



CHALMERS
UNIVERSITY OF TECHNOLOGY



Sustainable Resource Use in Tenant Fit-Outs of Office Premises:

Barriers, Trade-Offs and Organisational Conditions
Master's thesis in Design and Construction Project Management

Neda Amadehgy
Sude Yilmaz

DEPARTMENT OF ARCHITECTURE AND CIVIL ENGINEERING
DIVISION OF CONSTRUCTION MANAGEMENT

CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2026
www.chalmers.se

MASTER'S THESIS ACEX30

Sustainable Resource Use in Tenant Fit-Outs of Office Premises:

Barriers, Trade-Offs and Organisational Conditions

Master's thesis in Design and Construction Project Management

NEDA AMADEHGY

SUDE YILMAZ

Department of Architecture and Civil Engineering

Division of Construction Management

Martine Buser

CHALMERS UNIVERSITY OF TECHNOLOGY

Gothenburg, 2026

Sustainable Resource Use in Tenant Fit-Outs of Office Premises: Barriers, Trade-Offs and Organisational Conditions

Master's Thesis in Design and Construction Project Management

NEDA AMADEHGY

SUDE YILMAZ

© NEDA AMADEHGY & SUDE YILMAZ, 2026

Examensarbete ACEX30

Institutionen för arkitektur och samhällsbyggnadsteknik
Chalmers tekniska högskola, 2026

Department of Architecture and Civil Engineering
Division of Construction Management
Chalmers University of Technology
SE-412 96 Göteborg
Sweden
Telephone: +46 (0)31-772 10 00

Sustainable Resource Use in Tenant Fit-Outs of Office Premises: Barriers, Trade-Offs and Organisational Conditions

Master's Thesis in Design and Construction Project Management

NEDA AMADEHGY

SUDE YILMAZ

Department of Architecture and Civil Engineering

Division of Construction Management

Chalmers University of Technology

ABSTRACT

This master's thesis examines how sustainable resource use can be promoted in tenant fit-outs of office premises, with a particular focus on early decisions in the process. Tenant fit-outs refer to adaptations made to adjust a space to the needs of a specific tenant. The study explores how tenant requirements, long-term flexibility and resource use are balanced, and what working methods and organisational conditions can support less resource-intensive fit-outs. The thesis is based on a qualitative case study of office premises in Kvarter Johanna in Gothenburg. The empirical material consists of semi-structured interviews with five respondents working within leasing, project management and sustainability. The interviews were complemented by document analysis and site visits to provide a broader understanding of the practical and organisational conditions of the project. The findings show that sustainable resource use is influenced by several factors. Tenant-specific requirements, market conditions, technical limitations and deviations from established standards can make it difficult to reduce resource use. The study also shows that important trade-offs are made before the construction phase begins. At this stage, tenant needs must be balanced against factors such as cost, time, lease length, technical feasibility, climate impact and the future usability of the premises. These factors are not always prioritised according to a fixed order but are assessed in relation to the conditions of each individual project. A central conclusion is that flexibility does not mean that all types of changes should be made possible. Rather, it is about creating premises that can be adapted over time without extensive rebuilding, material replacement or unnecessary interventions. The study therefore shows that sustainable resource use is not only determined by material choices at a later stage, but also by how tenant needs are interpreted and translated into a fit-out from the beginning. To support less resource-intensive tenant fit-outs, earlier collaboration between leasing, project management and sustainability is needed. Shared routines, clearer decision support and better use of climate and material information can make the consequences of different choices more visible before the scope of the fit-out is fixed. In this way, property owners can better meet current tenant needs while preserving the future flexibility and usability of the premises.

Key words: tenant fit-outs, office premises, sustainable resource use, long-term flexibility, early project decisions.

Hållbar resursanvändning vid hyresgäst Anpassningar av kontorslokaler: Barriärer, avvägningar och organisatoriska förutsättningar

Examensarbete inom masterprogrammet Organisering och ledning i bygg- och fastighetssektorn

NEDA AMADEHGY

SUDE YILMAZ

Institutionen för Arkitektur och samhällsbyggnadsteknik

Avdelningen för Projektledning

Chalmers tekniska högskola

SAMMANFATTNING

Detta examensarbete undersöker hur hållbar resursanvändning kan främjas vid hyresgäst Anpassningar av kontorslokaler, med särskilt fokus på tidiga beslut i processen. Med hyresgäst Anpassningar avses de förändringar som görs för att en lokal ska passa en specifik hyresgästs behov. Studien behandlar hur hyresgästens krav, långsiktig flexibilitet och resursanvändning vägs mot varandra, samt vilka arbetssätt och organisatoriska förutsättningar som kan stödja mindre resursintensiva Anpassningar. Arbetet bygger på en kvalitativ fallstudie av kontorslokaler i Kvarter Johanna i Göteborg. Det empiriska materialet består av semistrukturerade intervjuer med fem personer inom uthyrning, projektledning och hållbarhet. Intervjuerna kompletterades med dokumentanalys och platsbesök för att ge en bredare förståelse av projektets praktiska och organisatoriska förutsättningar. Resultatet visar att hållbar resursanvändning påverkas av flera faktorer. Hyresgästens specifika krav, marknadsförhållanden, tekniska begränsningar och avvikelser från etablerade standarder kan göra det svårt att minska resursanvändningen. Studien visar också att viktiga avvägningar görs redan innan byggskedet börjar. Hyresgästens behov behöver då vägas mot bland annat kostnad, tid, hyresavtalets längd, teknisk genomförbarhet, klimatpåverkan och lokalens framtida användbarhet. Dessa faktorer prioriteras inte alltid enligt en fast ordning, utan bedöms i relation till det enskilda projektets förutsättningar. En central slutsats är att flexibilitet inte innebär att alla typer av förändringar bör möjliggöras. Det handlar snarare om att skapa lokaler som kan anpassas över tid utan omfattande ombyggnader, materialbyte eller onödiga ingrepp. Studien visar därför att hållbar resursanvändning inte enbart avgörs genom materialval i ett senare skede, utan genom hur hyresgästens behov tolkas och omsätts till en Anpassning från början. För att stödja mindre resursintensiva hyresgäst Anpassningar behövs tidigare samverkan mellan uthyrning, projektledning och hållbarhet. Gemensamma rutiner, tydligare beslutsstöd och bättre användning av klimat- och materialinformation kan göra konsekvenserna av olika val mer synliga innan Anpassningens omfattning fastställs. På så sätt kan fastighetsägare bättre möta dagens hyresgästbehov samtidigt som lokalernas framtida flexibilitet och användbarhet bevaras.

Nyckelord: hyresgäst Anpassningar, kontorslokaler, hållbar resursanvändning, långsiktig flexibilitet, tidiga projektbeslut

List of Contents

1. Background	1
1.2 Problem formulation.....	2
1.3 Aim and research questions.....	3
1.4 Delimitations and limitations.....	3
1.4.1 Delimitations.....	3
1.4.2 Limitations.....	4
1.5 Ethical and social aspects.....	4
2. Methodology	5
2.1 Research process and methodology	5
2.2 Literature review.....	6
2.3 Interview study.....	7
2.3.1 Data analysis.....	8
2.3.2 Confidential documents.....	9
2.3.3 Site visit	9
2.4 Reliability and validity.....	9
2.6 Use of AI.....	10
3. Theory.....	10
3.1 Tenant fit-outs and sustainable resource use in office premises.....	10
3.1.1 Tenant fit-outs as recurrent change in office buildings	10
3.1.2 Resource use in office fit-out.....	11
3.2 Barriers to sustainable resource use in tenant fit-outs	12
3.2.1 Tenant-specific customisation as a barrier to future adaptability.....	12
3.2.2 Technical and spatial constraints.....	12
3.2.3 Time, cost and business conditions.....	13
3.2.4 Lack of routines, information and decision support.....	13
3.3 Early project decisions, flexibility and trade-offs	14
3.3.3 Customisation versus future letability.....	16
3.4 Working methods and organisational conditions for resource-efficient fit-outs.....	17
3.4.1 Early collaboration between leasing, project and sustainability functions.....	17
3.4.2 Tenant dialogue and steering of choices	18
3.4.3 Climate and material data as decision support	18
3.4.4 Organisational routines, standards and governance	19
4. Case study	21
4.1 Hufvudstaden's organisation.....	21
4.2 Hufvudstaden's sustainability work.....	21

4.2.1 Sustainability plan: minimise, future proof and collaborate	21
4.3 The fit-out process at Hufvudstaden	23
4.4 The project used as case study – Kv. Johanna	24
5. Interview study	28
5.1 The fit-out process	28
5.2 Tenant requirements, market conditions and fit-out scope	30
5.3 Technical and spatial conditions	32
5.3.1 Existing premises	32
5.3.2 Kvarter Johanna	32
5.4 Standardisation, deviations and future usability	34
5.5 Climate data, collaboration and organisational routines	35
5.5.1 Existing premises	36
5.5.2 Kvarter Johanna	37
6. Discussion	39
6.1 Sustainability and the early formation of the fit-out scope	39
6.1.1 The leasing stage as an early point where resource use is defined	39
6.1.2 Tenant-specific requirements, market pressure and uncertain future demand as barriers	40
6.1.3 Technical and spatial constraints as hidden barriers	41
6.2 Trade-offs between current tenant value and long-term usability	41
6.2.1 Flexibility as planned capacity rather than unlimited change	42
6.2.2 The house standard as boundary, negotiation tool and protection of adaptive capacity	43
6.2.3 Business logic, project logic and sustainability logic in the same decision	44
6.3 Organisational conditions for less resource-intensive fit-outs	45
6.3.1 From individual judgement to shared routines and indicators	45
6.3.2 Tenant dialogue and steering of choices before expectations become fixed	46
6.3.3 Climate and material data as decision support	47
7. Conclusion	49
7.1 Recommendations	50
7.2 Future research	51
References	53
Appendices	58

Preface

This master's thesis was carried out as the final part of our education at Chalmers University of Technology. It marks the concluding steps of our master's programme in Design and Construction Project Management. The thesis was conducted at the Department of Architecture and Civil Engineering during the spring of 2026.

We would like to thank Hufvudstaden for their collaboration and for giving us the opportunity to carry out this study. A special thanks to our company supervisor, Lina Ahlström, for her support, time and valuable input throughout the process. We would also like to thank our academic supervisor, Martine Buser, for her guidance and constructive feedback.

Finally, we would like to express our deepest gratitude to our families for their patience and constant support throughout this period, their encouragement has given us strength and motivation.

Gothenburg, June 2026

Neda Amadehgy

Sude Yilmaz

Notations

Fit-out - The process of adapting the interior of a building by removing, installing or changing interior elements such as partitions, flooring, ceilings, furniture, finishes and technical services. A fit-out mainly concerns the internal parts of a building rather than its main structure.

Tenant fit-out - The process of adapting an office space to meet the needs and preferences of a specific tenant.

Office fit-out - A fit-out carried out in an office premise.

