on flexibility. In collaboration with the landlord, a unique lease agreement was established, where payments are based not on square meterage but on the number of occupied workstations (FTE). This arrangement helps manage startup costs effectively, aligning with the company's growth — as the number of employees increases, so does the rent. Eventually, this could lead to the tenant paying more than the typical per square meter rate, benefiting both parties. The tenant expressed intentions for a long-term stay right from the start of negotiations. After nine years in the space, the tenant shows no signs of moving, holding a current five-year lease with an option to renew for another five (13).

The tenant says this unique lease agreement is not due to market dynamics giving the tenant a negotiating advantage, but rather vision. ''It came more from the vision we have, and then you look for a party that also goes along with it. And this landlord went along with it.'' (13)

Only the installation technology was provided by the landlord. These installations were visible and fitted per floor in consultation with the new tenants, as they influenced the layout. After installation, modifications were not allowed. The tenant and their architect collaborated on the fit-out, starting with a preliminary design that did not specify materials. They then sourced previously used materials to make the fit-out circular. When the tenant vacates, all landlord-installed furnishing elements, including the sprayed acoustic ceiling and installation technology, will remain, as noted in their contract.

Negotiation Structure

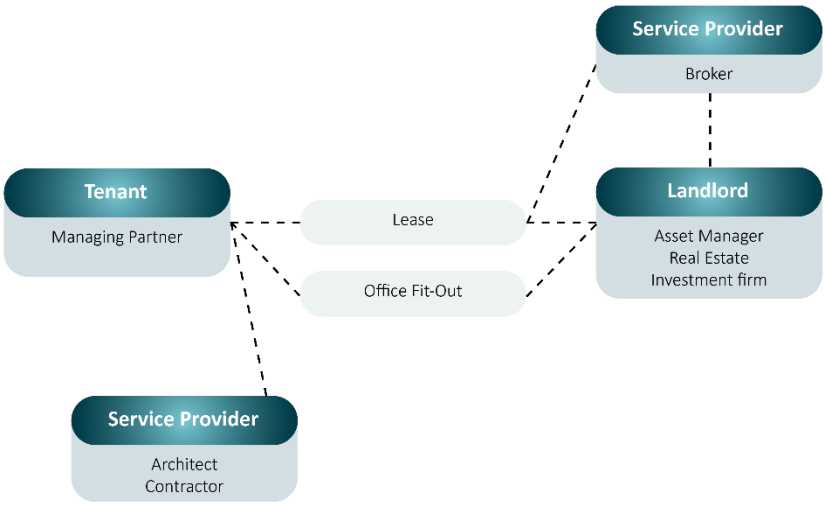

Figure 4.6.2. Negotiation structure *(author, 2024)*

4.6.3. Scope of the Works

The office space was delivered shell, and no furniture or major elements were taken from the old office to the new one. For the fit-out, they sourced used materials as much as possible; e.g. the office partitions are crafted from wooden frames and glass sourced from sliding doors of a nearby retirement home. The glass panels in the meeting rooms were repurposed from a former municipal office, while the carpet tiles in these rooms are reused from past projects by the supplier. In general areas, the carpets are made from recycled fishing nets, and the ceilings have been acoustically treated with a spray made from old newspapers. During the pandemic, phone booths made from reclaimed waste materials were added, constructed by the tenant itself. The glass panels in the meeting rooms, although salvaged from a municipal office, were installed into non-demountable system walls. Unlike typical installations under a suspended ceiling, these were precisely measured and mounted directly against the acoustically sprayed ceiling, without the option for easy removal. This also means they cannot be reused afterwards. However, the tenant mentions the refuse principle as important and how a choice not to have a standardised suspended ceiling, for example, influences the rest of the fit-out and makes it perhaps these parts less adjustable: "There are tenants who say, oh, I'm going to throw money at this and I'm going to make a suspended ceiling everywhere here. I'll make it totally beautiful. [...], Either people keep it very basic like what we've done or people go all-in, but it does depend a lot on what happens with the rest of the built-in." (13)

Instead of buying furniture, the decision was made to lease it through a product-as-a-service arrangement. The manufacturer not only supplies the furniture but also handles maintenance, repair, and replacement of broken items to maintain consistency, such as ensuring all chairs at a meeting table match. Regarding the costs associated with leasing furniture, the tenant explained the benefits in relation to potential hidden expenses: "If you have to fix things, and you have to arrange it, then you

also have to include those processing costs in that arrangement. I think net [to rent], you pay more, [...] but in the long run, with processing costs factored in, with any risks about things breaking down that you have to replace, I think you pay more, [...] but it's a think and not know. At the moment we can't prove it."

4.6.4. Circularity implemented measures

STRATEGIES	IMPLEMENTED	ELABORATION
REFUSE	x	No suspended tiled ceiling
REDUCE		
REUSE		
REPAIR & REFURBISH		
DESIGN FOR DISASSEMBLY	x	Free-standing phone booths and furniture - easy to dismantle
DESIGN FOR ADAPTABILITY		
MATERIAL PASSPORTS		
PROCURE SUSTAINABLE MATERIALS	x	Reused materials for the office partitions, the glass panels, carpet tiles Office furniture-as-a-service

4.6.5. Challenges and Opportunities

Challenge: Legislation

The tenant highlighted the substantial influence of system walls and pointed out the absence of a dedicated certificate in office design. While certifications like BREEAM exist, which cover aspects such as material reuse or zero carbon initiatives, there are no specific government policies or tools that directly address office design or its redesign in this context. ''The incentive [regarding the fit-out materials] is not in being as long as possible, as good as possible. Those products and the lifespan of those products have an average of five years. So there's no incentive for the manufacturer, or to the processor, or make those products in a good way'' says the tenant (13).

Challenge: Fixed elements

The tenant suggests that office elements should be designed to be demountable, even if it includes fixed elements provided by the landlord. This approach would allow tenants to remove components like installation technology, flooring tiles, and system tapes themselves and return them upon vacating the premises. The tenant explained: "So we could say: How nice that you all put stuff here. We don't need those; we already have our own stuff. The building owner can then answer: No problem, I'll take my own stuff back or arrange for it to be collected." But, of course, the problem is that the items put in are not inherently detachable and reusable. The owner installs these elements expecting they can be easily removed, but that's not always the case, not everyone can work with it.'' The tenant emphasized the importance of considering the ease of removal and reusability of fixed elements, not only for current users but for future adaptability as well (13).

Opportunity: The Service Layer

The tenant argues that the real value in office design might not lie in the furnishings themselves, as there is usually a market for these items if they retain value, with buyers interested in their reusability. Instead, the tenant believes the greater potential for sustainability lies in the design of the service layers (Brand, 1994), such as the spatial layout and wall installations. The tenant points out that although the installation technology—such as wiring and plumbing—constitutes a small fraction of the building's total mass compared to materials like concrete, its environmental impact is disproportionately large. The tenant highlights a typical design lifespan for installation systems of 7, 10, or 15 years, anticipating new tenants who might discard these systems. This short lifecycle underscores the need for more sustainable practices in the design of these elements (13).

Opportunity: Supplier involvement

The tenant suggests contacting the project designer and suppliers for follow-ups but acknowledges limitations since the designer typically works on a project for only three months before moving on. This necessitates that suppliers maintain ongoing connections with the tenant, possibly reaching out years later to discuss changes like the tenant leaving. The tenant describes how these interactions often occur through platforms like LinkedIn, where messages might be sent asking, "Hey, who's in that building, has old walls and wants to give them back?"(13) Despite this process being labour-intensive, the tenant notes that the overall business case for such efforts is positive, highlighting the economic viability of maintaining connections and recycling materials.

Challenge: Fees

The tenant refers to how the remuneration of the project manager and architect of the fit-out contradicts the key principle of circularity: refuse. ‘’Refuse is not in the revenue model of the supplier or the project designer. The project designer usually has a fee based on the project fee. They do have an interest in putting up expensive things. While they might also say: hey, we have a very frugal, cheap interior. Our fee is a bit higher because we organise it all. But they don't feel that way’’, according to the tenant (13).

Challenge: Market mismatch

According to the tenant, there’s a significant issue with the accessibility and delivery times of materials, as well as their harvesting. As a result, a lot of materials are discarded that could potentially be reused because supply and demand are not properly aligned. Furthermore, the tenant explained that if the strategy of reusing materials had been implemented across the entire office building in a coordinated manner, it would have necessitated a much larger volume of materials. It would’ve also been impossible to do it in a unified way for the whole building.

The tenant emphasized the complexities of scaling up this process and managing logistics efficiently. As a solution, the tenant suggested establishing centralised reuse hubs where demolition teams could deposit materials for easy access and purchase. The tenant highlighted this as a critical issue that needs addressing and proposed that the government should play a role in facilitating these hubs (13).

Figure 4.6.5.1. Hallway *(author, 2024)*

Figure 4.6.5.2. Workplace *(author, 2024)*

4.6.6. Identified Relationship determinants

DETERMINANTS	IDENTIFIED	ELABORATION
Personal	x	Expertise Behaviour
Relational	x	Commitment Ethical profile Sharing of information Communication Satisfaction
Organisational	x	Strategy Product Promotion
Environmental	x	Position Social system

Personal & Relational

The tenant and landlord are both dedicated to sustainability efforts. The tenant is especially sustainability oriented as it is part of their core business. The landlord's core business is focuses on renovating outdated properties and repurposing them. Although the tenant did not have experience with making an office fit-out, they have a lot of experience with circular implementation (**expertise**).

The tenant has occupied the premises for nine years and intends to stay put, a fact they have made clear to the landlord (**satisfaction, commitment**). This was underscored when the landlord reacted with concern to a false announcement of a move, made as an April Fool's joke (**behaviour**). This incident highlights the good communication between the tenant and the landlord, which extends beyond formal interactions. Additionally, the establishment of a special lease agreement indicates a understanding of each other's requirements. (**sharing of information, communication, ethical profile**)

Organisational & Environmental

The new office is designed to accommodate the company's expansion. The focus of the lease negotiations was on creating terms that benefit both the landlord and the tenant (**strategy**). The landlord has granted the tenant extensive freedom to tailor the space to their specific tastes and needs. This flexibility allows the tenant to use the fit-out not just as a functional space but also as a showcase and promotional tool for their own clients (**promotion, product, position**). The company's raison d'être is sustainability and are part of the push towards choosing sustainable buildings and materials (**social system**). More on a general note, the tenant noted that the building owner often has no direct interest in the tenant's activities: "From my practical experience, I noticed that that a landlord has no interest at all in what that tenant is doing." (13) This is unrelated to this landlord, but given the few requirements or fixed elements in this office, it could also be argued that outside the lease, the landlord's interest was limited.

Furthermore, the tenant criticising the view that often prevails in the rental market: "It's really short-term politics. The landlord has quite a powerful position. It's his floor, but he's looking for a tenant. And he is quite willing in some cases to say, oh, if the rent is high enough, good luck, do it [and tear everything down]." The tenant furthermore emphasized that landlords should take more responsibility for the sustainability and maintenance of their buildings: "So I think a major part of the responsibility is with the landlord. Because I think that you have to take ownership of the building that you have. And the sustainability of that asset." (13)

4.6.7. Identified relationship connectors

CONNECTORS	IDENTIFIED	ELABORATION
Information exchange	x	Sharing of information. Knowledge of the environmental footprint of both parties in relation to the building
Operational linkages	x	Access to data of one another. Individual meters for everything except heating, regulated the same for the whole building.
Legal bonds	x	9-year lease
Cooperative norms		
Buyer/Supplier Adaptation	x	Adjusted lease agreement

5. Analysis

The third phase focused on analysing, synthesising and validating the findings from the empirical case study research. This analysis is divided in sub-chapters, in line with the different elements from the literature study that were identified in the cases.

1. The negotiation process and applied circularity strategies
2. Identified opportunities and challenges (SQ3)
3. Promoting relationship determinants (SQ4)
4. Promoting relationship connectors (SQ5)

All sub-chapters include a cross-case analysis. Sub-chapters three and four additionally include a generic analysis.