Sustainable resource use - In this study, this refers mainly to reducing unnecessary material use, avoiding waste and limiting resource-intensive changes in tenant fit-outs.

Flexibility - The ability to change or adjust a building or office space relatively easily, for example through movable walls, adaptable layouts or technical systems that allow reconfiguration.

Long-term flexibility - The ability of office premises to remain usable and adaptable for changing tenant needs over time, without requiring extensive rebuilding or material replacement.

Technical feasibility - Whether a requested change is possible in practice, considering the building's technical systems, regulations, space, cost and project conditions.

Organisational conditions - Internal structures, routines, roles, collaboration patterns and decision-making processes

1. Background

The office market in Sweden's major cities is undergoing change. Recent reports indicate that office vacancies have increased significantly. Close to half a million square meters of office space are vacant in Stockholm, Gothenburg and Malmö, particularly in peripheral locations and newly developing areas (Fastighetstidningen, 2025). These changes are closely connected to new ways of working. Following the Covid-19 pandemic, remote and hybrid work has become increasingly common, which has changed how organisations perceive and use office spaces. Organisations also emphasise the importance of redesigning offices to better support meetings, interaction, and collaboration (Bodin Danielsson, 2024).

Clear differences can also be seen between locations, with offices in central areas remaining more attractive than those in outer areas of the cities. Higher vacancy rates and increased competition for tenant's place pressure on property owners to attract and retain tenants by adapting office spaces to specific tenant requirements (Fastighetstidningen, 2025). In the Swedish context, office fit-out is typically carried out by property owners for tenants and is often offered as part of the leasing package to improve competitiveness when several landlords compete for the same tenant (Budiyani, 2023).

Martani et al. (2023), describes that property owners face growing uncertainty regarding the future demand for office space. The rise of remote and hybrid work has created long-term uncertainty about how much traditional office space will be needed, and for what purposes. This uncertainty makes it more difficult to determine how office premises should be designed and adapted in the present, as future demand may differ significantly from today's needs (Martani et al., 2023). Because of this uncertainty, flexibility has become increasingly important in the development of office premises. Research on flexible design strategies in rentable offices shows that design choices such as open-plan layouts and movable partitions can reduce repeated material replacement and make future reconfiguration easier (Kılıç Bakırhan & Tuna Kayılı, 2025). Literature on design for adaptability also describes adaptable buildings as buildings that can respond to changing user needs over time while maintaining the utility and value of spaces and components (Munaro & Tavares, 2025).

At the same time, office fit-out is not a one-time event. Due to the nature of office leasing and business growth, tenancy over office space changes every couple of years, which means that fit-out tends to recur during the use stage of the building. Office leases in Sweden often last around five years, and minor internal upgrades may also be carried out during the tenancy period (Budiyani, 2023). This means that office premises are repeatedly adjusted in response to tenant change, organisational development and market expectations.

Repeated interior changes are linked to higher material consumption and growing volumes of renovation-related waste over a building's lifetime, creating additional environmental pressure from the office sector (Kılıç Bakırhan & Tuna Kayılı, 2025). A Swedish study on

office refurbishments finds that a single interior renovation can generate around 31–38 kilograms of waste per square meter of office space during a single refurbishment, while the related embodied carbon impact has been estimated at approximately 93–96 kilograms of CO₂-equivalents per square meter. Over time, the accumulated embodied carbon from recurring fit-out can become highly significant if no strategies are used to reduce its impact (Budiyanı, 2023). In multi-story office buildings, interior fit-outs tend to occur at relatively short intervals, meaning that layouts and finishes are changed repeatedly across several floors within limited time periods. This recurring pattern means that the environmental impact of individual refurbishment projects does not stay limited to a single tenant period but gradually builds up over time as spaces are reconfigured again and again (Forsythe & Wilkinson, 2014). The environmental impact of office fit-out is also affected by how materials are handled during the process. Casas-Arredondo et al. (2021) show that fit-out practices often follow a linear process, where materials are removed and replaced rather than kept in use. More circular fit-outs can also be limited by practical issues, such as lack of standardised sizes, lack of modular installation, limited reuse markets and logistical challenges related to time, space, and transport.

Commercial office buildings are long term assets that are expected to accommodate multiple tenants over their lifetime (Geltner et al., 2014). However, when premises are repeatedly adapted to meet specific tenant requirements, the long term adaptability of the building may be reduced if flexibility is not considered in early decisions (Brand, 1995). For property owners, tenant adaptations are not only technical projects but also strategic business decisions, as rental income and occupancy rates are central to the value creation of commercial real estate (Geltner et al., 2014). Decisions that optimise space for a current tenant may therefore conflict with long term value preservation and future leasing potential (Martani et al., 2023). Research on flexible office design shows that more rigid layouts and fixed partitions tend to generate more waste and higher embodied impacts over time than more flexible configurations (Kılıç Bakırhan & Tuna Kayılı, 2025).

1.2 Problem formulation

As future office demand has become more uncertain, flexibility has become increasingly important in office development. At the same time office premises still need to be adapted to the requirements of specific tenants. Since office premises are used by different tenants over time, decisions made in tenant fit-out projects can affect both the current use of the premises and the amount of resources required in future adaptations

This creates a challenge for property owners, as tenant-specific solutions may be necessary to meet current tenant needs, but can also make premises more difficult to reuse, adapt or lease to future tenants. If the scope of the fit-out is defined without sufficient consideration of long-term flexibility and resource use, later adaptations may require more extensive rebuilding, material replacement and waste.

Previous research has addressed sustainability in office fit-outs, particularly in relation to circular material strategies, the environmental impact of recurring fit-outs and adaptable office design. However, less attention has been given to how sustainable resource use can be promoted in tenant fit-outs from the perspective of property owners. More knowledge is therefore needed about how barriers and trade-offs are handled, and which working methods and organisational conditions can support less resource-intensive tenant fit-outs.

1.3 Aim and research questions

The aim of the study is to examine how sustainable resource use can be promoted in tenant fit outs of office premises. Through a case study of a newly developed office block, the study analyses how barriers and trade-offs are perceived and managed in early project decisions, and what working methods and organisational conditions can support more resource efficient and sustainable tenant fit outs in future office projects.

1. What barriers are perceived to limit sustainable resource use in tenant fit-outs of office premises?
2. How are trade-offs between tenant requirements, long-term flexibility and sustainable resource use handled and prioritised in early project decisions?
3. What working methods and organisational conditions can support less resource-intensive tenant fit-outs in future office projects?

1.4 Delimitations and limitations

1.4.1 Delimitations

This study is carried out in a Swedish context and focuses on office fit-out projects conducted by one real estate company, Hufvudstaden. The research examines office-to-office tenant adaptations and focuses on how office premises are adapted to the requirements of specific tenants, rather than converted to another type of use. Kv. Johanna is a mixed development project involving both refurbishment and new construction. However, this study focuses specifically on the office premises and on tenant adaptations within the project. Retail premises and other types of use within the project are not included in the analysis.

The analysis focuses on early project decisions and on how tenant requirements, the conditions of the premises, long-term flexibility and sustainable resource use are considered in office fit-out projects. In this study, long-term flexibility is understood as the ability of office premises to remain adaptable to changing tenant needs over time, while limiting the need for extensive physical changes, material replacement and resource-intensive interventions.

Sustainable resource use is mainly understood in relation to material use, waste reduction and the avoidance of unnecessary resource-intensive changes. Other aspects of sustainability, such

as social sustainability, energy performance and broader economic sustainability, are therefore not analysed in detail. Organisational aspects are included only when they are directly related to tenant fit-outs and sustainable resource use. However, it does not aim to analyse Hufvudstaden's full organisational. The analysis also does not include detailed investigations of contractors, consultants or tenants, although these actors may influence fit-out decisions in practice.

Kvarter Johanna was selected as the case study because it shows how the first office fit-outs are shaped in a building that has already been planned for flexibility. This makes it possible to study how sustainable resource use is considered when planned flexibility meets real tenant needs, market pressure and technical limitations in the first fit-outs. The case is therefore not mainly about evaluating future adaptations, but about understanding how the first fit-out decisions set the conditions for future use.

1.4.2 Limitations

As the empirical data is based on projects and decision-making processes within one real estate company, the findings are primarily relevant to similar companies and contexts and may not be directly generalisable to other markets or types of property owners.

In addition, the case examined in this study concerns a recently developed office project where the first tenant adaptations are taking place in newly built or refurbished premises. This means that the study cannot assess how the premises actually perform over time or how the intended flexibility is affected across several future tenant changes. The study therefore focuses on how sustainable resource use, flexibility and tenant requirements are reasoned about and balanced in project decisions, rather than on long-term outcomes.

Another limitation is that the study is based on interviews and selected project-related material. The findings therefore reflect the perspectives of the interviewed actors and the material available during the study. The thesis does not include a quantitative assessment of material flows, waste volumes or carbon emissions from the studied tenant adaptations.

1.5 Ethical and social aspects

The study was conducted in collaboration with the property company Hufvudstaden. As the project involves sensitive information, permission was taken from Hufvudstaden regarding what data could be included in the study. A non-disclosure agreement (NDA) was signed with the company to ensure that sensitive information was handled appropriately. The interview participants were informed about the purpose of the study prior to the interviews, and participation was voluntary. They were also asked for consent to record the interviews. To protect their privacy, the participants are not referred to by name in the study and are instead presented through their professional roles. The interview material was handled with care throughout the research process. After the completion of the study, the material was deleted to ensure the confidentiality of the participants.

2. Methodology

2.1 Research process and methodology

This study is based on a qualitative research approach, as it focuses on understanding how different actors involved in the project perceive and describe design principles, challenges, and decision-making processes. Qualitative research is suitable for exploring how individuals interpret their experiences and make sense of their reality, and it acknowledges that reality is constructed through individual perspectives (Savin-Baden & Major, 2013). This makes it possible to capture and compare different understandings of the same situation across actors involved in the project. Furthermore, the study has an interpretive character, as the empirical material is analysed in relation to the theoretical framework, allowing for a deeper understanding of the findings.

The research process in this study followed an abductive approach. An abductive approach involves a continuous interaction between theory and empirical data, where understanding is developed through moving back and forth between these (Ayton et al., 2023). Initially, a preliminary understanding of the case project, Kv. Johanna was developed through secondary sources and general project information. Based on this understanding, the research idea, aim, and research questions were formulated.

A theoretical framework was developed prior to data collection to create a clear foundation for the study. This framework was used to develop the interview guide and to formulate the interview questions. Subsequently, empirical data was collected through semi-structured interviews, as well as document analysis and a site visit. During the analysis phase, the empirical findings were interpreted in relation to the theoretical framework. This iterative process, involving continuous interaction between theory and empirical data, reflects an abductive research approach.

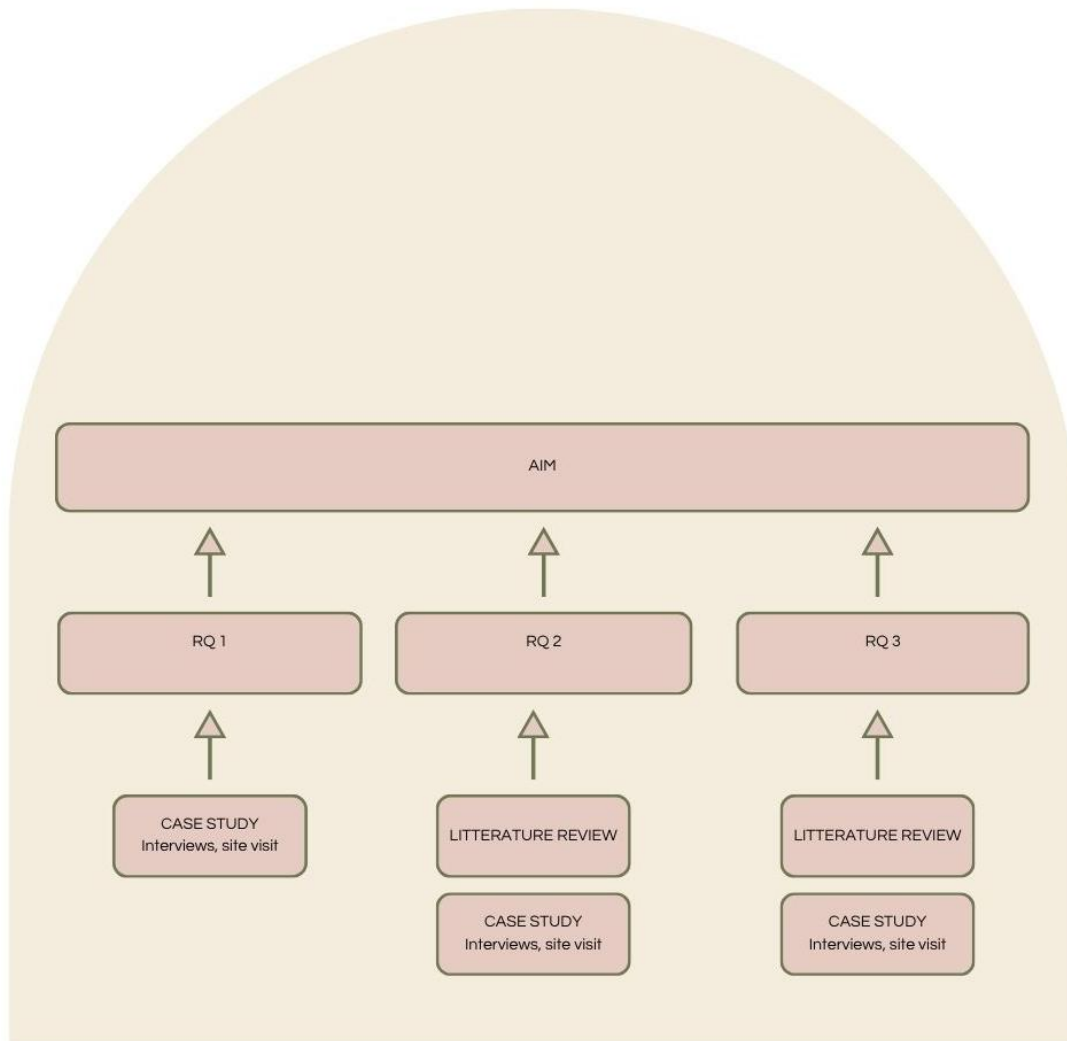


Figure 1: Illustrates the research process.

2.2 Literature review

A literature review was conducted to establish a theoretical foundation for the study and to develop an overall understanding of the research topic. The review focused on identifying how previous research addresses key decisions, trade-offs, and building adaptability in office projects.

Relevant sources were identified through searches in academic databases such as ScienceDirect, Google Scholar, Emerald Insight, and ResearchGate. The literature search was guided by a set of keywords derived from the research aim and theoretical focus of the study. These keywords were used in combination to identify relevant sources within the selected databases. An overview of the keywords is presented in table 1. The selection of sources was based on their relevance to the study and included mainly scientific articles, as well as academic books and selected industry reports. While studies from different geographical contexts were considered, particular emphasis was placed on Scandinavian research to ensure relevance to the Swedish context.

The literature review followed an iterative process, where new sources were continuously identified and assessed throughout the study. All sources were read and discussed by both authors to ensure consistency in interpretation. The selected literature was critically evaluated in terms of credibility, relevance, and contribution to the research topic. The literature was used to support several parts of the study. It formed the basis for the theoretical framework and contributed to the development of the interview guide. In addition, the theoretical concepts identified in the literature were used in the analysis of the empirical data. This means that the interview results and other collected material were interpreted in relation to the theoretical framework, allowing for a more structured and in-depth analysis.

Keywords	
Fit-out process	Hybrid work
Office buildings OR office fit-out	Early project decisions
Building-adaptability	Sustainable resource use AND refurbishment
Property owner AND tenant customization	Commercial buildings AND rentable office
Decision making AND trade-offs	Flexible design principles

Table 1: Keywords.

2.3 Interview study

The empirical data in this study was collected through a qualitative interview study. Interviews were chosen as the main method in order to gain a deeper understanding of how different actors involved in the project work with and perceive design principles, decisions, and trade-offs.

According to Kvale and Brinkmann (2009), qualitative interviews aim to understand the interviewees' experiences and knowledge with a focus on capturing the participants' own perspectives, rather than interpreting the situation beforehand. The interview can be seen as a professional conversation, where knowledge is developed through the interaction between the interviewer and the interviewee.

The interviews in this study were conducted in a semi-structured format, where a list of questions was prepared in advance, allowing for a flexible approach. This made it possible to adjust the questions during the interviews and ask follow-up questions when needed, especially in cases where the initial questions did not lead to sufficiently detailed answers. The interview guide, presented in Appendices, included a mix of introductory questions to establish context, followed by more specific questions aimed at gaining more detailed insights into the topics discussed.

The interviewees were selected based on their roles in the project in order to capture different perspectives, including a project manager, business manager, leasing manager, technical manager, and head of sustainability. An overview of the respondents, including their roles, experience and duration, is presented in table 2. The selection followed a structured approach, where a relevant group of actors involved in the project was first identified, and potential participants were then selected within this group in collaboration with the company supervisor. This approach is similar to what Hallin and Helin (2018) describe as a two-step selection process, where a broader group is first defined and then narrowed down to suitable interview candidates. Through this collaborative process, a range of perspectives connected to the project was ensured.

Role	Experience (years)	Duration
Project Manger A	7	1 h 30 min
Project Manager B	6	45 min
Project Director	10	1 h
Leasing and Property Management Professional	10+	1 h 30 min
Head of Sustainability	15	45 min

Table 2: Interview respondents' role, experience and the duration of the interviews.

Allowing interview participants to review transcribed or summarised material is a common way to ensure that their statements are accurately represented and to allow for corrections or clarifications (Ejvegård, 2003). In this study, participants were given the opportunity to review the summarised material after the interviews had been conducted and transcribed.

2.3.1 Data analysis

The interview material was analysed through a thematic analysis. After the interviews had been transcribed, both authors read through the material several times to gain an overall understanding of the respondents' perspectives. Relevant parts of the interviews were then marked and grouped according to recurring topics connected to the aim and research questions.

The themes used in the results chapter were developed from both the interview material and the theoretical framework. The analysis therefore moved between what the respondents described and the concepts found in the literature. This made it possible to first present the interview findings close to the empirical material, and then discuss them in relation to theory in the discussion chapter.

2.3.2 Confidential documents

The study was also supported by confidential project-related documents provided by Hufvudstaden. These documents were used to gain a better understanding of the case project, the fit-out process and the type of information that can be included in agreements and project documentation. The documents are not quoted directly in the thesis and sensitive information has not been included. Instead, they were used as background material to help the authors understand the interviews, the site visits and the practical context of the project. The material was handled in accordance with the agreement with Hufvudstaden.

2.3.3 Site visit

Two site visits were carried out at Kvarter Johanna. The first visit took place on 11 February 2026. The purpose of this visit was to gain a better understanding of the physical setting of the case project. During the visit, the authors were given a guided tour by a project manager from Hufvudstaden. The visit helped clarify how the premises were planned, how tenant fit-outs were being carried out and how technical and spatial conditions affected the project. A second site visit was carried out on 29 April 2026. During this visit, the authors were able to observe a completed office premise that was ready for tenant move-in. This provided further understanding of how the planned fit-out solutions were realised in practice, including the final layout, material choices and spatial qualities of the office environment.

Together, the site visits were used as supporting material when interpreting the interviews and understanding the case as a whole.

2.4 Reliability and validity

Reliability refers to how well the data collection has been carried out and whether the results are consistent and reliable. It is often described as the extent to which similar results can be achieved if the study is repeated, although in qualitative research the focus is rather on clearly describing how the data has been collected and analysed (Mälardalen Universitet, n.d.-a). In this study, reliability was strengthened by recording the interviews to ensure that the data was captured accurately. Both authors participated in the interviews, which reduced the risk of misunderstandings and supported a shared interpretation of the material. In addition, the research process has been described in a clear and structured way. The interviews were transcribed shortly after they were conducted to reduce the risk of losing important details. Validity refers to whether the collected data is relevant to the research problem and whether the study measures what it is intended to measure. This means that the data must not only be collected correctly, but also reflect the phenomenon that the study aims to investigate (Mälardalen Universitet, n.d.-b).

In this study, validity was strengthened by designing the interview guide based on the theoretical framework, ensuring that the questions were relevant to the topic. Follow-up questions were used to clarify responses and gain more detailed answers. The participants were also given the opportunity to review the summarised material after the interviews to ensure that their statements were correctly understood. In addition, the use of multiple data

sources, including interviews, documents, and a site visit, contributed to a broader understanding of the case.

2.6 Use of AI

AI-based tools were used as supportive tools during selected parts of the research process. Consensus was used as a complementary tool in the literature review to identify potentially relevant scientific articles and to gain an initial overview of research connected to the topic. The final selection and use of literature were made by the authors based on relevance, credibility and connection to the aim and research questions.

Chalmers AI Portal was used to support the transcription of recorded interviews, as this enabled the interview material to be handled through a Chalmers-provided AI service. This was considered important due to the confidential and company-related nature of parts of the empirical material. The transcripts were reviewed and corrected by the authors before being used in the analysis. AI-based language tools were also used during the writing process to support grammar, sentence structure, phrasing and clarity. The discussion, interpretation of the empirical material and conclusions were developed by the authors through independent academic analysis.

3. Theory

3.1 Tenant fit-outs and sustainable resource use in office premises

3.1.1 Tenant fit-outs as recurrent change in office buildings

According to Arge (2005) office buildings need to accommodate changing user needs over time as organisations, work practices and workplace designs evolve. Further Arge (2005) illustrates this using a theatre metaphor, where the building functions as a permanent stage, while the tenants and their specific floor plans are like different “plays” performed on that stage over time. Since businesses change and relocate frequently, a typical office needs to accommodate new tenants and new interior layouts several times during the lifetime of the building.