Experts validate the identified opportunities and challenges from the cases. Furthermore, the experts link these challenges and opportunities to the determinants and connectors that can address or overcome these opportunities and challenges. This technique helps to define which determinants and connectors can actually promote circular practices.

Another element explored in the analysis is the stakeholder power analysis. Experts were tasked with identifying the stakeholder with the most power to address or overcome a specific opportunity or challenges. This sub-chapter contributes to the recommendations provided later in this thesis.

5. Stakeholder Power Analysis

5.1. The negotiation process and applied circularity strategies

5.1.1. Cross-case analysis

In the case studies, it became evident that the negotiation process between tenants and landlords significantly influences the implementation of circularity principles.

Regarding the **refuse** principle, negotiations about the lease and fit-out often include discussions on all fixed elements and whether they can be altered. For example, case 5 intentionally lacks a suspended ceiling. While the landlord provided a lowered ceiling on the other floors, this floor was left without one upon request of the tenant. The other cases did not deliberately exclude any specific element.

Regarding the **reduce** principle, negotiations include the amount of square metres occupied by tenants, the sharing of spaces between tenants (Case 1) and the use of flex-office space (Case 2, 4). This focus on reduction of square meters might be an effort towards space efficiency, but most likely is towards reducing rent.

Regarding the **reuse** principle, the reuse of furniture such as desks, chairs, and cabinets is identified in two cases, indicating a growing awareness among companies to use existing resources instead of purchasing new ones. However, in the negotiation process, the reuse principle extends beyond furniture to encompass the entire fit-out at the end of a lease. This includes agreements on the removal or reuse of existing fit-out elements, allowing the next tenant to reuse these elements and thereby reducing demolition waste (Cases 1, 2, 4).

Regarding the **repair and refurbish** principle, case 1 involves repairs to internal walls and includes painting and cleaning work on ceilings, walls, and floors, indicating an effort to maintain existing structures. Other cases do not specifically mention repairs, as no elements from the old fit-out were reused in the new one. In the negotiation process, landlords typically discuss the reuse of existing elements. Repairs and refurbishments are often carried out between tenancies on fixed elements. The landlord and tenant negotiated the quality criteria for these elements, deciding whether to repair, refurbish, or completely redo them. Also, the repairs in case 1 were executed because the landlord allowed the fit-out to remain.

Regarding the **design for adaptability and disassembly** principle, this is not a focus of negotiations in the 5 cases, as tenants decide on their fit-out design. For instance, in case 4, the tenant independently chose to introduce demountable internal walls. However, landlords can contribute to fit-out costs in exchange for tenants incorporating features like adaptability and disassembly (case 3). Additionally, product-as-a-service elements, which can be easily dismantled and transferred between tenants, can also be negotiated and offered by landlords as part of their contribution to the fit-out.

Regarding the **material passport** principle, case 2 is unique in mentioning material passports, indicating the tenant's awareness and intention to responsibly manage the materials used in the building, with an eye towards sustainability and future reuse. Although not seen in the other cases, the creation and sharing of material passports are expected to become part of the negotiation process, as noted by the landlord in case 4. Expanding legislation on reporting will eventually mandate reporting beyond the current scope.

Regarding the **procure sustainable materials** principle, all cases but one include a procurement element, each with a different focus. Case 3 prioritises reused furniture. Case 4 emphasises durable, long-lasting materials. Case 5 focuses on reusing waste materials and glass panels. Specifying materials is common in the negotiation process when a fit-out design guideline is attached to the lease agreement. Additional specifications regarding sustainable or reused materials can also be negotiated, especially when the tenant must adhere to building certifications like BREEAM.

	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Refuse		No new suspended tiled ceiling			No suspended tiled ceiling
Reduce	Sqm reduction	Sqm reduction		Sqm reduction	
Reuse	Desks Chairs Floor Ceiling Some internal walls	Reuse ceiling tiles		Desks Chairs Cabinets	
Repair & Refurbish	Repair, painting and cleaning work on ceilings, walls and floors				
Design for adaptability				Free standing phone booths & furniture Minimal fixings to the wall	
Design for disassembly			The carpet tiles are not bonded with tar or laid in rubber	Minimum number of internal walls Demountable walls	Free-standing phone booths and furniture - easy to dismantle
Material passports		Known what materials are in the building + arrangements with suppliers to take them back			
Procure sustainable materials		Procuring materials with a low-carbon footprint	Procuring reused furniture	Procuring durable, long-lifespan materials	Procuring reused materials for the office partitions, the glass panels, carpet tiles - Product-as-a-service workstations

Table 6.1.1. Applied circularity strategy *(author, 2024)*

Lastly, circularity strategies can be also more easily implemented if the balance of power in negotiations based on market conditions is in favour of the demanding party, with tenants currently in favourable positions (Case 5).

5.1.2. Stakeholders views on implementing circularity in office fit-outs

When examining the implementation of circularity principles in office fit-outs, it is important to understand the perspectives of key stakeholders involved in the process, namely landlords, project managers (PMs), and tenants. Analysing their sentiment towards circularity can provide valuable insights into the adoption challenges and opportunities within the industry, and their approach to their relationship.

Sentiment Analysis

The existing codes have been additionally characterised by a negative, neutral or positive sentiment towards circularity implementation. This has been executed in atlas.ti.

	Landlord	PM	Tenant
Sentiment: Negative	29%	28%	27%
Sentiment: Neutral	40%	34%	41%
Sentiment: Positive	31%	38%	32%

Table 6.1.2. Sentiment analysis *(author, 2024)*

The landlords show a relatively balanced view on circularity with 29% expressing negative sentiments, 40% remaining neutral, and 31% showing positive sentiments. This indicates a cautious but open approach, possibly reflecting concerns about initial investments versus long-term benefits.

The project managers demonstrate a slightly more optimistic stance, with only 28% expressing negative feelings towards circularity. A significant 34% remain neutral, while a higher 38% are positive about implementing circular principles. This positivity is notable given that PMs, with their deep understanding of the logistical and practical challenges in project execution, recognise the potential efficiencies and long-term gains of circularity.

The tenants have sentiments that closely align with landlords, with 27% negative, 41% neutral, and 32% positive. Their views likely reflect a balance of the perceived benefits of circular fit-outs such as enhanced sustainability, against uncertainties like the impact on personalisation and functionality.

5.1.3. Discussion and Conclusion

In concluding this sub-chapter on applied circularity strategies and negotiations in office fit-outs, it is evident that different stakeholders deploy various R-principles and their derivatives with varying levels of engagement and commitment. The analysis across five cases demonstrates a diverse application of these principles and how negotiations can influence their adoption, ranging from the refusal to use traditional fit-out elements to the reuse of existing elements. Notably, each tenant-landlord relationship is unique, influenced by specific requirements, existing fit-outs, and building certifications, making each negotiation distinct. This allows flexibility in adjusting lease agreements to personal wishes and implement all different types of circularity strategies.

Furthermore, the sentiments of key stakeholders—landlords, project managers and tenants—toward implementing circularity vary. Project managers (PMs) show a more positive attitude towards circularity in office fit-outs, despite recognising its challenges. PMs, tasked with balancing immediate constraints against strategic goals, may seem to value the innovative aspects of circular practices. Conversely, landlords and tenants share a cautious optimism, weighing short-term inconveniences against long-term environmental gains. Overall, a proactive stance of project managers could be needed in driving the wider adoption of these circular strategies, using their positive outlook to overcome challenges and highlight benefits for landlords and tenants alike.

5.2. Identified challenges and opportunities

5.2.1. Expert validation

Table 5.2.1 shows the validated opportunities and challenges by the experts from the 5 cases in green. The red-highlighted challenge or opportunity indicates that it has not been validated, as one of the experts specifically stated so. The experts added additional difficulties or opportunities, which are represented in blue, as some opportunities can also be a challenge, or vice versa. However, experts also added new opportunities and challenges: 'Image - first movers', 'ESG lease', 'Marketplace', and 'Built-back requirement'.

Opportunities	Financial advantages	Design from materials	Supplier involvement	Product-as-a-service	Service Layer
	Improvisation	Product-as-a-service	Improvisation	Lease duration	Legislation
	Attracting personnel	New Suppliers	Image – First Mover	ESG Lease	Fees of fit-out partner
	Market place				
Challenges	Personalisation Constraints	Time Management	Market mismatch	Underdeveloped materials and installation methods	Fixed elements
	Managing prejudice	New Suppliers & Uncertain quality	User behaviour	Cultural acceptance	Legislation
	Circle of Blame	Managing expectations	Efficiency of reuse process	Storage	Fees of Fit-out partner
	Financial disadvantage	Design from materials	Build-back requirement		

Table 5.2.1. Validated challenges and opportunities *(author, 2024)*

The first expert validated all identified challenges and opportunities, excluding the aspect of "attracting personnel." Regarding this, the expert expressed a personal emphasis on the importance of sustainability values in a company, but also said: "In our bubble, it's crucial [to value sustainability]. But I don't think everyone thinks the same. I have friends who work at a fossil fuel company, they don't a give a damn. They have a luxury office, and an expensive car parked under the building." Perspectives vary, with some individuals prioritising luxurious work environments over company values (14).

The second expert validated all challenges and opportunities except for the fees related to the fit-out partner. Regarding this, the second expert explained "Those hours are calculated per phase, per what the consultancy expects people, i.e. resources to actually perform. That is completely independent of whether or not you are going to reuse materials." (15) The expert cited a case where a consultant witnessed a doubling of cost per square meter but maintained the same fee. However, it's generally agreed that if materials are reused, less design work is needed, resulting in fewer hours. Furthermore, the first expert proposed integrating carbon incentives alongside financial ones on the fees of the fit-out partners. "It's both an enabler and a barrier. Traditionally, a 10% fee on additional work is a

financial incentive to increase costs. However, if we also pay more for reducing the embodied carbon in fit-out design, it aligns financial rewards with environmental benefits."

The following was said about the added blue opportunities or challenges. On the topic of financial (dis)advantage, the expert noted, "It's sometimes slightly cheaper, but often more expensive. You invest in something with a longer lifespan, which translates to a longer payback period, often making the business case unfeasible." (14)

Regarding design from materials, the expert highlighted several challenges including warranty provisions, suitability, and legal regulations, which make it challenging for architects to utilise second-hand materials. "Architects are forced to change their detailing and colour choices. They live in a world where architecture is deemed malleable, but not with second-hand materials." (14)

Concerning build back requirements, the expert saw it as a major challenge. Landlords need to initially invest an additional 20% in their installations to provide flexible, long-term, and state-of-the-art installations for tenants. "If the landlord tries to cut costs on the investment, it restricts the tenant's ability to modify spaces, like adding extra ventilation for a meeting room, which becomes infeasible." (14) So it is much more likely to be demolished and then rebuilt.

The concept of an ESG-lease was discussed as an opportunity, defining it as an agreement focusing on ESG topics relevant to both tenant and landlord, with a particular emphasis on social aspects, transparency, and data sharing, unlike green leases which primarily focus on energy (14).

The market place was also identified as an opportunity. The expert pointed out the enabling aspects like having a marketplace, digital twin technology, inventory scans, and strong relationships with suppliers of second-hand goods (14). The expert also addressed the role of a first mover in sustainability initiatives: "Being a first mover can also be an enabler. If things go well, it significantly boosts the company's image."(14)

"New suppliers" was also identified as an opportunity. The expert noted that although new suppliers can pose challenges initially, collaboration is necessary to determine if they can offer benefits such as faster delivery and installation times (15). However, the other expert was more reserved. The challenge with circular partners lies in warranties, especially with startups. The experts questions the ability of the circular startups to bear the financial risk if products fail, emphasizing the need for assured quality (14). The second expert mentioned that early supplier involvement is already common practice, with consultants maintaining lists of preferred suppliers who provide project advice without formal commitments (15).

Lastly, the second expert viewed time constraints more positively than initially perceived. Reusing materials can reduce demolition needs and save time during construction (15).

5.2.2. Discussion and conclusion

The expert validation process provided further insights into the identified challenges and opportunities. While most elements were validated by experts, certain elements like attracting personnel and fees related to fit-out partners were not unanimously validated.