To understand how buildings respond to these changes, it is useful to look at their different “layers.” According to the principle of layering described by Arge (2005), different parts of a building have different lifespans and therefore change at different intervals. The primary structure is built to last at least 50 years, but the “services” (like heating and cooling) last only 15–20 years, and the “space plan” (the walls and furniture) often changes every 5–7 years. Because of these different lifespans, the internal configuration of office spaces may change many times during the lifetime of a building. Further, Arge (2005) explains that the cumulative costs of repeatedly modifying space plans and technical systems can eventually exceed the original cost of the building structure itself.

Tenant fit-outs are therefore closely connected to the faster-changing layers of office buildings. Building fit-out is the process of removing and installing interior building materials and components such as partitions, flooring, ceilings, furniture, and mechanical and electrical services. While terms like renovation and refurbishment are often used in similar ways, a fit-out specifically refers to work that takes place in the interior of a building, also known as the “infill” (Casas-Arredondo, 2021).

3.1.2 Resource use in office fit-out

According to Casas-Arredondo (2021) interior finishes and visible materials are important for sustainable resource use in office fit-outs because they are often replaced more frequently than the building’s main structure. Fit-outs involve the removal and installation of elements such as partitions, finishes, fittings, furniture and, in some cases, mechanical and electrical services. Because these elements are replaced more frequently, fit-out projects contribute to recurrent material consumption, embodied carbon emissions and waste generation. Casas-Arredondo (2021) further note that most of the waste generated in fit-out projects does not remain in high-value material loops, but is instead downcycled, with mixed waste, plasterboard and wood constituting major waste streams.

Fauth and Pieper (2022) describe sufficiency as a sustainability strategy that focuses on reducing consumption through different strategies. The basis of sufficiency measures is to strive for a minimum level of resource consumption that is necessary to satisfy user needs and that is considered valuable by users. In office development, planning, monitoring and regularly assessing space and accessibility needs can support a closer alignment between office design and actual resource and energy demand.

Fauth & Pieper (2022) also identify simplicity and durability as sufficiency principles. Simplicity refers to functional design with minimalistic elements, which can prevent unnecessary functions and errors in operation that cause high resource consumption. Durability refers to high qualitative durability, which reduces the need for replacement and simplifies reuse. Comprehensibility is also important because sufficiency depends on whether users understand the resource consequences of different choices. Further, Fauth and Pieper (2022) state that savings potentials should be made transparent to consumers, including where these potentials exist, how large they are and which behavioural changes can generate them. In this sense, information and awareness can support more conscious user behaviour in relation to resource consumption.

A further way to support sustainable resource use is to treat materials from refurbishment and demolition as resources rather than waste. Celadyn (2019) argues that interior architectural design for adaptive reuse can reintroduce reclaimed or salvaged building materials and products into new interior components. Celadyn (2019) furthermore identifies design for repair, remake and replacement, design for reclaim, and design for adaptive reuse as methods for extending the technical life of products. Design for reclaim refers to the reintroduction of building materials without reprocessing or cleaning, and with only limited repair. In addition, design for deconstruction or selective dismantling can support the reuse of recovered

components in new locations through the partial or complete dismantling of existing structures. Selective dismantling can also enable the repeated use of interior components, extend the lifespan of products, and support circular material flows within the built environment.

3.2 Barriers to sustainable resource use in tenant fit-outs

3.2.1 Tenant-specific customisation as a barrier to future adaptability

Tenants often want office solutions that match their specific way of working, their brand identity, and their unique culture. Nanayakkara et al. (2021) writes that an office layout should be an extension of the organisation's culture and values. This often leads to requests for specific floor plans, specialised technology installations, or unique material choices.

Furthermore, Halvitigala and Reed (2015) explains that the configuration of the office layout has a direct positive relationship with worker productivity, leading modern tenants to demand "non-territorial" environments that support Activity-Based Working (ABW) and increased employee interaction.

At the same time, highly specific layouts can reduce future adaptability. Forooraghi et al. (2025) points out that the more a space is customised for one specific user group, the harder it can become to apply standardised solutions that work for several users over time. Further Forooraghi et al. (2025) suggests that using standard design principles, like "clean desk" policies and non-assigned seating, is intended to make the office available for all users, but it can conflict with a current tenant's need for specialisation. If a space becomes too specialised for one tenant, its "future lettability" may decrease because it becomes too expensive or difficult to change for the next tenant.

3.2.2 Technical and spatial constraints

Halvitigala & Zhao (2014) writes that landlords now place more emphasis on meeting specific tenant requirements to maximise occupier satisfaction and retention, viewing the physical space as a strategic tool to support an organisation's "working culture, productivity and creativity". Abu-Lail and Zoltán (2024) argues that because modern office work requires high levels of mental output, design decisions must prioritise indoor environmental quality factors, such as ergonomics, acoustics, air quality, and thermal comfort, to create an atmosphere conducive to concentration. Providing such an optimal environment is critical given that people spend the majority of their time inside buildings.

HVAC systems are particularly important because different office functions may require different technical conditions. Gärtner (2020) points out that specific rooms, like meeting rooms, often have very different technical needs than open-plan areas because they have higher "internal gains" from more people and equipment in a small space. Further Gärtner et al. (2020) emphasise the importance of "control zoning", the ability to control the temperature in small, individual areas. If the technical systems are not designed with flexible zoning from

the start, it becomes very difficult to change the office layout later without compromising thermal comfort.

Technical installations also affect resource use because they are often defined early, before the exact tenant layout and future use of the office are known. Gärtner et al. (2020) show that HVAC systems account for a large share of energy use in office buildings and that early technical decisions can influence both future energy demand and the extent of later interventions. Solutions such as control zoning, radiant ceilings and thermally active building systems can therefore support more robust and flexible office spaces by making it easier to accommodate future layout changes without extensive technical rebuilding.

3.2.3 Time, cost and business conditions

Economic factors are a constant condition that determines what adaptations are possible. Halvitigala and Reed (2015) states that incorporating flexible design features can increase initial construction costs by up to 10%. Property owners must decide if these higher upfront costs are reasonable compared to long-term benefits like higher rent, better tenant retention, and lower risk of the building becoming obsolete. Nanayakkara (2021) explains that many organisations view the workplace as a cost center, aiming to reduce total space requirements and increase worker density to save money.

Decision-making regarding flexible office space is complex because it involves balancing multiple, often conflicting, objectives. Halvitigala and Reed (2015) identifies that investors and landlords must weigh monetary benefits, such as increased rental and market value, against non-monetary benefits like positive market image and improved tenant retention. This complexity arises because different stakeholders, including owners, tenants, and the public, have varying interests that must be addressed within the same project.

Furthermore, Halvitigala and Reed (2015) explains that these decisions are almost always made under uncertainty. Investors often find it difficult to conduct fully rational calculations because there is a lack of hard quantitative data regarding the life-cycle costs and long-term financial benefits of flexible buildings. As a result, decisions are frequently shaped by market knowledge, subjective experience, or "guesswork" rather than a perfectly rational optimisation process.

3.2.4 Lack of routines, information and decision support

The integration of sustainability into construction-related projects, such as office fit-outs, is frequently limited by gaps in organisational knowledge and structured management processes. Ferreira et al. (2024) argue that project teams often lack the expertise and training needed to discuss environmental data or propose sustainable solutions. This creates a barrier because sustainability requirements may be recognised in principle, but remain difficult to translate into practical project decisions.

Furthermore, Czelusniak-Serviss (2023) notes that many leaders in the construction industry lack clear strategies for integrating profitable sustainability practices into their business

models. Implementation is often resisted because existing organisational routines and traditional mindsets are deeply rooted, and there is often little clarity on exactly what should be measured to calibrate or follow up on sustainability performance. This lack of direction is further exacerbated by the absence of standardised frameworks.

According to Stanitsas et al. (2021), the lack of an all-encompassing categorisation of indicators creates significant difficulties for project managers trying to steer projects toward specific sustainability goals. Without structured systems to prioritise actions across different project phases, decision-makers are often forced to rely on short-term financial perspectives, such as minimising initial capital expenditure (capex), rather than considering the long-term benefits and total cost of ownership.

3.3 Early project decisions, flexibility and trade-offs

3.3.1 Early decisions and resource use

The early stages of office fit-out projects are important because they define the initial direction of the project and set conditions for what later adaptations will require. Thuvander et al. (2012) show that important decisions in building transformation projects are often made during the preliminary stages, when overall goals, scope and level of ambition are established. At this stage, different options are weighed against economic, technical, environmental, social, and architectural values. In practice, however, financial considerations often tend to dominate unless other values are addressed early in the process.

This is particularly relevant in office fit-out projects, where current tenant requirements need to be balanced against future change. Watt et al. (2023) argue that decisions made in early design and planning stages strongly influence a building's long-term ability to accommodate new demands. Andrade and Bragança (2019) similarly emphasise that adaptability should be considered early, since this is where the conditions for future change are most effectively established. When adaptability is addressed from the outset, later interventions may become less extensive, less costly and less resource intensive.

3.3.2 Flexibility and adaptability in office premises

Building adaptability is the ability of a building to respond to changing needs over time, such as shifts in use or environmental conditions. According to Watt et al. (2023), an adaptable building is designed to be easily modified, which allows it to avoid being torn down and rebuilt before it is truly necessary. This approach supports circular economy principles by keeping materials in use for as long as possible. Furthermore, Watt et al. (2023) describes that the ultimate goal of adaptability is to reduce the total carbon emissions produced during a building's entire life by preventing early demolition.

According to Watt et al. (2023), achieving long term sustainability requires balancing present needs with the ability to adjust the building in the future. A major challenge is therefore finding the balance between "lean design", which focuses on using as little material as possible right now, and "design for adaptability", which may require using more material

initially in order to ensure that the building remains useful over time. Watt et al. (2023) argue that focusing only on short-term material savings can be short-sighted, as it may lead to a building that cannot adjust to new needs and therefore results in higher environmental costs when replacement becomes necessary.

This is particularly relevant for office buildings, where future demand is uncertain. Martani et al. (2023) explain that remote work and changing work patterns create uncertainty about how office space will be used in the future. If an office building has a rigid or fixed layout, it may suffer from functional obsolescence, meaning that it no longer meets market needs.

Adaptability is therefore relevant from both an environmental and an economic perspective, since buildings that can accommodate future users are more likely to remain useful and lettable over time (Arge, 2005; Martani et al., 2023).

Arge (2005) describes three different ways in which buildings can be made adaptable: generality, flexibility and elasticity. Generality is described as the building's ability to meet new needs without making any changes in the structure. In office buildings, this can be supported through static design choices that make the building usable for different workplace layouts over time. Important measures include sufficient building width, adequate floor-to-floor or net height, and a technical grid that allows different workplace designs or solutions. Flexibility refers to the ability to change the properties of a building easily, for example through modularity like “plug and play” building elements, movable partitions or flat soundproof suspended ceilings that allow walls to be repositioned. Elasticity refers to the possibility to make a building bigger (extending it) or to divide it into smaller, independent sections. This can be important when a business grows and needs more space or shrinks and wants to rent out part of its floor to someone else.

These forms of adaptability can be supported through more specific design principles. Sadafi et al. (2014) explain that flexible design strategies aim to reduce the extent of physical interventions required when user needs change, by making it possible to modify parts of the building without affecting the whole system. In office premises, adaptability is therefore not only about allowing change, but about structuring the building in a way that makes change technically feasible and less resource-intensive.

Mlote et al. (2024) identify several design principles that support this, including modularity, convertibility, upgradability and general flexibility. Modularity refers to the use of standardised and interchangeable components, which can make it easier to add, remove or replace specific elements without extensive reconstruction. Convertibility, on the other hand, refers to the ability of a space to accommodate different functions over time, which can be supported through more open layouts and less fixed interior structures. Upgradability focuses on the possibility to improve or replace building systems, such as technical installations, without major disruption to the building as a whole. Sadafi et al. (2014) further emphasise the importance of separating different building layers, such as structure, services and interior elements. This separation allows each layer to be changed independently.

At the same time, the application of these design principles involves certain challenges. Sadafi et al. (2014) note that increasing flexibility can require more complex design solutions and may lead to higher initial costs. Mlote et al. (2024) further explain that the implementation of adaptable strategies can be limited by economic constraints, technical challenges and existing regulations. This means that design principles are shaped through trade-offs, where decisions must balance current project conditions with the potential for future change.

In high-end office developments, this logic is implemented through systematic planning rather than visible prefabricated components. Abu-Lail & Zoltan (2024) note that it can be difficult to apply smoothly in high-end office buildings because elite users often prioritise unique, "original" designs that may outweigh the standardised look of modular units. Consequently, for high-quality properties, flexibility logic is achieved through a "blank canvas" approach. Halvitigala and Zhao (2014) explains that flexibility can instead be supported through large uninterrupted floor plates with long structural spans, allowing tenants to divide and rearrange their premises freely. To ensure these changes are cost-effective, Abu-Lail and Zoltan (2024) emphasise the importance of planning grids that allow floor plans to be reconfigured while remaining aligned with the building's facade and services.

3.3.3 Customisation versus future letability

Halvitigala and Zhao (2014) show that landlords often make adaptation decisions with business considerations in mind when responding to changing tenant requirements. Under this logic, landlords focus heavily on meeting the specific space requirements of current tenants to maximise occupier satisfaction and retention, which directly protects the building's income stream. Particularly in negative economic climates, this can result in "tailor-made" developments where large corporate tenants are allowed to influence building design and layouts to suit their specific organisational culture.

At the same time, tenant-specific adaptations must be considered in relation to future letability. Halvitigala and Reed (2015) argue that internal configurations and internal services are important determinants of depreciation, since they influence how easily a building can be adapted for future users. From a long-term asset perspective, property owners therefore have an interest in preserving qualities that make premises usable for future, unknown tenants. This means that current tenant requirements may need to be balanced against the building's ability to remain functional, attractive and lettable over time.

3.3.4 Standardisation and boundaries for tenant adaptation

A central issue in tenant adaptations is where to draw the boundary between tenant-specific customisation and more standardised solutions that support future use. Forooraghi (2025) describes a gap between "work as imagined" by designers, who want standard, flexible spaces, and "work as done" by employees, who often require specific tools, privacy or work settings. Conflicts can arise when rigid rules, such as standardisation, prevent employees from performing their tasks effectively.

Søiland & Hansen (2019) similarly shows how users and management negotiate the use of space. Management may use rules and spatial arrangements to guide how spaces should be used, while users create "spaces of negotiation" by adapting the office to their own needs. A tenant requirement is usually accepted if it aligns with the building's long-term "adaptive capacity," but it is rejected if it threatens the core qualities that make the building easy to lease to others later. Decisions are legitimised by weighing the immediate business benefit against the cost of losing future flexibility.

Halvitagla and Zhao (2014) argue that different actors prioritise differently: large corporate tenants often have the power to influence building design toward their specific culture, whereas smaller tenants are usually forced to work within the existing physical and functional constraints of a building.

3.4 Working methods and organisational conditions for resource-efficient fit-outs

3.4.1 Early collaboration between leasing, project and sustainability functions

According to Stanitsas et al. (2021), sustainable work methods in tenant improvements can be designed by integrating the Triple Bottom Line perspective, which balances environmental, economic, and social goals. As described by Larsson and Larsson (2019), this holistic approach to project management involves planning and controlling processes with a long-term view of the project's resources and effects. Larsson and Larsson (2019) also state that collaborative business arrangements, often called partnering, are highly effective for supporting these sustainable practices in complex construction environments. Such arrangements move away from traditional competitive procurement and instead focus on integrating the entire supply chain through effective coordination.

The duration of the collaboration should be extended to allow stakeholders to build the mutual trust necessary for a "single-organisation" mindset (Larsson & Larsson, 2019). This suggests that the intensity of the collaboration can be further supported by using integrative tools such as joint project offices and the formulation of common goals. Furthermore, deep collaboration is required, meaning that people from multiple hierarchical levels within both the client and supplier organisations should be engaged in the process. Engaging a suitable width of stakeholders ensures that diverse knowledge is utilised for sustainable decision-making. To track and support these work methods, project managers can utilise specific sustainability indicators categorised into economic, environmental, and social dimensions (Stanitsas et al., 2021). Larsson and Larsson (2019) emphasise that resource management aims to minimise the use of primary materials and maximise reusability and recyclability. According to Stanitsas et al. (2021), economic indicators ensure the project remains viable through efficient allocation of resources and effective risk management. Further, social indicators prioritise stakeholder engagement, labor practices, and the well-being of the people who will occupy the office space.

By shifting the focus from short-term project constraints to a life cycle orientation, organisations can better understand the long-term impacts of their office adaptations (Larsson & Larsson, 2019). This transition is supported by organisational learning, where experiences from previous projects are used to continuously improve sustainable work methods. Stanitsas et al. (2021) describe that fostering a culture of accountability and transparency among all partners is key to the successful implementation of sustainability in tenant improvement projects.

3.4.2 Tenant dialogue and steering of choices

According to Ferreira et al. (2024), early and transparent dialogue is critical to ensure that tenant expectations and perceived needs are fully aligned with the project's established sustainability guidelines. They emphasise that end-users should be empowered to influence the solutions being implemented, as this not only fosters more harmonious relationships but also leads to superior project results that better reflect actual needs.

Real estate owners can actively influence tenant-related sustainability decisions. Nyoni et al. (2023) found that 76 percent of surveyed real estate firms actively encourage tenants to use eco-friendly materials, and that a clear shift in tenant demand for sustainable buildings provides a strong business incentive for property owners. Miller and Buys (2008) note that office tenants often have limited understanding of specific technical solutions and their performance, which can make it difficult for them to evaluate sustainable alternatives. This means that sustainable options need to be explained in relation to the process, costs and benefits, rather than being presented only as environmental requirements. Wong and Chan (2024) describe tenancy guidelines as a tool for connecting the sustainability goals of the base building with the tenant's own fit-out works. By informing tenants about environmentally conscious design, materials and equipment at an early stage, property owners can guide choices before the scope becomes locked.

3.4.3 Climate and material data as decision support

Climate and material data can support less resource-intensive tenant fit-outs by making the consequences of different choices visible. Czelusniak-Serviss (2023) argues that measurement systems are needed for managers to calibrate sustainability strategies and identify concrete areas for improvement. By utilising data such as carbon footprints and comparing actual impacts against normative thresholds, organisations can initiate systemic change. There is now sufficient data to prove that sustainable design not only protects the environment but can also actively contribute to corporate profitability. This, by lowering costs through more efficient resource use, while simultaneously strengthening brand reputation to increase sales and attracting high-quality talent to the organisation. Ferreira et al. (2024) argue that decision-making should combine financial criteria with sustainability criteria in order to make long-term risks and opportunities visible. Sustainability-related risks may affect image, reputation, revenue and long-term profitability, which means that sustainability should be considered as part of project risk management rather than as a separate issue.

To handle the complexity of these data sets, Farmanesh et al. (2025) suggest that advanced technologies like Artificial Intelligence (AI) can serve as powerful decision-support tools. AI can rapidly and accurately analyse large amounts of environmental data, helping firms manage uncertainty in complex sustainability issues. However, the study also shows that such tools depend on financial resources, knowledge and strategic implementation, which means that digital tools need to be connected to organisational routines and decision-making processes.

3.4.4 Organisational routines, standards and governance

Czelusniak-Serviss (2023) argues that leaders must establish a shared definition of sustainability within the organisation and ensure that all stakeholders feel involved and responsible, rather than merely following rules. A systems thinking approach is necessary to understand how each decision affects the whole and to identify where in the process waste can be minimised.

According to Gluch and Hellsvik (2023) institutional logics describe systems of values, beliefs, rules and practices that guide how individuals and organisations understand and act in different situations. The perspective can be used to connect actions in practice with wider organisational and institutional structures. Cervi & Christopoulos (2024) explain that institutional logics can guide both individuals and organisations, and that they can be used to understand how sustainability is incorporated into organisational practices.

Gluch and Hellsvik (2023) describe that in sustainable construction, several institutional logics can exist at the same time. Gluch and Hellsvik (2023) identify four logics that are relevant in sustainable construction: sustainability logic, project logic, corporate business logic and governance logic. These logics are used as analytical ideal types, which means that they help describe different values and priorities rather than fixed categories in practice. Sustainability logic is connected to long-term sustainable development and includes environmental issues such as materials, waste, energy measures, natural resources and life-cycle thinking. In this logic, legitimacy is connected to expertise, scientific knowledge and the ability to understand the wider consequences of decisions over time. This logic is relevant when decisions are evaluated in relation to resource use, climate impact, waste reduction and the avoidance of unnecessary material replacement.

Project logic is instead connected to the successful completion of projects, where client needs, problem-solving, efficiency and project management practices are central (Gluch & Hellsvik, 2023). This logic often gives attention to practical project conditions, such as time, coordination, contractual requirements and the need to deliver a functioning result within the project frame. Since project logic is strongly connected to short-term project delivery, it can be difficult to reconcile with slower and more long-term organisational learning related to sustainability.

Corporate business logic is connected to competitiveness, profitability and the development of successful business operations (Gluch & Hellsvik, 2023). de Gier et al. (2025) describe how

private construction clients may follow a sustainable business logic, where sustainability is combined with market competition, customer expectations and financial return. In this logic, sustainability becomes part of the organisation's profile and business strategy, while profit and market-related concerns remain important drivers.

Gluch and Hellsvik (2023) explain that governance logic is connected to regulatory frameworks, standards, certification schemes, accountability and formalised systems for steering sustainability work. In sustainable construction, governance logic is visible through laws, norms, standards, assessment methods, environmental management systems and certification schemes that create common structures for sustainability work. Governance logic can therefore help make sustainability more concrete in projects, but it can also make sustainability dependent on documentation, compliance and measurable requirements.