Expert insights highlighted additional complexities, such as the financial disadvantage associated with circular practices, challenges related to design from materials and build-back requirements, and the potential of new models like ESG leases and second-hand market place integration to drive circularity in office fit-outs.

5.2.3. Answer to sub-research question 3

SQ3: What challenges and opportunities are linked to the adoption of circular fit-outs?

The following opportunities were identified. The order is arbitrary:

Financial advantages:

Financial benefits can stimulate a circular fit-out. For the tenant, a direct advantage is the reuse of furniture and materials. An indirect benefit for the landlord is a reduced lease contribution for the fit-out if it is already in place.

Improvisation

Improvisation pertains to deviating from the contract, specifically the dilapidations clause. If the landlord deems the condition of the fit-out to be very good, they can decide on the spot to leave it in place.

Design from materials

Designing from materials allows for a process of 'harvesting' materials first, followed by creating a fit-out design using these materials. This approach is the opposite of designing from a blueprint, where specific materials are sought based on a design. A middle ground is to detail the design less, thereby not finalising the material choices yet.

Supplier involvement

Suppliers of materials, particularly furniture manufacturers, require additional time to deliver refurbished materials due to the extensive patching and repairs required for the products. Therefore, engaging suppliers earlier is essential to ensure timely procurement of materials.

Product-as-a-service

The concept of Product-as-a-Service was discussed in relation to both demountable walls and furniture. The primary motivation for opting for this model was the assurance of guaranteed maintenance and flexibility. Additionally, it ensures that the manufacturer will reclaim the products, providing a clear end-of-lifecycle solution.

Lease duration

Increasing the length of the lease allows for greater investment in the fit-out, promoting sustainability and circularity. With a longer lease, there is greater incentive to implement a higher quality fit-out that can reliably endure the entire lease duration.

Legislation

The EU Corporate Sustainability Reporting Directive (CSRD) mandates companies to report not only their direct carbon emissions but also their indirect emissions. This requirement aims to enhance awareness and expedite the reduction of carbon emissions associated with fit-outs.

Service layer

The service layer includes installation technology, wiring, plumbing, and HVAC systems. These are sometimes not demountable and replaced by new tenants even if still functional. Using these systems for their full design life—typically 7, 10, or 15 years—maximises their lifespan and potential for reuse.

New supplier

New circular suppliers may have better supply terms, conditions, prices than existing suppliers.

Image – first mover

Being a pioneer in circularity and sustainability can strengthen the company's identity, image and goals, compared to competitors.

ESG-lease

The ESG lease can be an opportunity as it goes beyond the conventional green lease's focus on energy and water consumption. The ESG lease could include agreements on material consumption (of the fit-out), as well as transparency and data sharing on what materials are in the building.

Fees of fit-out partner

If the fit-out partner's fees include a carbon bonus, this can be considered an opportunity. The partner/consultant has a financial incentive to minimise carbon emissions from the fit-out, for example by advising on reuse, and is financially rewarded for doing so.

Market place

Creating a centralised marketplace for second-hand products used in fit-outs would stimulate accessibility, improving the matching and fulfilment of supply and demand.

(Attracting personnel) – In between brackets as this is not unanimously validated

Adopting sustainable and circular practices in your company's operations and fit-out can enhance your market positioning and attract a certain type of personnel. This research indicates that outright disposal without reuse, such as discarding furniture, is increasingly frowned upon by employees. While this approach may work within sustainable businesses, it is not applicable across all industries.

The following challenges were identified. The order is arbitrary:

Personalisation constraints

Personalisation constraints have surfaced as a challenge in circular fit-outs. The inability to convey a corporate identity through the reuse of other companies' fit-outs or by sourcing second-hand materials is perceived as a significant limitation.

Time management

Time management, particularly dealing with time constraints, emerged as a significant challenge. Implementing circular strategies requires more time, spanning from material harvesting to repair and refurbishment processes. Tight construction schedules and strict move-in deadlines leave little room for flexibility.

Circle of blame

Responsibility for achieving a sustainable and circular fit-out is passed on among the tenant, landlord, and project manager. The tenant states that the landlord should assume greater responsibility for the building's sustainability, while the landlord states that it's the tenant's duty to make the fit-out circular. Meanwhile, the project manager points out that the tenant has the final say in decision-making.

New supplier

Circular and sustainable products are predominantly promoted by emerging, specialised suppliers. Creating a new business partnership with these suppliers can be met with reluctance, stemming from unfamiliarity with a new party.

Uncertain quality

Uncertainty persists regarding the quality of certain reused products, even when they have undergone repair or refurbishment and come with a warranty from the manufacturer. The primary challenge stems from not knowing the precise condition, including colour variations, signs of previous use, and potential damages.

Managing expectations

All stakeholders, the tenants and their end users, as well as landlords, hold specific expectations that can become problematic when they conflict, such as preferring new office materials over reusing existing ones. These divergent expectations present a challenge to achieving circularity and, consequently, sustainability.

Managing prejudice

A prevailing prejudice from the cases is the assumption that circularity, for example reuse, implies inferiority. There's a tendency for people to believe that recycled or reused materials are of lesser quality compared to new materials. This bias acts as a barrier to effectively implementing circular practices.

Cultural acceptance

Circularity is more widely accepted and integrated in some places than in others. There are also generational differences in acceptance, which also influences its adoption.

Fixed elements

In a fit-out, certain fixed components like installation technology, system tapes, and ceiling and flooring tiles are installed by the landlord. These elements are typically non-removable. However, if they do not meet the tenant's needs, they are demolished. Subsequently, there is an obligation to rebuild and reinstall these elements to their original state at the end of the lease.

User behaviour

Office fit-out users might not always handle their working place with care and respect. Poor maintenance can encourage such behaviour, leading to all materials being treated carelessly and thus having a reduced lifespan.

Efficiency of reuse process

The reuse process for products involves multiple steps and additional precautions, including careful removal, transport, storage, transport again and reinstallation. Each of these phases requires extra logistical planning and increased labour hours, presenting challenges.

Underdeveloped materials and installation methods

Quality issues with sustainable materials and installation methods often arise because these products are still in the development phase. Manufacturers are e.g. actively creating techniques to facilitate easier disposal in the future, but these innovations don't always perform flawlessly, leading to new problems and challenges.

Storage

Storing all reusable materials requires significant labour and financial investment, presenting a major challenge to achieving a circular fit-out.

Legislation

Depreciation schemes permit fit-outs to be fully written off over five years, furniture over seven years, and technology over three years. This accounting approach enables companies to replace fit-outs every five years, as they are no longer recorded as assets on the books after they have been fully depreciated.

Financial disadvantage

Acquiring circular materials, whether they are new and fully disassembling or second-hand and refurbished, is often more costly compared to the conventional new alternatives. This cost disparity makes the business case unfeasible.

Design from materials

Design from used materials poses challenges such as warranty provisions, suitability, and legal regulations. Furthermore, there are more design constraints when designing from used materials.

Build-back requirement

The requirement for rebuilding presents a challenge because the fixed elements installed by landlords may not be sufficiently flexible or of high quality to meet tenants' needs, often leading to demolition. If the rebuilding is not obligated, tenants may opt to leave their installed elements when leaving.

Market mismatch

The alignment between supply and demand is still incomplete. Suppliers may struggle to provide sufficient quantities of consistent recycled materials, thereby hindering design uniformity.

(Fees of fit-out partner) – In between brackets as this is not unanimously validated

The fees charged by fit-out partners/consultants are directly tied to the scope of work required for a project. Therefore, the more modifications, updates, or new purchases are needed, the greater the workload and fee for the fit-out consultant. This creates a financial incentive for consultants to propose more adjustments or replacements, aligning their compensation with the volume of work performed.

5.3. Enabling relationship determinants

From the literature review, a list of relationship determinants was drawn up that determine the tenant-landlord relationship. Based on this list, relationship determinants were identified in chapter 4 per case and through cross-case analysis and generic coding, determinants that are common among cases or frequently mentioned by interviewees were identified. This overview can be found in the appendix (chapter 10.2) or summarised in 5.3.2 (comparison). Although a cross-case analysis and generic coding of transcripts of relationship determinants help identify key determinants, it does not indicate which ones specifically enable circularity. Therefore, validation from expert is needed. They connect opportunities and challenges to a specific determinant, based upon if it can exploit an opportunity or overcome a barrier, thus promoting circular practices.

5.3.1. Expert validation

Experts linked the opportunities and challenges from chapter 5.2. to a specific determinant that could aide in enabling or addressing an opportunity or challenge. The number next to the determinant represents the number of opportunities and challenges linked. Important to note is that not all opportunities and challenges had to be linked, only the ones they could connect.

EXPERT 1		EXPERT 2	
Strategy	11	Strategy	10
Product	7	Product	9
Communication	7	Behaviour	3
Commitment	2	Expertise	2
Sharing of information	2	Price	2
Social system	2	Social system	2

Table 5.3.1. Enabling relationship determinants *(author, 2024)*

Experts 1 and 2 both linked the majority of opportunities and challenges to the strategy determinant. Therefore, the business strategy of either the tenant or landlord has the most significant impact in enabling circularity. Additionally, the importance of the determinant product and its development in circular practices, materials, and suppliers is evident, but further development is needed to effectively compete with conventional fit-out alternatives.

Furthermore, the social system remains a key consideration highlighted by both experts. Moreover, expert 1 identifies potential in relational factors such as communication, commitment, and information sharing, while expert 2 emphasizes the importance of personal elements like expertise and behaviour, but also the determinant pricing. Only determinants with two or more associated opportunities or challenges were included in the table above.

5.3.2. Comparison

Table 5.3.2.1. presents determinants ranked numerically based on specific analyses. Six determinants appeared consistently across all case studies and are ranked equally. Eleven determinants emerged from the generic analysis (See appendix 10.2. for detailed analysis). Nine determinants were identified from expert assessments. These nine determinants from the expert assessment are considered key as they are linked to the opportunities and challenges, thereby promoting circularity. These are highlighted in green.

CROSS-CASE ANALYSIS	GENERIC ANALYSIS	EXPERT
1. Behaviour	1. Behaviour	1. Strategy
1. Expertise	2. Product	2. Product
1. Ethical profile	3. Strategy	3. Behaviour
1. Strategy	4. Expertise	4. Expertise
1. Product	5. Commitment	5. Communication
1. Social system	6. Price	6. Commitment
	7. Communication	7. Sharing of information
	8. Ethical profile	8. Price
	9. Balance of power	9. Social system
	10. Sharing of information	
	11. Size	

Table 5.3.2.1. Overview/comparison of the results of the different analyses *(author, 2024)*

The determinants from table 5.3.2.1. have been sorted in the table 5.3.2.2. based on their frequency of appearance in the analyses. The determinants highlighted in green are the ones identified as promoting determinants by the experts.

3-times	2-times	1-time
Behaviour	Social system	Commitment
Expertise	Price	Size
Product	Communication	Balance of power
Strategy	Sharing of information	
	Ethical profile	

Table 5.3.2.2. Occurrence of the relationship determinants *(author, 2024)*

Table 6.4.3.2. underscores the importance of specific determinants in the tenant-landlord relationship for promoting circular practices. Key personal determinants include 'behaviour' and 'expertise'. Relational determinants are 'commitment', 'communication', and 'sharing of information'. Organisational determinants noted as very important are 'product', 'strategy', and 'price'. In the environmental dimension, only 'social system' enables circular practices.

The determinants 'balance of power', 'ethical profile' and 'size' could not be directly linked by experts to opportunities or challenges. Therefore, these are not included in the final table (5.3.2.3.) of enabling determinants.

It is noteworthy that 9 out of the 12 determinants identified in both the cross-case and generic analyses match those (in green) linked by the experts, indicating a pattern where certain determinants are more important and act as enablers.