The coexistence of several logics can make sustainability work complex, because different logics may point towards different priorities (Gluch & Hellsvik, 2023). According to de Gier et al. (2025), institutional complexity can arise when organisations face expectations from several logics that are difficult to combine in practice. The authors show that construction clients do not respond to sustainability pressures in the same way, since their responses are shaped by their organisational conditions, position, and community affiliation.

Cervi and Christopoulos (2024) describe four main ways in which institutional logics can interact: coexistence, competition, dominance and hybridisation. Coexistence means that different logics influence organisational practices in parallel, without one logic fully dominating the others. Competition means that different logics direct attention towards different priorities and may create tensions in decision-making. Dominance occurs when one logic becomes stronger than other logics and is reflected in organisational choices and decisions. Hybridisation occurs when different logics are combined into adjusted practices, without the existing logics necessarily being replaced. Cervi and Christopoulos (2024) further argue that the interaction between different institutional logics can influence whether sustainability leads to maintained practices, variations in practices or opportunities for institutional change over time. Institutional logics can help identify restrictive and enabling mechanisms for implementing organisational practices that incorporate sustainability.

4. Case study

4.1 Hufvudstaden's organisation

Hufvudstaden is a listed real estate company that owns, develops, and manages commercial properties in central Stockholm and Gothenburg. The company's property portfolio consists mainly of office and retail premises in prime city locations, and at the end of 2024 it comprised 29 properties with a total lettable area of approximately 390,800 square metres, with a reported market value of SEK 47.1 billion (Hufvudstaden, 2025). Hufvudstaden acts as a long-term property owner and states that it carries out property development projects and office adaptations within its own building stock (Hufvudstaden, n.d.-i).

Hufvudstaden operates as a long-term property owner with responsibility for the development and use of its property portfolio over time. Together with selected partners, the company leads property development projects and office adaptations within its own buildings. Hufvudstaden owns and develops almost all of its properties itself and has its own property technicians and property managers, which gives the organisation close knowledge of the buildings and the opportunity to work with quality and development over the long term (Hufvudstaden, n.d.-i).

The company's governance structure is organised so that the Board of Directors has the overall responsibility for the organisation and administration of the company, while the CEO is responsible for the day-to-day management in accordance with the Board's instructions (Hufvudstaden, 2025).

4.2 Hufvudstaden's sustainability work

4.2.1 Sustainability plan: minimise, future proof and collaborate

Hufvudstaden's sustainability work is structured around three focus areas: Minimise, Future-proof and Collaborate, which are used to guide the company's priorities and direction within sustainability (Hufvudstaden, n.d.-k). The sustainability plan gives direction for how the company should reduce its impact, prepare its properties for future needs and work with other actors to support more sustainable urban environments.

Within Minimise, Hufvudstaden connects its environmental impact as a property owner mainly to energy use and material use. The company describes project development as material-intensive and states that circular thinking, reuse and long-term flexibility are needed to reduce climate impact and avoid unnecessary interventions in later refurbishments (Hufvudstaden, n.d.-h). The company's work with circularity and reuse is based on limiting the use of new materials by preserving existing layouts, designing for long-term use and choosing durable materials when new materials are needed (Hufvudstaden, n.d.-b).

The focus area Future-proof relates to the company's long-term ownership perspective and its ambition to keep properties attractive and usable over time. In this work, the company emphasises climate adaptation, environmental certification and assessed building materials as important parts of preparing the property portfolio for future requirements. Flexibility and long-term quality as ways to reduce the need for extensive future rebuilding (Hufvudstaden, n.d.-c).

Within Collaborate, Hufvudstaden describes cooperation with employees, customers, suppliers and partners as necessary for the transition towards more sustainable development. Green leases are presented as one way to create shared action plans with tenants in areas such as waste management, energy efficiency and indoor climate (Hufvudstaden, n.d.-j).

4.2.2 Sustainability ambitions: climate targets 2030

One of the company's main sustainability ambitions is to halve climate-impacting emissions from project development by 2030, compared with the base year 2019. In 2025, emissions connected to this target had decreased by 34 percent. The company also has a 2030 target to reach at least 70 percent waste sorting from tenants' and its own ongoing operations (Hufvudstaden, n.d.-d). The waste-sorting target is linked to the company's broader waste-management work, which focuses on reducing waste and increasing recycling and reuse in properties and projects (Hufvudstaden, n.d.-a).

In Hufvudstaden's *Annual Report 2025*, the company connects its sustainability targets to the degree of preservation and reuse of materials and components in building projects. The report further describes resource use and circular economy as important parts of the company's sustainability ambitions. To reduce resource use, the company works with limiting the need for rebuilding, preserving existing solutions and increasing reuse in projects. The report also describes house standards for building and material choices as a way to support timeless and flexible premises, with the purpose of reducing the need for extensive future rebuilding and preventing waste (Hufvudstaden, 2026b).

4.2.3 Organisation of sustainability work

Hufvudstaden's sustainability work is organised through defined responsibilities within the organisation. In Hufvudstaden's *Annual Report 2025*, the company states that group management is responsible for the overall sustainability strategy and goals, while the CEO has operational responsibility for the group's sustainability results. The same report further states that the head of sustainability prepares sustainability targets and leads the work together with a sustainability steering group, which includes representatives from group management and different departments within the organisation (Hufvudstaden, 2026b).

The company also states in its *Annual Report 2025* that sustainability targets are integrated into its regular process for setting and following up targets. This indicates that sustainability work is not handled only as a separate function, but is connected to responsibility, follow-up and expertise within the organisation (Hufvudstaden, 2026b).

At project level, Hufvudstaden uses an environmental programme that applies to refurbishments, new construction, tenant fit-outs and maintenance. In Hufvudstaden's *Sustainability Appendix 2025*, the company states that the programme includes requirements related to climate impact, energy use, reuse and waste management according to the waste hierarchy. project managers are responsible for ensuring that the environmental programme is implemented and followed up during projects (Hufvudstaden, 2026a).

4.3 The fit-out process at Hufvudstaden

At Hufvudstaden, the fit-out process is structured in three main stages: Vacant premises, Project + Construction, and Property Management. The following description is based on information provided by Hufvudstaden.

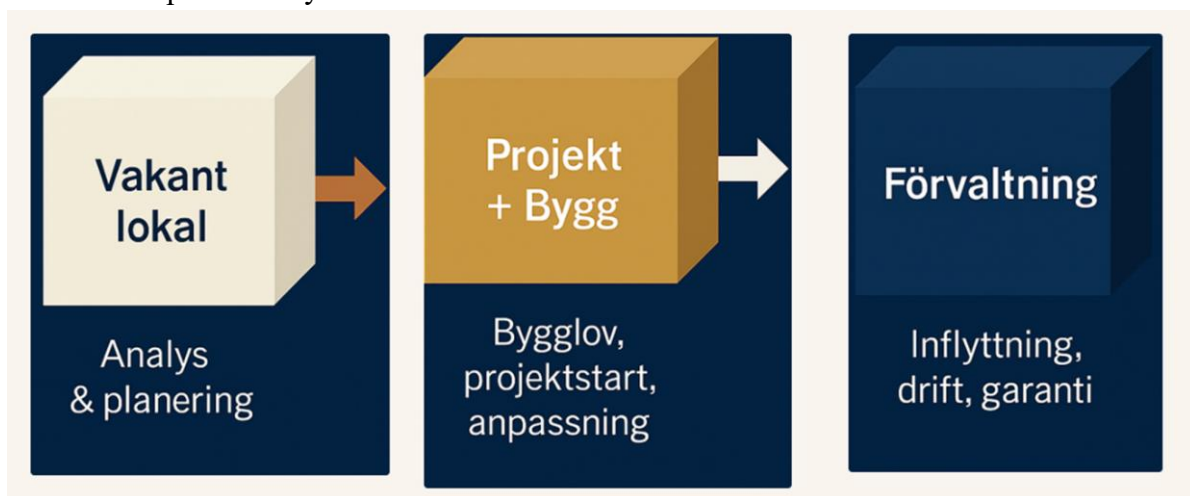


Figure 2: Illustrates the three main stages of the process.

The first stage begins when a premise becomes vacant. At this point, the unit is assessed in order to determine what should be done before it can be leased. This includes assessing the condition of the premises, considering whether the space can be rented out with limited adjustments and identifying whether more extensive measures are required. This stage includes both commercial and technical considerations, as the premises must be evaluated in relation to market demand as well as physical and technical conditions. From the initial discussions with a potential tenant to a signed lease, this part of the process can in some cases take 12–18 months. The fit-out process therefore begins before any construction work takes place.

During this vacant premises stage, the ambition is also to limit unnecessary rebuilding. Existing solutions are kept where possible, and the starting point is to make as few changes as necessary in order to meet the needs of a future tenant. In some cases, this means that a premises can be leased in largely existing condition with only minor modifications. In other cases, more extensive work is required before the space becomes attractive or functional for a new tenant. In Kvarter Johanna, this stage differs somewhat from many ordinary fit-out cases

because the premises were delivered as raw spaces, which meant that the adaptation process started from a more open base.

The second stage is Project + Construction. This stage starts once a lease has been signed and the premises are handed over internally to the project organisation. At that point, the fit-out is no longer only a matter of leasing and planning, but becomes an actual project with a defined tenant, a signed agreement, and a concrete scope of work. After signing, the process often continues for around 9–12 months before move-in. The lease agreement sets the framework for what is to be built, and the project team then develops the details of the adaptation together with the tenant's requirements. In this phase, drawings and technical solutions are reviewed, the project is started and contractors and consultants are procured before the reconstruction work begins. The procurement of contractors and consultants may take around 2 months, the fit-out itself may take approximately 3–9 months and testing, final checks, and handover may take around 1 month before the tenant can take possession of the premises. Technical feasibility is an issue throughout this stage. In particular, ventilation capacity is an important condition in determining whether a proposed layout can be realised. Fire safety, escape routes, and in some cases water and drainage connections also need to be considered. Cost is reviewed in parallel since the requested adaptation must remain technically possible as well as commercially reasonable.

After the construction work has been completed, the premises are handed over from the project organisation to property management. In Hufvudstaden's process model, this final stage includes move-in, operation, and warranty management. Responsibility then shifts from the project organisation to the property management organisation, which takes over the completed premises once the fit-out has been finalised and the handover has been completed.

4.4 The project used as case study – Kv. Johanna

The project is located in Fredstan, close to Brunnsparcken and Centralstationen, and is described by Hufvudstaden as one of the company's larger development projects in Gothenburg. The block comprises four existing buildings as well as the so-called Johanna site, which has remained undeveloped since the fire in 2005 (Hufvudstaden, n.d.-f). In Hufvudstaden's brochure material, the project is also presented as part of the development of Fredstan, where new office and commercial environments are being created in a central location (Hufvudstaden, n.d.-g).