PERSONAL	RELATIONAL
Behaviour Expertise	Commitment Communication Sharing of information
ORGANISATIONAL	**ENVIRONMENTAL**
Product Strategy Price	Social system

Table 5.3.2.3. Enabling relationship determinants *(author, 2024)*

5.3.3. Enabling relationship determinants discussion

1. Behaviour

Expert 2 linked behaviour to the opportunity of 'improvisation' and the challenges of 'circle of blame' and 'user behaviour'. Positive behaviours, such as improvisation by landlords to avoid unnecessary stripping of fit-outs, can significantly impact sustainability efforts. Conversely, behaviour's that perpetuate the "circle of blame" hinder progress. Responsibility and proactive actions from both tenants and landlords can break this cycle, ensuring more sustainable and circular approaches to fit-outs. Positive user behaviour, particularly from end-users, contributes to prolonging the lifespan of workplace environments through respectful treatment of the workplace environment. (15)

2. Expertise

Expert 2 has linked expertise to 'managing expectations' and 'managing prejudice'. In the case studies, expertise involved experience with fit-outs, lease negotiations and optionally circular practices. However, experts view it more broadly, recognising its role in setting appropriate expectations for the other party or when representing the tenant's end-users. This expertise extends to addressing preconceptions about circularity. Crucially, expertise is an important personal relationship determinant by proactively addressing potential challenges and identifying opportunities in the process (15).

3. Product

The product, or the actual fit-out, is central to enabling circularity in workspaces. Both expert 1 and 2 linked several opportunities and numerous challenges. These include issues with suppliers, material storage, and the characteristics of the product elements themselves. Expert 2 also linked 'fixed elements', and 'design from materials', while Expert 1 linked 'time constraints' and 'managing expectations' to the product determinant (14,15). Redesigning processes and choosing different products, such as demountable elements, can enhance circularity. The product serves as a tangible focal point in tenant-landlord relationships, influencing how circular practices are implemented and perceived.

4. Strategy

The strategy determinant encompasses the business approaches of both landlords and tenants. Strategies can address challenges like 'cultural acceptance' and 'personalization constraints', by e.g. choosing a corporate identity expression that goes beyond highly personalised elements. Strategy can also enable opportunities like 'service layers' that support disassembly and reuse. A clear corporate strategy is essential for both parties to effectively tackle the challenges and leverage opportunities for circularity, shaping how they approach sustainable practices within their relationship (14, 15).

5. Price

The determinant price was associated by expert 2 with 'fees of fit-out partner' and 'market mismatch'. Interestingly, 'financial advantages' were categorised under strategy (15), and in the relational sharing of information (14). This reflects the view that financial benefits are a crucial element of a business strategy and relationship. Fees of the fit-out partner are tied directly to the volume of work required for the fit-out, which may increase if additional efforts are needed to enhance circularity. Additionally, 'market mismatch' affects the pricing of circular materials, making them either more expensive or cheaper compared to their conventional alternatives. Consequently, price becomes a significant factor in decision-making and the relationship. Despite typically higher costs of circularity based on the case studies, a well-defined take on pricing can successfully accommodate these expenses (15).

6. Social System

The social system determinant includes location-specific regulations, cultural norms, and societal expectations regarding sustainability. Experts have linked it to the opportunity and challenge 'legislation'. Legislation can both motivate and challenge sustainability efforts. For instance, sustainability laws encourage tracking energy and material consumption but may also allow unsustainable practices like depreciation (14, 15). Cultural factors shape expectations and influence tenant-landlord dynamics, underscoring the importance of context in promoting circular practices.

7. Communication

Expert 1 identified communication as the key factor influencing several challenges: 'managing expectations', 'managing prejudice', and breaking the 'circle of blame'. Additionally, communication was linked to 'improvisation', as both parties must verbally agree to improvise. Clear communication helps overcome challenges like 'time constraints', 'uncertain product quality' and 'design from materials'. By maintaining open dialogue, stakeholders can negotiate better terms and timelines. (14)

8. Sharing of information

Expert 1 connected information sharing to the "fees of the fit-out partner" and "financial advantage." The expert highlighted the importance of transparency among stakeholders to achieve a mutual understanding, which could lead to negotiating a different fee structure for the fit-out partner or altering the lease incentives. Achieving this necessitates full transparency and information sharing (14).

9. Commitment

Commitment involves trust and dedication between parties, crucial for sustaining long-term relationships and collaborative efforts. It is linked to 'lease duration' and the concept of 'product-as-a-service', implying a long-term commitment to the other party. It ranges from maintaining communication for repairs to renewing the lease and by doing so preserving the fit-out. Without this foundational level of trust in the other party—whether it's a landlord concerned about rent payments or a tenant unsure about the landlord's practices—establishing a collaborative relationship for circular initiatives becomes difficult.

5.3.4. Conclusion

In summary, several determinants within the tenant-landlord relationship are critical for enabling circular practices in office fit-outs. Through cross-case analysis, generic coding, and expert input, key determinants have emerged: behaviour, expertise, commitment, communication, sharing of information, strategy, product, price, and social system.

Collectively, these determinants shape the relationship dynamics between tenants and landlords, creating a foundation for enabling circular practices in office fit-outs. By addressing these determinants, stakeholders can better address the challenges and leverage the opportunities.

5.4. Enabling relationship connectors

From the literature review, a list of relationship connectors was drawn up that determine the tenant-landlord relationship. Based on this list, relationship connectors were identified in chapter 4 per case and through cross-case analysis and generic coding, connectors that are common among cases or frequently mentioned by interviewees were identified. This overview can be found in the appendix (chapter 10.3) or summarised in 5.4.2. (comparison). Although a cross-case analysis and generic coding of transcripts of relationship connectors help identify key determinants, it does not indicate which ones specifically enable circularity. Therefore, validation from expert is needed. They connect opportunities and challenges to a specific connector, based upon if it can exploit an opportunity or overcome a barrier, thus promoting circular practices.

5.4.1. Expert connections

Experts linked the opportunities and challenges from chapter 4 to a specific connector that could aide in enabling or addressing an opportunity or challenge. The number next to the determinant represents the amount of opportunities and challenges linked.

EXPERT 1		EXPERT 2	
Cooperative norms	9	Legal bonds	7
Information exchange	7		
Legal bonds	5		
Operational linkages	0		
Buyer/supplier adaptation	1		

Table 5.4.1. Enabling relationship connectors *(author, 2024)*

It is noteworthy that Expert 1 sees promise in cooperative norms and information exchange as informal arrangements, whereas Expert 2 sees legal bonds as the only way to adopt circular practices in a fit-out. Expert 1 regarded cooperative norms as establishing common ground and working toward a mutual goal before entering into a contract. For this expert, this informal agreement precedes the formal arrangement, underscoring the need of legal bonds once more.

5.4.2. Comparison

The following table illustrates connectors and their occurrence based on specific analyses. Each connector is assigned a numerical rank relative to others. In the cross-case analysis, three determinants appeared either consistently across all cases or at all cases but one. Consequently, for the generic analysis, the three most occurring connectors were selected. From the expert assessment, four connectors were linked to an opportunity or challenge and were thus selected. These connectors from the expert assessment are considered key, as it is linked to numerous opportunities and challenges, thereby promoting circularity. These are highlighted in green.

CROSS-CASE ANALYSIS	GENERIC ANALYSIS	EXPERT
1. Legal bonds	1. Legal bonds	1. Legal bonds
2. Information Exchange	2. Information exchange	2. Cooperative norms
2. Buyer/supplier adaptation	3. Cooperative norms	3. Information exchange
		4. Buyer/supplier adaptation

Table 5.4.2.1. Overview/comparison of the results of the different analyses *(author, 2024)*

The connectors have been sorted in table 5.4.2.1. based on their frequency of appearance in table 5.4.2.2. The determinants highlighted in green are the ones identified as promoting connectors.

3-times	2-times	1-time
Legal bonds	Cooperative norms	
Information exchange	Buyer/supplier adaptation	

Table 5.4.2.2. Occurrence of the different relationship connectors *(author, 2024)*

The table above highlights the significance of the legal bonds, the lease agreement, in the tenant-landlord relationship and its potential to promote circular practices. Furthermore, information exchange is considered very important. Lastly, cooperative norms and the buyer/supplier adaptation were considered.

5.4.3. Enabling relationship connectors discussion

The following relationship connectors are ranked hierarchically, based on their importance to enable circular practices in office fit-outs.

1. Legal bonds

The lease agreement, as a form of legal bond in the tenant-landlord relationship, emerges as the primary enabler for promoting circular practices. These agreements establish firm governance frameworks, defining clear roles and obligations for both parties. Importantly, they provide a level of certainty and reduce environmental uncertainty within the relationship.

Both experts have linked legal bonds with a range of challenges and opportunities. When considering challenges, experts linked "legislation", "fixed items" and "uncertain quality". (14, 15) Legislation pertains to regulations governing depreciation methods, while fixed items encompass elements that cannot be altered by tenants. These challenges can be addressed through specific clauses within lease agreements. For instance, agreements may stipulate demountable elements that tenants can rebuild, include certain quality requirements or they may include provisions for manufacturers or the landlord to repurchase products or the fit-out at end-of-life, thereby retaining material value.

Conversely, legal bonds were linked to the following opportunities "legislation, service layer, product-as-a-service, improvisation, and lease duration" (14, 15). Tailored clauses within lease agreements can align directly with inherent properties, such as extended lease durations, or necessitate nuanced clauses, facilitating deviations from contracts.

Beyond challenges and opportunities, legal bonds significantly influence fit-out practices by shaping agreements. Negotiations regarding the dilapidations clause, early lease terminations and transfer of fit-outs illustrate how legal frameworks dictate post-tenancy responsibilities. Such agreements may relieve tenants of fit-out removal costs or mitigate environmental waste, promoting circularity.

Lease agreements often include binding fit-out design guidelines imposed by the landlord that can promote circular practices, for example when the building has a BREAAM certificate. This enables negotiations for reused materials, setting the stage for durable, appealing fit-outs that can endure beyond a single tenancy. Design guidelines committed to minimising environmental impact reflect a clear commitment, safeguarded by contractual agreements.

Ultimately, legal bonds serve as more than regulatory mechanisms; they enable circular practices by formalising roles and responsibilities in lease agreements. By promoting stability, reducing waste, and providing a clear framework, legal bonds are essential for advancing circular practices in office fit-outs.

2. Information exchange

Information exchange was linked by the first expert to opportunities "financial advantage", "supplier involvement" and "lease duration" and to the challenges "time constraints", "circle of blame" "uncertain quality" and "new suppliers". The second expert did not link any challenges or opportunities. The reasoning is that by having open, transparent communication, one can tackle e.g. the circle of blame or the uncertainty around new relationships with new suppliers.

Throughout the cross-case analysis, information exchange consistently emerged as significant, except in one case, and was underscored in the generic analysis. Despite its potential formalisation within lease agreements (e.g. sustainability reporting), it often remains informal. Outside of the tenant-landlord relationship, the project manager's reliance on effective communication and information exchange is evident in ensuring the smooth and efficient progress of the fit-out project. This reliance underscores the important role of information exchange in overcoming potential challenges during the making of office fit-outs, like time constraints and uncertain quality.

3. Cooperative norms

Cooperative norms only emerged in one case. However, expert 1 linked it to nine opportunities and challenges. It was linked to opportunities "financial advantage", "design from materials", "improvisation" and "legislation" and to challenges "personalisation constraints", "circle of blame", "managing expectations", "managing prejudice" and "fees of fit-out partner". In the generic analysis, cooperative norms were also frequently mentioned, particularly by the landlord compared to the tenant and project manager.

This indicates that the landlord likely perceives cooperation as important. If cooperative norms were directed towards achieving circular practices in office fit-outs, it could serve as a promising connector. This can be in the form of a formal clause in a contract, like in the case example where landlord and tenant committed to working together towards sustainability and support each other in achieving the jointly formulated sustainability goals. However, cooperative norms can also emerge informally.

As a result, creating a collaborative approach could be important in advancing circularity, but at the moment it is not common in practice based on the cases.

4. Buyer/supplier adaptation

Buyer/supplier adaptation was observed in 4 out of 5 cases but was not frequently mentioned by any of the interviewees. Additionally, only the first expert could link it to one challenge: "legislation", in the context of giving value to a depreciated fit-out in the contract. Based on the case studies, buyer/supplier adaptation mainly revolved around formal adjustments in contractual arrangements, although it could also be an informal arrangement.

For instance, a verbal agreement on leaving the fit-out in place if the next tenant wants to take it over exemplifies this kind of adaptation. Such buyer/supplier adaptations can potentially contribute to promoting circular practices within the context of office fit-outs.

5.4.4. Conclusion

In conclusion, the analysis of relationship connectors reveals the important role of legal bonds in promoting circular practices in office fit-outs. Lease agreements, as formal arrangements, establish governance frameworks that define roles and responsibilities crucial for promote sustainability. They can address challenges such as legislative constraints and fixed elements through tailored clauses, while leveraging opportunities like extended lease durations and regulations compliance. Legal bonds

facilitate negotiations around fit-out responsibilities post-tenancy, can mitigate environmental waste, and promote reuse through specific design guidelines and fit-out negotiations.

While legal bonds emerge as the primary promoting connector, information exchange also plays a role in improving relationship dynamics and facilitating adjustments in the fit-out process. Effective communication beyond formal meetings proves important, particularly in stimulating buyer/supplier adaptation. Although cooperative norms and buyer/supplier adaptation were less emphasized, their potential to stimulate collaboration and adaptability could be promising in promoting circular practices.

5.5. Stakeholder Power Analysis

The research primarily examines which determinants and connectors are most likely to enable the adoption of circular practices. These relationship elements were retrieved from literature on existing business relationships, focusing on the interactions between individual stakeholders. Interestingly, the case studies revealed instances where circular practices were initiated by a single stakeholder independently, with minimal input from others—aside from their tacit approval. Additionally, a "circle of blame" was identified in two cases, where the responsibility for implementing circular practices was deflected by a stakeholder onto other stakeholders.

These observations have led to an important addition to this analysis section. Although this chapter does not address a specific sub-research question, it aides in supporting the recommendations on how to manage the tenant-landlord relationship effectively. The focus here shifts towards identifying which stakeholder in the fit-out context holds the greatest influence over specific challenges or opportunities. Furthermore, it remains essential for each stakeholder to leverage their business strategies, personal expertise, behaviour… to maximise the potential for circularity.

5.5.1. Expert connections

Experts were posed with the query: "Who has most power to overcome a certain challenge / to enable an opportunity?" They associated each challenge and opportunity with either the landlord, the tenant, or the fit-out consultant. Although challenges and opportunities could potentially involve multiple parties, the question was framed to attribute them to a single stakeholder whenever possible.

Tables 5.5.1.1 and 5.5.1.2 show the connected opportunities and challenges. Green highlights the opportunities and challenges that both experts identified as the same. These will be used as input for the definitive Table 5.5.2.3.

Expert 1:

	Tenant	Landlord	Consultant
Opportunity	Design from materials	Improvisation	Supplier involvement
	Supplier involvement	Product-as-a-service	Product-as-a-service
	Attracting personnel	Legislation	Financial advantage
	Lease duration	Service layer	
		Lease duration	
Challenge	Circle of blame	Circle of blame	Circle of blame
	Managing prejudice	Managing prejudice	Managing expectations
	Time constraints	Time constraints	Time constraints
	Fees of fit-out partner	Fixed items	Fees of fit-out partner
	Cultural acceptance	Cultural acceptance	Cultural acceptance
	Personalisation constraints		New suppliers
			Uncertain quality

Table 5.5.1.1. Expert 1 connections *(author, 2024)*

Expert 2:

	Tenant	Landlord	Consultant
Opportunity	Improvisation	Improvisation	Supplier involvement
	Financial advantage	Product-as-a-service	Design from materials
	Supplier involvement	Legislation	
	Attracting personnel	Service layer	
	Lease duration	Lease duration	
Challenge	Storage	Storage	Personalisation constraints
	Managing expectations	Managing expectations	Managing expectations
	Personalisation constraints	Underdeveloped installation methods	Underdeveloped installation methods
	New suppliers	Fixed items	Underdeveloped net-zero materials
	Time constraints		New suppliers
	Managing prejudice		Time constraints
	Legislation		Uncertain quality
	Cultural acceptance		Circle of Blame
	User behaviour		Fees of fit-out partner
			Market mismatch

Table 5.5.1.2. Expert 2 connections *(author, 2024)*

5.5.2. Discussion

Many connections can be understood within the scope of direct influence held by stakeholders. For example, both tenants and landlords have influence over lease durations, while tenants can influence personalisation constraints. Expert 2 identifies the consultant as the primary target for overcoming the circle of blame, asserting: "When the consultant manages the customer well, manages the process well, there is no blaming happening." (15) Additionally, the expert suggests that consultants should oversee discussions on reuse and fit-out transitions.

Whereas managing expectations is the consultant's responsibility, managing prejudice is the tenant's responsibility. In particular, this concerns managing the end user of the tenant. The second expert says the tenant must do right from day one by ''those who actually will sits in the chairs.'' Because otherwise, the expert argues: ''People will always have a reason to complain.'' (15)

Additionally, the second expert emphasized the concept of "product-as-a-service" being attributed to the landlord rather than the tenant or consultant. The expert explained that this arrangement could involve landlords providing standardised furniture offerings to tenants. This approach aims to maintain consistent aesthetics both inside and outside the building, with subtle internal customisations like frosting, posters, and logos to add visibility and character for the tenant. The expert said: ''And for a lot of tenants, it is also easy. Then they don’t have to buy so much.” (15) Product-as-a-service was also placed with the landlord by the first expert (14).

	Tenant	Landlord	Consultant
Opportunity	Supplier involvement	Improvisation	Supplier involvement
	Attracting personnel	Product-as-a-service	
	Lease duration	Legislation	
		Service layer	
		Lease duration	
Challenge	Managing prejudice	Fixed items	Circle of blame
	Time constraints		Managing expectations
	Cultural acceptance		Time constraints
	Personalisation constraints		Fees of fit-out partner
			New suppliers
			Uncertain quality

Table 5.5.2.3. Stakeholder power analysis *(author, 2024)*

5.5.3. Conclusion

By analysing these dynamics, the stakeholder power analysis gives insights into which parties hold the most influence over specific challenges and opportunities. Experts identified that while many issues involve multiple stakeholders, primary responsibility often lies can lie with one. For instance, consultants are crucial for managing expectations and resolving the "circle of blame," tenants for managing prejudice, and landlords for implementing "product-as-a-service" models.

Understanding these power dynamics is essential to create clear responsibilities. Clear responsibilities can stimulate the adoption of circular practices.

6. Conclusion

This chapter will answer the research questions. The sub questions will be addressed first, followed by the main question.

SQ1. How does a circular fit-out differ from a traditional fit-out?

A traditional office fit-out primarily follows a linear model, addressing the immediate needs of the space without necessarily considering long-term sustainability. It involves creating a workplace environment with a focus on current functionality and aesthetics. Traditional fit-outs often prioritise the use of new materials, have a limited emphasis on reuse, and may not fully integrate considerations for reducing waste and environmental impact.

On the other hand, a circular office fit-out aligns with the principles of the circular economy, adopting a more sustainable and holistic approach. A circular fit-out aims to minimise waste and pollution by incorporating the 10R principles of the circular economy: Refuse, Reduce, Resell/Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, and Recover. This approach involves smarter material use, design, and manufacturing to reduce the environmental footprint of the fit-out.

In a circular fit-out, the emphasis is on keeping materials and products at their highest value at all times. This is achieved through a combination of upstream and downstream measures. Upstream; circular design, business, and policy approaches are implemented to ensure that materials are sourced sustainably, and products are designed for longevity, reuse, and recyclability. Downstream, effective waste management is crucial, ensuring that materials are properly sorted and recycled, contributing to a more sustainable lifecycle.

Lastly, it is important to note that while there are established standards for traditional fit-outs, specific standards for circular office fit-outs are not explicitly defined. Existing rating tools primarily focus on sustainability criteria but do not explicitly address all principles of circularity. However, they remain useful as a starting point.

SQ2. What defines the tenant-landlord relationship in corporate real estate?

The tenant-owner relationship within corporate real estate is an interplay involving multiple stakeholders and dynamics. In the business-to-business context, several elements define this interaction.

At its core, this relationship involves a selling organisation, the landlord, and a buying organisation, the tenant. The landlord, or supplier, provides office space and services, while the tenant, the customer, leases the space. The offering extends beyond mere physical premises, encompassing the broader office environment and introducing a service component that involves various service providers.

The relationship usually starts with a negotiation process, considering historical trends, economic forecasts, and office-space dynamics. Tenants conduct thorough due diligence, assessing long-term needs and strategically making real estate decisions. Effective negotiation strategies depend on timing, leveraging the tenant's value, and maintaining a strong relationship with the landlord.

The relationship dimensions shape this relation. There are 4 dimensions. The relational dimension involves determinants like commitment, balance of power, and satisfaction. The personal dimension encompasses personal attributes, behaviour, and expertise. Organisational dimensions are influenced by determinants such as size, structure, strategy, and product-related considerations. The environmental dimension determinants cover market structure, dynamism, internationalisation, position in the broader market, and the social system.

Relationship connectors serve as the features of business exchange that can be arranged. There are 5 relationship connectors. Information exchange involves open sharing, operational linkages measure interconnectedness, legal bonds include detailed contractual agreements, cooperative norms reflect expectations of joint success, and relationship-specific adaptations involve adjustments customised to specific needs.

In essence, the tenant-owner relationship involves negotiations, diverse stakeholders, and various determinants and connectors that together shape the quality of this business relationship.

SQ3. What challenges and opportunities are linked to the adoption of circular fit-outs?

The following opportunities and challenges are linked to the adoption of circular fit-outs:

Opportunities	Financial advantages	Design from materials	Supplier involvement	Product-as-a-service	Service Layer
	Improvisation	Product-as-a-service	Improvisation	Lease duration	Legislation
	Market place	New Suppliers	Image – First Mover	ESG Lease	Fees of fit-out partner
Challenges	Personalisation Constraints	Time Management	Market mismatch	Underdeveloped materials and installation methods	Fixed elements
	Managing prejudice	New Suppliers & Uncertain quality	User behaviour	Cultural acceptance	Legislation
	Circle of Blame	Managing expectations	Efficiency of reuse process	Storage	Build-back requirement
	Financial disadvantage	Design from materials			

SQ4. What are the determinants between tenant and landlord that enable circular practices in office fit-outs??

The determinants that facilitate the tenant-landlord relationship in promoting circular practices in office fit-outs are:

1. Behaviour: Tenant and landlord behaviour plays a critical role in promoting circular practices. Positive behaviour, such as responsibly managing resources and improvisation, can lead to mitigating challenges like the "circle of blame."

2. **Expertise**: Expertise in fit-outs, lease negotiations, and broader sustainability issues allows parties to manage expectations, address prejudice, and identify opportunities for circular initiatives proactively.
3. **Product**: The physical fit-out product plays a central role, with challenges and opportunities related to materials, suppliers, and storage. Redesigning the product manufacturing process and choosing circular alternatives can enhance circularity.
4. **Strategy**: Business strategies adopted by landlords and tenants influence circular practices. Landlords can implement policies that allow for disassembly and reuse, while tenants' strategies can address challenges like personalisation constraints.
5. **Price**: Pricing of circular materials and fit-out partner fees influence decision-making. Despite potential higher costs, a well-defined pricing strategy can accommodate these expenses within the tenant-landlord relationship.
6. **Social System**: Location-specific regulations, cultural differences and (sustainability) norms shape relationships. Legislation, like current sustainability laws, motivates parties to track resource consumption and initiate dialogues about sustainability practices.
7. **Communication**: Effective communication helps manage expectations, prejudice, and blame, facilitating improvisation and overcoming challenges related to fit-out quality and time constraints.
8. **Sharing of Information**: Transparency and full information sharing enable mutual understanding and negotiation of fees and lease incentives.
9. **Commitment**: Trust and dedication to the relationship, reflected in aspects like lease duration and product-as-a-service models, are crucial for collaborative circular initiatives.