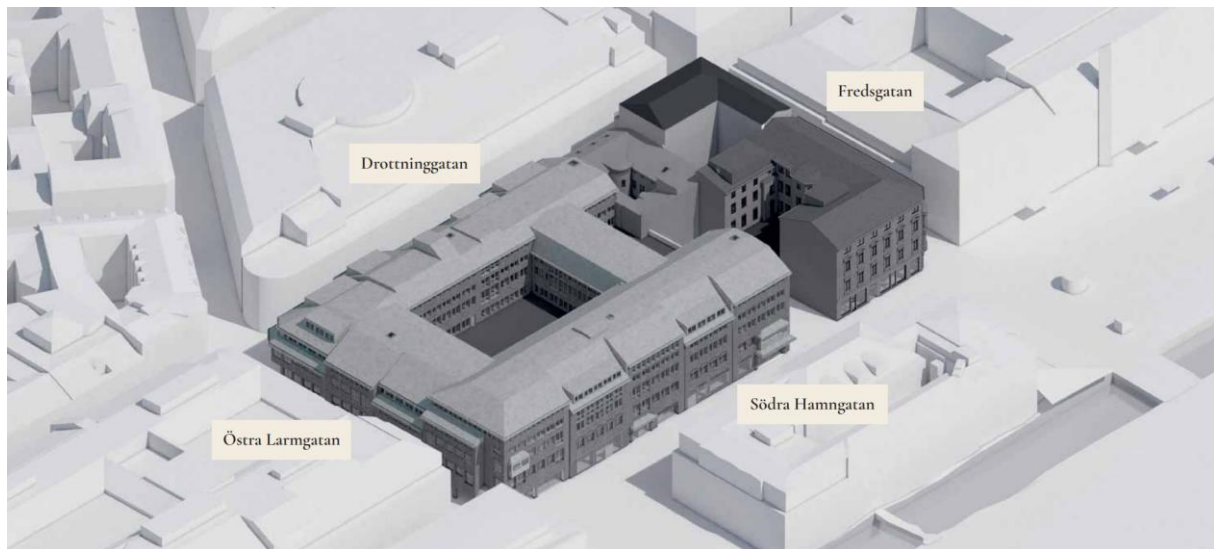


Figure 3: Illustration of the block before the project.

The project is described as a combination of refurbishment, extension, and new construction, in which buildings with cultural and historical value are preserved while new parts are added (Hufvudstaden, 2021). The street-facing facades of the block are preserved, while the buildings are internally interconnected (Hufvudstaden, n.d.-g). This internal connection is an important part of the project because it allows variation in the size and use of the premises. NCC describes the project as a transformation in which existing buildings are renovated and refurbished, while a new building is constructed on the previously undeveloped site and the block is linked together through an extension (NCC, 2021).

The completed block will comprise approximately 44,000 square metres in total, of which around 22,000 square metres consist of entirely new floor area (NCC, 2021). The office premises are planned to accommodate different needs in terms of both size and layout, and larger contiguous floor plates of up to approximately 5,000 square metres are possible within the project (Hufvudstaden, n.d.-e).

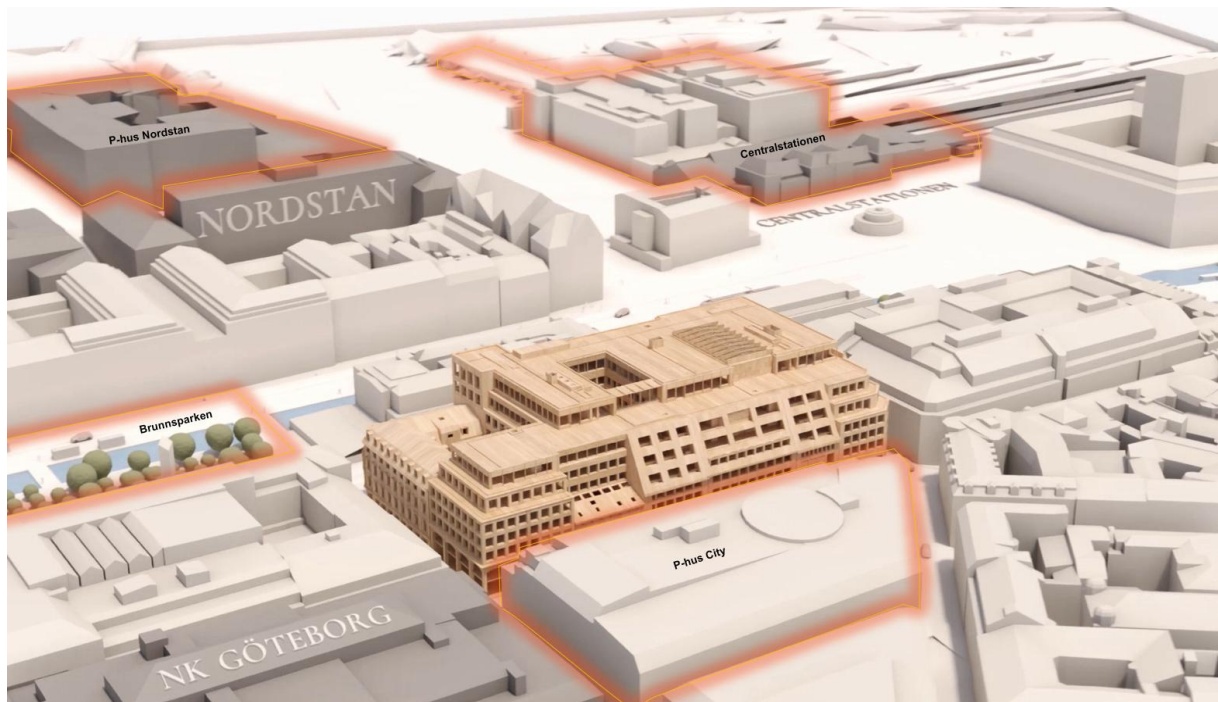


Figure 4: Visualisation of the project.

Flexibility has been considered not only in relation to tenancy size, but also in the spatial and technical planning of the buildings. The floor plates, installations, and circulation routes, including lifts and entrance halls, are planned so that the premises can be changed over time without extensive rebuilding, including in situations where a tenant moves in, expands or reduces its space requirements (Hufvudstaden, n.d.-g). The technical information also indicates that the building uses demand-controlled ventilation through a VAV system, with air distributed through diffusers and ceiling-mounted baffles, while heating is provided through radiators or convectors beneath the facade windows and cooling through ceiling-mounted baffles (Hufvudstaden, n.d.-e).

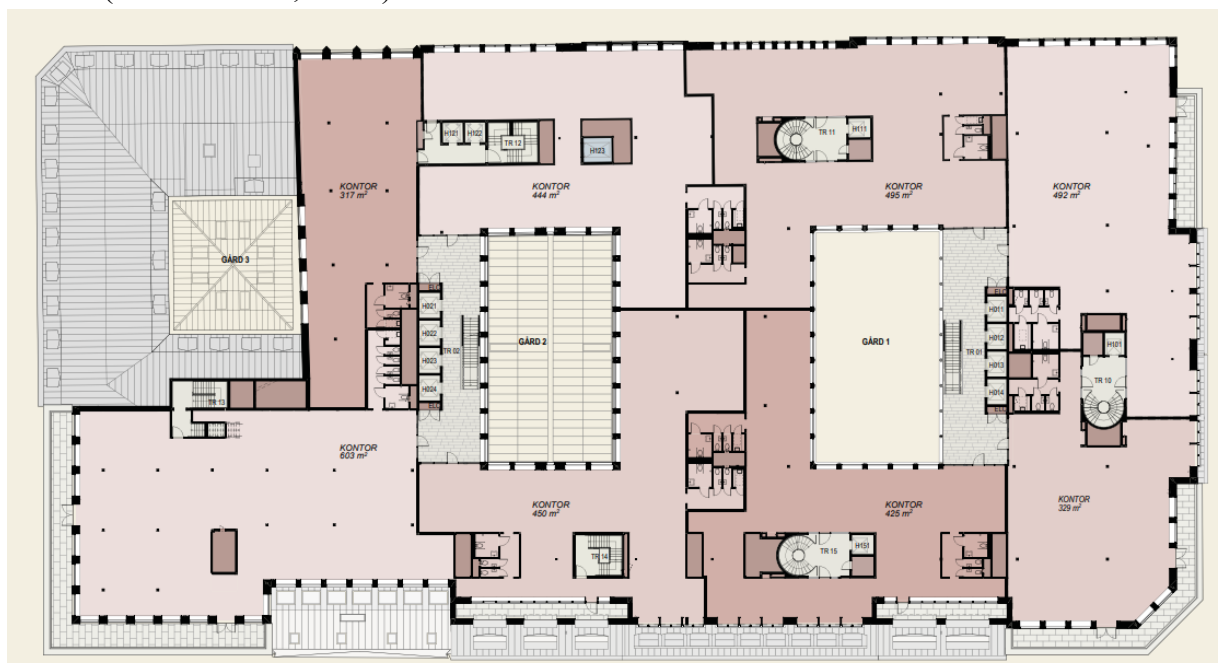


Figure 5: Possible office divisions in one of the plans.

The project includes an atrium, shared roof terraces and larger terrace areas in parts of the building (Hufvudstaden, n.d.-e). It is also described as a long-term redevelopment project, and the buildings are planned with an intended service life of at least 100 years (Hufvudstaden, n.d.-g).



Figure 6: Illustration of the finalised quarter.

5. Interview study

This chapter presents the findings from the interview study. The empirical material is based on interviews with five respondents from Hufvudstaden with different roles connected to office tenant fit-outs and the Kvarter Johanna project. The respondents are referred to as the head of sustainability, the project director, the leasing and property management professional, project manager A and project manager B.

The interview quotes included in this chapter have been translated from Swedish into English by the authors. The purpose of this chapter is to present the empirical findings without further theoretical interpretation. Since the interviews include both experiences from tenant fit-outs in the existing property portfolio and experiences from the first tenant fit-outs in Kvarter Johanna, the chapter distinguishes between existing premises and Kvarter Johanna.

The findings are structured around five themes: the fit-out process; tenant requirements, market conditions and fit-out scope; technical and spatial condition; standardisation deviations and future usability; climate data, collaboration, organisational routines. Together these themes provide an overview of how tenant fit-outs are described by different actors within the organisation. The themes also create a basis for the following analysis and discussion of how barriers, trade-offs and working methods affect sustainable resource use in office fit-outs.

5.1 The fit-out process

The leasing and property management professional, the project director and project manager A all describe tenant fit-outs as closely connected to the leasing process. The leasing and property management professional explains that a fit-out does not begin on the project side, but in the leasing stage, when either an existing tenant has changed needs or a new tenant is being considered for a vacant space. The respondent also points out that the term “local adaptation” better describes the process, since it is the premises, rather than the tenant, that is adapted.

“A local adaptation does not arise on the project side. It starts in the sales stage.”