These determinants collectively shape the tenant-landlord relationship, influencing decision-making, trust, and strategic direction, thereby facilitating the adoption of circular practices in office fit-outs.

SQ5. What formal and informal arrangements between tenants and landlord can promote circular fit-outs?

To promote circular fit-outs, both formal and informal arrangements between tenants and landlords can play an important roles based on the relationship connectors identified.

1. **Legal Bonds** (Formal Arrangement): Lease agreements (a type of legal bonds) establish governance frameworks defining roles and responsibilities, which can be tailored to promote circularity. Specific clauses can address challenges like building back requirements and fixed items. Lease agreements can incorporate provisions for materials repurchase at end-of-life or design guidelines promoting reuse of materials.
2. **Information Exchange** (Informal Arrangement): Effective communication beyond formal meetings can be promoting. Sharing information related to sustainability goals and fit-out progress contributes significantly to relationship dynamics. This communication enables adjustments like buyer/supplier adaptation and creates a collaborative approach toward circular fit-outs.
3. **Cooperative Norms** (Both Formal and Informal): Although not evident in the cases, cooperative norms could be beneficial. If directed towards achieving circular practices, a collaborative approach between landlords and tenants could promote circularity.
4. **Buyer/Supplier Adaptation** (Both Formal and Informal): Formal adjustments in contractual arrangements, such as agreements on leaving fit-outs in place for reuse, exemplify buyer/supplier adaptation. This can also be an informal verbal agreement. These adaptations can contribute to circular practices within office fit-outs.

In summary, legal bonds is the most impactful promoting arrangement for circular practices. However, working together, informal practices like information exchange and buyer/supplier adaptation can collectively promote circular fit-outs within tenant-landlord relationships.

Main question: How can the tenant – landlord relationship facilitate the process from a traditional to a circular fit-out in office buildings?

The tenant-landlord relationship can significantly facilitate the transition from traditional to circular fit-outs in office buildings by focusing on several key areas. First, it is essential to clearly define roles and responsibilities in lease agreements, addressing the complexity of ownership structures. Including specific clauses that promote circular practices, such as material reuse, ESG concepts and sustainable design guidelines, can help both parties adhere to circular economy principles.

Effective communication, both formal and informal, is crucial in this relationship. Regular information sharing stimulates transparency, allowing tenants and landlords to collaboratively pursue circular initiatives. Building commitment through long-term leases encourages investment in sustainable fit-outs, as both parties feel secure in their mutual long-term goals.

Expertise and behaviour play important roles in promoting circular practices. Both tenants and landlords must demonstrate a strong understanding of circular principles and sustainability. Positive behaviour towards circularity, for example proactive resource management, can mitigate challenges.

Adapting business strategies to support circular practices is also important. Landlords can implement policies that facilitate disassembly, reuse and product-as-a-service, while tenants can address challenges such as personalisation constraints through a different brand identity strategy.

Adapting to local legislation and cultural norms are crucial. Legislation often motivates sustainability practices, influencing decisions within the tenant-landlord relationship. However, legislation can also pose a challenge, making it crucial to have a clear strategy to deal with it. Financial considerations, such as pricing strategies that accommodate the higher costs of circular materials, are also important. Additionally, choosing mature suppliers, mature circular products and redesigning the development process enhance circularity.

By addressing these relationship determinants and arrangements, the tenant-landlord relationship can effectively facilitate the shift from traditional to circular fit-outs, promoting sustainability and long-term environmental benefits in office buildings. This approach ensures that both parties can achieve their sustainability goals while dealing with the complexities of ownership, market forces, and regulatory environments.

7. Discussion

7.1. Theoretical research

The literature study is exploratory due to the lack of research on office fit-outs and limited information on tenant-landlord relationships in corporate real estate. To address this, the study expanded to the broader buyer-supplier relationship to gather sufficient academic literature. Furthermore, surprisingly, there is no general definition of a circular economy, though structured literature studies provide a general understanding.

The study built a literature review based on linking concepts to explain new ideas. It found that while there is a general understanding of fit-outs and circularity, these are not combined in academic literature despite the significant waste generated. Waste management is also underrepresented, though it offers substantial potential both upstream and downstream.

The tenant-landlord relationship in literature is well-covered in a residential context but not in a corporate one. A crucial distinction is between the tenant and the end user, which impacts strategic choices concerning fit-outs, contrary to initial impressions. The literature study identified valuable relationship determinants and connectors but the complexity of fit-outs compared to other consumer goods makes some connections harder to establish.

The theoretical research lacks information regarding lease contracts and ownership structures for fit-outs, indicating the need for separate research on this topic.

7.2. Empirical research

The empirical research started with researching 5 fit-out projects via project documentation and interviews with key stakeholders. In the cases analysed, circularity strategies were based on a variety of R-principles. Because the cases were chosen with a deliberate emphasis on distinct principles, no one principle was shared by all of them. While certain R-principles were explicitly applied for sustainability reasons, others, such as reusing existing materials or reducing square meters, may have had a more financial reason.

Stakeholders

Although the stakeholders in the study were clearly defined based upon the literature review, it was noticeable that there was a great variety between the precise roles of the tenant and landlord interviewees. However, they all ultimately had the same responsibility over and link to the fit-out project.

Furthermore, in the case of the landlord, it cannot be stated whether a larger landlord is clearly more committed to the fit-out. The cases showed that the smaller landlord was much more involved in the fit-out than the asset managers of the larger landlords. For tenants, that distinction can be made based on the cases. The larger tenants usually have someone responsible for fit-out projects, while the smaller ones do not necessarily have that. Although not unanimously, a pattern can be identified that a dedicated person with expertise is beneficial to a well-executed fit-out project.

The study also analysed the relationship of the two stakeholders with the project manager. It is noteworthy how the effect of the project manager, and by extension, the fit-out consultancy, varies from project to project. Whereas some tenants already have a list of preferred furniture suppliers and thus no further input is feasible, others completely rely on the consultant to come up with

alternatives. Again, this depends on whether the tenant or owner already possesses expertise and the necessary knowledge.

The cases moreover showed that sustainability and circularity are mainly driven by one of the parties. In all five cases, a clear driver can be discerned, tenant or landlord, who pushed circular practices and leveraged their negotiation position. In four of the five cases, this was the tenant, showing that current practices are mainly determined by the tenants. While the relationship remains important for good collaboration, the cases show that you can achieve circular practices in fit-outs even with a minimal relationship with the landlord. The exact company strategy and corporate reputation are thus important when seeking to be the driving force in the relationship.

Nonetheless, the landlord remains directly involved because of the fixed elements and strict design guidelines surrounding the fit-out. A discovery was that in the Dutch office market, common practice dictates that fixed elements like ceilings and flooring must be reused by the next tenant if in good condition, as they are landlord-owned. However, determining what qualifies as 'old' and 'must go' is ambiguous and relies on personal behaviour, expertise, and willingness to deviate from contractual agreements. The new tenant's expectations and landlord quality criteria also influence these decisions, highlighting the subjectivity inherent in fit-out practices.

Relationship connectors

Based on this research, contractual agreements (legal bonds) continue to be the most significant aspect of the tenant-owner relationship. This does not come as a surprise given that some interviewees reported only seeing each other once a year. However, throughout the case studies, it became clear that contracts increasingly contain explicit clauses that promote sustainability and circularity. These conditions, which often apply to a green lease, can be extended to an ESG lease, where transparency is critical. This can increase awareness of which materials are used in the building and accompanying fit-outs.

A major obstacle to achieving circularity and sustainability in office buildings is the complex ownership structure and unclear responsibility allocation for fit-out elements. While contracts typically outline ownership and responsibilities, the variation between cases makes it challenging to determine the ideal allocation for each element. This fragmented ownership structure may result in renovations being fragmented across multiple stakeholders instead of being coordinated and executed together. As one project manager stated, "The landlord has no incentive to renovate [the service layer], except when lease negotiations come up." The cases also revealed that, while shorter leases are not inherently bad, longer leases do encourage additional investment in a long-term, circular fit-out, both from the landlord, who provides a bigger lease incentive and from the tenant, who incurs additional capital expenses.

In addition to market dynamics and shattered ownership structures, the labour market also exerts influence. Evolving work practices, like remote work and shifting workforce needs, drive companies to reassess spatial needs, resulting in shorter leases and a demand for flexibility. However, companies primarily view flexibility and space in square footage terms. In multi-tenant buildings, flexibility often means leasing more floors rather than adopting adaptable, flexible designs.

Furthermore, what literature suggested—that the most carbon reduction potential is achievable early on—is confirmed by the cases. Indeed, the most carbon reduction potential is realised during the negotiation phase of the lease agreement, where specific clauses regarding material usage could be discussed. These negotiations regarding design guidelines and adherence to building certifications are binding and thus very important. It means later deviations are not possible, as evidenced by one case where achieving net-zero and certain circular practices proved unfeasible.

Relationship determinants

In terms of relationship determinants, it is noteworthy how much effect individual actors, tenant or landlord, continue to have. So whether someone is motivated, sustainable driven, pragmatic, or idealistic has a significant impact on the process of designing a fit-out. This person's decision-making ability and power has a significant impact on the implementation of circular processes. Relational aspects like as communication and information exchange are undoubtedly beneficial, but they are typically a manifestation of cooperative norms as a prelude to reaching a contractual agreement together.

It is also notable that price is less of an issue in some analysed case studies. A more essential relationship determinant is the product itself, with all of its difficulties and constraints. The case studies found many more challenges than opportunities. In terms of the determinant product, various hurdles arose from the materials, installation procedures, and suppliers of those product materials, all of which caused difficulties in implementing circular practices. One might argue that the market is still developing and immature.

The most significant push element for circularity is the determinant social system. Tenants and owners stated that they were well aware that they needed to get on board in order to avoid becoming obsolete. Whereas for some, circularity and sustainability was used to market and position themselves, for others, it was simply a given. This is consistent with the previously indicated company strategy and corporate culture.

The 'circle of blame' component, which has not been covered in the literature but is common in construction projects, is also identified in this research. The stakeholder power analysis clearly shows where each stakeholder's responsibilities lay. What stood out here was the placement of product-as-a-service with the landlord. Product-as-a-service is considered most efficient if it is included in the rent negotiations, allowing the rented products to be left behind when the tenant moves out. Renting office space, such as flex offices, can be seen as an extension of product-as-a-service. In two cases, the tenant was able to meet their short-term space requirements. Although not directly related to their own fit-out, this can also be viewed as a way of reducing.

Circularity

A key finding from this study is that no fit-out can be considered entirely circular. This was evident during the empirical research into various cases. The question arises: when can a case be deemed circular? Hence, the cases were examined by its alignment with circularity principles. However, measuring this alignment poses challenges, as highlighted by one tenant who pointed out that circularity does not necessarily equate to sustainability and net-zero. For instance, locally made furniture may have a higher carbon footprint than those produced and transported from an abroad wholesaler.

This highlights the distinction between academic and business research. In business studies, there's a notable emphasis on achieving net-zero carbon emissions, as it's quantifiable unlike circularity. This underscores a major weakness of circular fit-outs—businesses prefer sustainability metrics in numerical form rather than abstract concepts. Consequently, there's a possibility that in the future, even a perfectly functional fit-out may be demolished and replaced with net-zero materials to meet this demand.

To conclude, the empirical research revealed a market transitioning towards sustainability, actively seeking solutions, new suppliers, materials, and contract innovations. However, the study focused on just five cases, each serving as a pioneer to a much larger market. Hence, there remains significant potential for further improvement.

8. Recommendations

8.1. Recommendations to approach the tenant-landlord relationship

As outlined in the discussion, it became clear that in each case study, either the landlord, the tenant or consultant took the initiative to promote sustainability and circularity. This indicates that it is possible to implement circular practices unilaterally within their respective areas of responsibility of the stakeholder. However, the delineation of responsibilities remains unclear.

The recommendations thus focus on addressing individual stakeholders, encouraging them to influence the areas where they have the most impact on challenges and opportunities. Cooperation should be achieved in overlapping areas, such as the duration of leases. Additionally, the recommendations highlight key determinants and connectors that facilitate circularity and sustainability. Without these elements, implementation becomes significantly more challenging.

	Tenant	Landlord	Consultant
Opportunity	Supplier involvement	Improvisation	Supplier involvement
	Attracting personnel	Product-as-a-service	
	Lease duration	Legislation	
		Service layer	
		Lease duration	
Challenge	Managing prejudice	Fixed items	Circle of blame
	Time constraints		Managing expectations
	Cultural acceptance		Time constraints
	Personalisation constraints		Fees of fit-out partner
			New suppliers
			Uncertain quality

Table 8.1. Stakeholder power analysis from chapter 5.5.2. *(author, 2024)*

Recommendations for the tenant

For the tenant, everything begins with a clear business strategy focused on sustainability and circularity. Without this, the burden falls heavily on individual representatives, who must then rely on their positive behaviour and expertise to make the right decisions.

A clear policy on lease terms is also crucial for tenants, particularly when it comes to fit-outs. Such a policy not only justifies additional investment in the fit-out, even if it will be written off after five years, but also signals a commitment to the relationship with the landlord. This also includes a clear stance on the dilapidations clause. Moreover, a sustainable, circular fit-out as part of a broader business strategy centred on sustainability, can help the tenant attract certain types of personnel.

Regarding the fit-out products, tenants have limited influence. However, they should proactively engage with suppliers early in the process. Involving suppliers from the outset can streamline the fitting-out process, reducing time constraints and interim rent costs. It's important for the tenant company to stimulate a culture that embraces second-hand items and reuse among end users. They should also work to eliminate internal biases that could hinder decision-making.

Finally, tenants need to consider how they want to express their brand identity. Should this be achieved through design elements that reflect the company's colours, or can this be through more subtle, intelligent approaches that make the design less directly personal? For companies with multiple offices, it's essential to decide whether all locations should have a uniform appearance or if

they can vary based on available materials. These considerations should be clearly defined in the overall strategy.

Recommendations for the landlord

The landlord should also develop a clear business strategy to promote sustainability and circularity in their office buildings. This involves determining what the landlord wants to offer tenants, particularly regarding the fixed elements of the fit-out. Investing in the service layer and other fixed components can ensure their longevity and allow them to be easily dismantled and adapted by the tenant, reducing the need for demolition and facilitating reuse.

Additionally, landlords could consider offering certain fit-out elements as a product-as-a-service. This could include items such as floor coverings, walls, and furniture. However, it's crucial that the landlord takes responsibility for maintenance to avoid placing undue restrictions on tenants, who might otherwise be required to use specific installers and repairers. Moreover, offering flex office space to all tenants can ensure greater tenant commitment with the landlord, as it allows tenants to adjust their space needs without having to move. Furthermore, with adequate expertise, landlords can assess whether fit-outs are still in good condition, allowing to deviate from contract terms. Clear communication with tenants about these aspects is essential. Rebuild obligations, termination clauses and the dilapidations clause can either promote or hinder circularity, depending on their implementation.

Lastly, landlords should proactively prepare for upcoming legislation that will require them to report on tenants' material consumption in office buildings. By engaging with tenants early, sharing information, and collaboratively seeking solutions, landlords can simplify compliance when these reporting requirements become mandatory.

Recommendations for the consultant

The consultant should provide advice on the latest practices and secure the best deal for the client. This involves not only guiding the tenant through the process of building a new office fit-out but also encouraging sustainable practices.

The consultant should demonstrate expertise and a positive approach, forming partnerships with reliable, professional suppliers and installers who specialise in sustainable, circular solutions. These suppliers include more than just those providing furnishings; they also encompass providers of material passports, data-sharing platforms, and strategic partnerships with demolition companies that have access to material passports, all of which contribute to improved waste management.

Timing is crucial as well. Delays in construction can result in tenants paying extra months of rent, so the consultant must ensure the process stays on schedule. Circular design might take more time, so this should be taken into account from the start.

Managing expectations is also key. While circularity can sometimes be more cost-effective, it often involves higher expenses. It is essential to inform tenants and landlords from the outset that circularity comes with limitations regarding design, choice, quality, and finish. Setting these expectations early helps avoid misunderstandings and ensures a smoother transition to circular practices.

It is crucial that the consultant, despite being hired and paid by one party, considers the interests of both stakeholders. The consultant, identified through the power analysis as the best party to break the circle of blame, can leverage their experience and expertise from other projects to encourage collaboration between the landlord and tenant. By identifying areas where both parties need to cooperate, the consultant can stimulate mutual dependence and cooperation.

The consultant's role may vary depending on the scope of their advisory services—whether it pertains solely to the fit-out, guidance to a new office (tenant advisory – lease agreement), or extending to workplace strategy. The consultant's influence very much depends on the where in the process the consultant is involved. Especially during the lease negotiations, it is important to push towards more sustainability oriented clauses, perhaps even a green lease and/or ESG lease.

Furthermore, after the fit-out is completed, the consultant might continue to offer property and facilities management services. This continued involvement enables the consultant to identify when the fit-out requires maintenance, repairs, or redevelopment. In the event of demolition, the same consultant, who is intimately familiar with their own design, can rapidly disassemble the components. This knowledge guarantees that the pieces are reused or recycled effectively, leveraging their thorough understanding of the inventory. This also creates the so called 'long term relationship'.

Finally, tendering a fit-out consultant typically involves various criteria, with price often being a key factor. However, other criteria can also play a significant role. This presents an opportunity to re-evaluate the remuneration of the fit-out partner by incorporating a carbon incentive. If a client prioritises carbon reduction and sustainability in their business strategy, this can be reflected in the incentive structure for the consultant. The lower the carbon footprint, the less new materials that are purchased, and the less work needed on the fit-out due to the consultant's specific advice, the higher the consultant's fee. Although it might seem contradictory to offer higher compensation for less work, achieving a lower carbon footprint during the construction phase often requires more effort and expertise during the design and development stages.

Conclusion

By addressing the responsibilities of and opportunities for each stakeholder and stimulating collaboration where interests overlap, this approach aims to enable sustainability and circularity within office buildings. Clear business strategies, early engagement, and strategic partnerships are key to overcoming challenges and achieving long-term, sustainable outcomes.

9. Limitations & Future research

1. The main limitation of the case study design is its inability to generalise findings to a larger sample. Measures were taken to reduce this limitation by selecting case studies with different circular strategies (R-principles) and similar characteristics (building year, Benelux scope, leased space, energy-efficient buildings). However, each tenant-landlord relationship is unique, and a larger sample could have revealed more opportunities and barriers.

2. Due to time constraints and lack of response from some landlords and tenants, not all stakeholders were interviewed. This limitation could be addressed by adopting a more stringent approach where a case is selected only if all stakeholders can participate. Additionally, the time and resource limitations restricted interviews to internal stakeholders (tenant, landlord, and project manager). Although the research focused on their relationship, references to external stakeholders, especially fit-out material suppliers, indicate that future research should explore the (second-hand) supplier market, which is poorly documented.

3. A limitation of the interview analysis is the potential bias of the researcher's perspective and interpretation of the transcripts. Relationship elements can emerge subtly, and although a closed code system in Atlas.ti was used, subjective interpretations of the transcripts can influence the coding process. The exploratory nature of the interviews meant interviewees were only asked how they perceived their relationship, but were not given a list of relationship determinants and connectors. A different outcome might have occurred if the interviewees themselves filled in what they considered important relationship elements.

4. The limited availability of relevant literature and data sources hindered the ability to build a strong academic foundation. This scarcity required the research to start from scratch on two topics: circular practices in office fit-outs and the tenant-landlord relationship. With limited time and resources, the research could only identify opportunities, challenges, enabling determinants and enabling connectors, but not research actual solutions, only give recommendations.

5. The exploratory focus of the research prevented detailed examination of specific elements influencing fit-out practices beyond tenant-landlord relationships. Topics such as corporate sustainability reporting directives, fit-out ownership structures, and design guidelines need further investigation. Future research should include analysing the carbon footprint of fit-out projects to identify areas for carbon reduction, conducting quantitative analyses to determine ideal responsibilities for fit-out elements to promote circularity, and reviewing design guidelines in lease agreements to develop guidelines that facilitate circular practices.

6. Finally, the awareness among key stakeholders of each other's participation limited their openness and the type and sensitivity of data shared, affecting the richness of the information collected.

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10. Appendix

10.1. Reflection

The following reflection is subdivided into four chapters; product, process, planning and personal note.

Product

My work integrates project documentation from case studies, stakeholder interviews, expert validation, and a literature review. Through this process, I gained significant insights into the corporate real estate industry, particularly in the area of fit-outs. However, I identified areas for improvement, such as incorporating more key interviews, as well as conducting a more comprehensive analysis of lease agreements and design guidelines. Despite these limitations, my research approach and focus on the research question proved effective.

My recommendations were shaped by diverse perspectives from various stakeholders. The validation and discussions with experts shaped the final outcomes beyond my initial expectations. The findings from this project hold value for future research and advancements in circular interior design implementation within leased environments. My research methodology is adaptable and considers the contextual nuances of its application.

Relation research with MBE

This study examines circular practices in fit-outs within leased office spaces and explores how the tenant-landlord relationship can promote such practices. Office spaces are integral to the built environment, and circularity is becoming increasingly relevant within this sector. Additionally, the tenant-landlord relationship is fundamentally a business arrangement centred on leasing space. Therefore, linking the tenant-landlord relationship with circularity in office buildings underscores the relevance of this topic within MBE.

Process

Throughout my thesis process, I regularly met with faculty tutors and my graduation company mentor. The faculty tutors contributed to refining my research methods, particularly in maintaining an exploratory focus during interviews, and offered valuable insights that enhanced my subject.

My mentor from the graduation company assisted in identifying relevant case studies for data collection and provided practical insights, improving my research by direct engagement with interviewees. Noticing similarities among case studies from the graduation company, I expanded my scope outside of the company portfolio to achieve a more diverse selection, a decision I now look at positively.

I believe my research methods supported my research. Furthermore, I integrated feedback from my mentors, particularly during P1 and P2. However, fewer meetings during P3 and P4 resulted in less feedback, and the extensive time I took to execute my data analysis limited discussions to methodological aspects rather than content. In retrospect, I would have valued more feedback on the content itself during these feedback sessions.

Planning

Following P2, P3 arrived fast, aiming to showcase initial findings. However, at that stage, I had conducted minimal interviews and analysed nothing, I only described. I realized there was still significant information to gather, and the transition to analysis was incomplete.

From P3 onward, substantial progress was made despite persistent time constraints, and tangible results began to emerge. An important lesson learned was the significance of efficient interviewee scheduling. Delays in responses and scheduling extended the timeline for case study descriptions and result analysis.

Personal note

I was personally keen to understand the operations and dynamics of the commercial real estate sector. Through exploring office fit-out design and construction from a 'Bouwkunde' perspective in my thesis, I gained insight into how this industry functions and does business. The commercial real estate sector is highly competitive, involving extensive tendering processes and tight deadlines. However, the rewarding aspect lies in delivering beautiful projects within a short timeframe of sometimes less than six months, bringing great satisfaction to clients and end-users. This contrasts with traditional building projects that often take much longer to reach completion and satisfaction.

Overall, delving into this massive industry was enlightening, especially considering the limited academic literature available on the subject.

10.2. Cross-case analyses

10.2.1. Opportunities and challenges

Table 10.2.1. summarises the opportunities and challenges identified in the case studies regarding implementing circular practices. Across 4 out of the 5 cases analysed, interviewees noted personalisation constraints as a significant barrier to achieving circularity in office fit-outs. Additionally, time constraints and fixed elements were repeatedly cited as challenges. On the positive side, improvisation, (early) supplier involvement, and product-as-a-service models emerged as recurring opportunities.

Notably, the analysis revealed an imbalance between the number of challenges and opportunities. Specifically, challenges were identified far more frequently than opportunities, with 21 instances of challenges compared to 13 instances of opportunities in total. This disparity was also evident in unique instances, with 15 unique challenges identified versus 10 unique opportunities.

	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Opportunities	Financial advantages	Design from materials	Supplier involvement	Product-as-a-service	Service Layer
	Improvisation	Attracting personnel		Lease duration	Supplier involvement
				Improvisation	Product-as-a-service
				Legislation	
Challenges	Personalisation Constraints	Personalisation Constraints	Personalisation Constraints	Personalisation Constraints	Fixed elements
	Time Management	New Suppliers & Uncertain quality	User behaviour	Cultural acceptance	Legislation
	Circle of Blame	Managing expectations	Efficiency of reuse process	Storage	Fees of Fit-out partner
		Time management	Underdeveloped materials and installation methods		Market mismatch
		Managing prejudice	Fixed elements		
			Legislation		

Table 10.2.1. Identified challenges and opportunities *(author, 2024)*

10.2.2. Relationship determinants

The table outlines relationship determinants identified across case studies that actively had a positive impact on the making of the office fit-out. Table 10.2.2. shows the recurrence frequency (degree) of each determinant.

	DETERMINANTS	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	DEGREE
Personal	Behaviour	✓	✓	✓	✓	✓	**5**
	Personal attributes			✓			**1**
	Expertise	✓	✓	✓	✓	✓	**5**
Relational	Commitment			✓	✓	✓	**3**
	Ethical profile	✓	✓	✓	✓	✓	**5**
	Sharing of information	✓		✓	✓	✓	**4**
	Communication	✓		✓	✓	✓	**4**
	Conflict						**0**
	Balance of power	✓	✓	✓			**3**
	Satisfaction					✓	**1**
Organisational	Size	✓	✓	✓	✓		**4**
	Structure	✓	✓	✓	✓		**4**
	Strategy	✓	✓	✓	✓	✓	**5**
	Product	✓	✓	✓	✓	✓	**5**
	Price	✓	✓	✓	✓		**4**
	Place	✓			✓		**2**
	Promotion		✓			✓	**2**
Environmental	Market structure			✓	✓		**2**
	Dynamism	✓	✓	✓	✓		**4**
	Internationalisation	✓	✓				**2**
	Position	✓		✓		✓	**3**
	Social system	✓	✓	✓	✓	✓	**5**

Table 10.2.2. Identified relationship determinants *(author, 2024)*

Within each dimension (personal, relational, organisational, environmental), there are determinants that appear consistently in all five cases as well as those that appear in fewer than half of the cases. Common determinants across all cases include behaviour, expertise, ethical profile, strategy, product, and social system. Conversely, less common determinants such as personal attributes, conflict, and satisfaction either do not occur or appear in only one case.

10.2.3. Relationship connectors

The table outlines relationship connectors identified across case studies that had a positive impact on the making of the office fit-out. The table shows the recurrence of each connector.

CONNECTORS	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Information exchange	✓		✓	✓	✓
Operational linkages				✓	✓
Legal bonds	✓	✓	✓	✓	✓
Cooperative norms			✓		
Buyer/supplier adaptation	✓		✓	✓	✓

Table 10.2.3. Identified relationship connectors *(author, 2024)*

Across all five cases, legal bonds were consistently present due to the lease agreements, making them the most important connector in the relationship. Information exchange was observed in four cases, except for case 2, where limited communication had no major impact. Buyer/supplier adaptation occurred in three cases, mainly benefiting tenants through favourable contractual terms. Operational linkages were noted in two cases, involving shared space usage (such as flex-office arrangements) and extensive data exchange with landlord oversight. Cooperative norms appeared in only one case, where both parties pursued a mutual sustainability goal. Overall, legal bonds had the most substantial impact, followed equally by information exchange and buyer/supplier adaptation.

10.3. Generic analyses

10.3.1. Generic analysis of relationship determinants

This analysis acts as a tool to weigh relationship determinants, using a "degree" column to show how often each determinant was mentioned directly and indirectly by interviewees. A high frequency suggests importance. The degree column does not distinguish sentiment, encompassing positive, neutral, and negative mentions.

	DETERMINANTS	Landlord	PM	Tenant	Degree	Total
Personal	Behaviour	36	8	23	67	119
	Personal attributes	1	5	4	10	
	Expertise	13	12	21	46	
Relational	Commitment	15	6	19	40	108
	Ethical profile	15	4	5	24	
	Sharing of information	13	3	6	22	
	Communication	16	7	8	31	
	Conflict	9	1	2	12	
	Balance of power	13	2	8	23	
	Satisfaction	4	6	7	17	
Organisational	Size	11	4	7	22	136
	Structure	8	1	8	17	
	Strategy	19	3	26	48	
	Product	32	5	20	57	
	Price	15	9	10	34	
	Place	4	1	6	11	
	Promotion	2	1	7	10	
Environmental	Market structure	7	0	6	13	46
	Dynamism	5	2	6	13	
	Internationalisation	1	1	0	2	
	Position	10	3	6	19	
	Social system	4	2	8	14	

Table 10.3.1. Occurrence of relationship determinants *(author, 2024)*

The generic analysis categorises the 22 determinants into the most frequent mentioned determinants, both broken down by stakeholder and in total.. Based on a threshold of 5% of the total number of mentions (409 in total, which equals 20 mentions), there are eleven above the threshold and eleven below. The 11 most frequently mentioned determinants, in chronological order, are:

1. Behaviour
2. Product
3. Strategy
4. Expertise
5. Commitment

6. Price
7. Communication
8. Ethical profile
9. Balance of power
10. Sharing of information
11. Size

During the exploratory interviews, participants weren't guided towards any specific determinant; rather, they spontaneously raised these determinants themselves, or indirectly referred to a determinant. They were not presented with a list but were simply asked to describe their relationship. This analysis presents the eleven most frequently mentioned determinants, suggesting a sense of importance.

10.3.2. Generic analysis of relationship connectors

This analysis acts as a tool to weigh relationship connectors by showing how often each connector was mentioned directly and indirectly by interviewees. A high frequency suggests importance. The total number does not distinguish sentiment, encompassing positive, neutral, and negative mentions.

CONNECTORS	Landlord	PM	Tenants
Information exchange	22	10	9
Operational linkages	2	2	8
Legal bonds	30	8	25
Cooperative norms	19	5	8
Buyer/Supplier adaptation	14	1	6

Table 10.3.2. Occurrence of relationship connectors *(author, 2024)*

In this context, it is notable that both tenants and landlords emphasize the legal bonds more than information exchange, with project managers mentioning it the most frequently. Apart from legal bonds and information exchange, which are the top two connectors mentioned by all three parties, cooperative norms are frequently discussed by landlords in the interviews. Conversely, operational linkages were mentioned infrequently by all three parties and were thus not considered important in relation to circular practices.

10.3.3. **Coding**

Closed codes

Code	Comment	Code Group 1	Code Group 2	Code Group 3	Code Group 4	Code Group 5	Code Group 6	Code Group 7	Code Group 8
Balance of power							Relational determinants		
Behaviour						Personal Determinants			
Buyer/supplier adaptation			Connectors						
Circularity									Varia
Commitment							Relational determinants		
Communication							Relational determinants		
Conflict							Relational determinants		
Cooperative norms			Connectors						
Dynamism				Environmental determinants					
Ethical profile							Relational determinants		
Expertise						Personal Determinants			
Information exchange			Connectors						
Internationalisation				Environmental determinants					
Landlord representative		Actors							
Legal bonds			Connectors						
Market structure				Environmental determinants					
Operational linkages			Connectors						
Personal attributes						Personal Determinants			
Place					Organisational determinants				
Position				Environmental determinants					
Price					Organisational determinants				
Product					Organisational determinants				
Project manager		Actors							
Promotion					Organisational determinants				
Quotes									Varia
Satisfaction							Relational determinants		
Sentiment								Sentiment	
Sentiment: Negative									
Sentiment: Neutral									
Sentiment: Positive									
Sharing of information							Relational determinants		
Size					Organisational determinants				
Social system				Environmental determinants					
Strategy					Organisational determinants				
Structure					Organisational determinants				
Tenant representative		Actors							

Table 10.3.3.2. Closed codes and their assigned code group based on the literature on relationship dimensions, determinants and connectors *(author, 2024)*

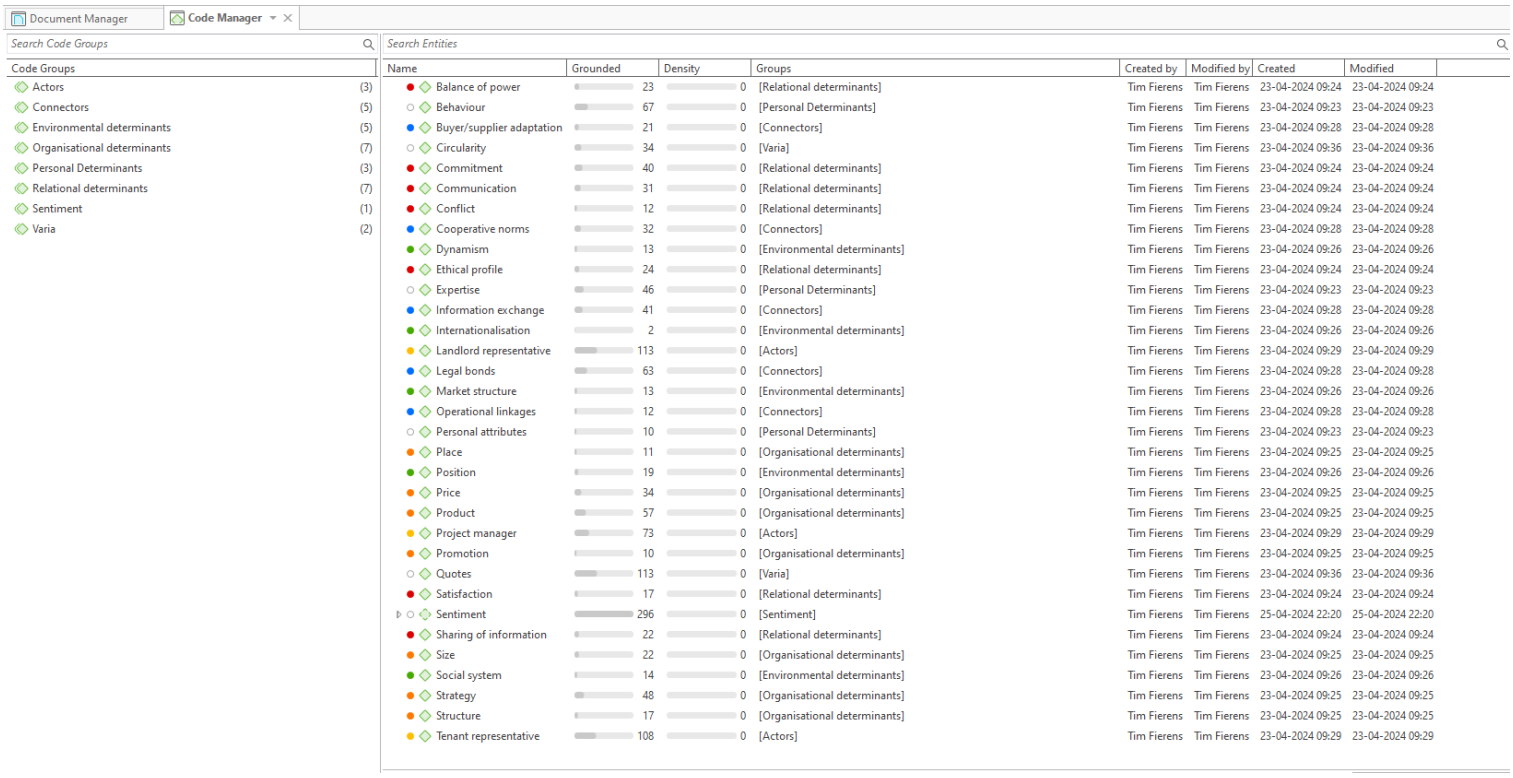

Table 10.3.3.1. Screenshot of atlas.ti with the grounded column referring to the degree or number of times a relationship determinant/connector is mentioned *(author, 2024)*