- Leasing and property management professional

In existing premises, the leasing and property management professional describes the early leasing stage as important because it can influence how extensive the fit-out becomes. The respondent explains that the leasing side can sometimes guide a tenant towards a premises that already works, or towards a solution that only requires minor changes. A space may therefore be leased in its existing condition, with repainting or smaller adjustments, instead of becoming a larger construction project.

“The best business, speaking of reuse, is to reuse what already exists.”

- Leasing and property management professional

The same respondent describes the leasing stage as involving both tenant dialogue and assessment of whether the tenant has been matched with the right premises. In some cases, this may mean guiding the tenant towards another premises if the first option would require unnecessary rebuilding. The respondent also explains that the company may compare different potential tenants partly based on how much adaptation each tenant would require. If one tenant can reuse much of what already exists while another would require extensive rebuilding, this can affect how attractive the leasing situation is from the property owner's perspective.

Project manager A and the project director describe the project side as being involved before signing when the leasing or property management side needs to assess technical possibilities, time or cost. The project director explains that project expertise may be asked whether the tenant can move in by a certain date, how long the fit-out would take and what the adaptation might cost. Before an agreement is signed, the project director also checks whether basic technical requirements can be met, particularly indoor climate, ventilation capacity and escape routes.

The leasing and property management professional describes the leasing role as both customer-oriented and internally coordinating. The leasing side works to understand the tenant's needs and develop a layout that fits the tenant's organisation and workplace requirements. Once the lease is signed, the leasing and property management professional becomes an internal client towards the project organisation, and the project is handed over for further development and construction. Project manager A describes this handover in a similar way, explaining that the formal project work begins when the signed agreement, the required scope and the time schedule are handed over to the project manager.

In Kvarter Johanna, the same general process applies, but the respondents describe a different starting point. The leasing and property management professional, project manager A and project manager B all describe the first tenant fit-outs as taking place in raw or newly developed spaces. Compared with existing premises, there are fewer existing interior elements to preserve or reuse. At the same time, the leasing and property management professional explains that the empty spaces can invite tenants to be more creative and request more specific solutions. Project manager A similarly describes that there are no previously built interiors to relate to, which means that the organisation needs to relate the tenant's requirements to the building's planned technical and spatial logic.

Project manager B describes being involved in Kvarter Johanna already during the leasing stage, especially when larger tenants were being discussed and agreements were formed. The respondent's role then continued as overall project manager for the fit-out, with responsibility for the customer agreement, time schedule, finances and internal coordination. The leasing and property management professional also describes an ongoing question in Kvarter Johanna regarding how far Hufvudstaden should develop a space before a tenant has signed. Since some remaining spaces are smaller, the organisation has considered whether it should go further with the basic fit-out in certain areas, for example by preparing kitchen locations or limiting the remaining choices to finishes and colours. This is described as a way to reduce

the time between signing and move-in, especially in a slow leasing market. At the same time, going further before a tenant has signed also means that the organisation needs to decide which solutions are likely to work for future tenants, even though the exact tenant need is still unknown

5.2 Tenant requirements, market conditions and fit-out scope

Project manager B and the leasing and property management professional both describe tenant requirements as an important driver of office fit-outs. Project manager B explains that companies often want to give their office a specific identity, which can lead to changes in layout, materials and finishes. In existing offices, the main challenge is making the tenant's desired office structure fit within the existing premises without rebuilding too much. The leasing and property management professional also explains that the layout needs to support the tenant's organisation and workplace needs, while making the office attractive for employees.

Project manager B describes how office needs have changed after the pandemic. Individual offices are less common, while open-plan solutions, Teams rooms, phone rooms, touchdown spaces and social areas have become more important. The respondent explains that offices have become more varied in function, with more small rooms for digital meetings and more social areas where employees can both interact and work individually. The leasing and property management professional similarly describes the office as an important tool for attracting employees back to the workplace. The premises are therefore described by both respondents as needing to support not only desks and meeting rooms, but also the tenant's internal culture, social interaction and daily routines.

"We rarely see that everyone has their own room now. Now it is more open-plan offices."

- Project manager B

The project director adds another aspect of tenant needs by explaining that companies may not always know their future space requirements from the beginning. According to the respondent, tenants can be uncertain about whether they will need a larger or smaller area in one or two years. This uncertainty can extend the leasing process and make it more difficult to define the scope of the adaptation early.

Market conditions are described by the leasing and property management professional, the project director and project manager A as having a clear influence on tenant fit-outs, especially in Kvarter Johanna. The leasing and property management professional explains that the market has been slow and that this has affected how much the property owner can hold back tenant-specific requests. In Kvarter Johanna, the organisation has in some situations accepted more than originally intended because tenants wanted specific solutions and because securing the lease was important.

“We may have given a little more than we intended in some situations, simply because they want to design it so specifically, and we want to close the deal in a slow market.”

- Leasing and property management professional

Project manager A also connects the scope of adaptations in Kvarter Johanna to the market situation. The respondent explains that in the beginning of a project it can be important to secure large or well-known tenants, since this can make the building more attractive to other tenants. The project director similarly connects tenant decisions to the broader market situation and describes how leasing processes have become longer than before. A typical leasing process that previously took around three months may now take between six and twelve months. In Kvarter Johanna, the fastest leasing process took two weeks, while the longest took eighteen months.

“The fastest leasing process we have had in Johanna took two weeks. The longest one took eighteen months. So there is an incredible range.”

- Project director

The economic relationship between rent, adaptation cost and lease length is described by the project director as central. The respondent explains that the cost of preparing the premises must be balanced against the rent level and the lease length. A longer lease can make it possible to accept higher project costs, but the respondent also states that the organisation does not want to rebuild more than necessary, since climate impact, cost and time must also be considered.

“The longer the lease agreement the tenant signs, the more costs we can take in the projects and the more we can rebuild the premises. But at the same time, we do not want to rebuild too much either, because we also want to consider climate, cost and time.”

- Project director

Project manager A describes similar trade-offs in Kvarter Johanna. Some tenant requests are possible in the planning stage but become difficult or expensive later in the process. According to the respondent, the timing of a request matters, since moving a wall is relatively simple when it is still only a line on a drawing but becomes a larger issue once the wall has been built. Technical feasibility is often the strongest reason for rejecting a request, especially when the request conflicts with the building's systems or the house standard.

The division of floor areas is another factor that affects the fit-out scope in Kvarter Johanna. Project manager A explains that the organisation may say no to tenant requests concerning which part of a floor they want to lease, because the remaining area must also be possible to lease in the long term. The respondent describes this as a strategic leasing consideration: a tenant may want an attractive part of a floor, but Hufvudstaden also needs to avoid being left with narrow or less attractive remaining spaces that are difficult to lease separately.

Project manager B also describes that the first tenants in Kvarter Johanna have affected how the planned division of the premises could be followed. The organisation initially tried to keep to the predefined floor segments, but this was not always possible when larger tenants wanted larger areas. The respondent explains that this may create questions in the future if a large premises later needs to be divided again.

5.3 Technical and spatial conditions

5.3.1 Existing premises

In existing premises, project manager A describes room division as one of the main challenges. An existing room cannot automatically be reused for any function. A room that was originally intended as an office for one person may not be suitable as a meeting room for several people without changes to ventilation, sound insulation or other technical systems. A layout can therefore appear possible on paper, even though it requires more rebuilding than expected once the function of each room is considered.

Ventilation is a recurring point in the interviews with project manager A, the project director and the leasing and property management professional. Project manager A describes ventilation as a common limitation in the existing property portfolio. Older buildings may not have enough air capacity for the number of people that tenants today want to place in a smaller area. This can require new shafts or new ventilation units, or it can limit how the premises can be leased. The leasing and property management professional also describes ventilation and fire safety as issues that need to be checked early with a new tenant. Questions about ventilation capacity, the number of people who may occupy a space, escape routes and fire compartments are often raised before an agreement can be finalised.

The project director adds that existing fit-outs can be difficult because it is not always clear at the beginning how much needs to be rebuilt. When the tenant's needs are not fully defined, it is also difficult to estimate the time and cost of the adaptation. The early process is therefore described as a matter of narrowing down the tenant's requirements and understanding how much intervention the premises require. The leasing and property management professional also describes that these technical issues are linked to time, since quick answers may be needed from project managers, consultants or architects in order not to lose a potential tenant.

5.3.2 Kvarter Johanna

Kvarter Johanna is described by Project Manager A as having better technical starting conditions than many older premises, but not as fully unrestricted. The respondent explains that the raw spaces can make the building appear more open than it is. When there are existing walls and rooms, it is easier to show the tenant why certain elements cannot be moved. In an empty space, however, the limitations are less visible, even though they are already built into the technical and spatial logic of the building.

“There is an idea and a system that you do not see, but it exists underneath.”

- Project manager A

Project manager A describes this as a communication challenge. Tenants may ask why they cannot move a wall or a WC when the space is still empty. Digital models have helped in this process, since they make it possible to show tenants the building in 3D and explain the planning logic before all physical elements are in place.

A recurring point in the interviews with the project director, project manager A and project manager B is that Kvarter Johanna was planned with flexibility, but that flexibility does not mean that everything can be changed freely. The project director describes the office floors as structured around predefined segments. These segments make it easier to see which parts of a floor can be leased together and reduce the need for new investigations each time a tenant is considered. Escape routes and indoor climate requirements have already been assessed in relation to these segments. However, if a tenant wants to sit more densely or lease a smaller area than expected, the figures still need to be checked.

The project director and project manager A both describe flexibility in Kvarter Johanna in relation to wall placement and technical installations. Walls can be placed between window positions without affecting ventilation and sprinklers, which makes it possible to support both open-plan and cellular office layouts. The project director explains that the technical solution was adjusted during the project so that smaller cooling baffles were placed in a way that would work for both types of layouts. Project manager A describes the same feature as one of the strongest parts of the building's flexibility.

At the same time, the project director, project manager A and project manager B all describe parts of the premises as less flexible. Wet rooms and pantry locations are mainly connected to the central core and planned technical installations. WC locations are fixed because the shafts are located where they are. Larger meeting rooms can be placed in some locations, but not anywhere, since ventilation and solar exposure need to be considered. Project manager A also describes cooling capacity for communication or server rooms as an issue that became more important than expected. More cooling was added than originally planned because several tenants needed cooling for communication rooms with racks and large amounts of data cabling, although capacity remains limited.

Project manager A explains that the understanding of what can and cannot be changed has also developed over time. In the beginning, when all principles and details were not yet fully established, it was more difficult to hold back deviations. As the project manager became more familiar with the building, fewer deviations were allowed.

Project manager B describes the flexibility in Kvarter Johanna as something that will be tested more fully in future adaptations. During the first fit-outs, there are no existing walls or interiors to move. The respondent explains that the more relevant question is how much of the planned flexibility can be used when a tenant moves out or when a premises is adapted again in five, seven or ten years.

5.4 Standardisation, deviations and future usability

Project manager A, project manager B, the project director and the leasing and property management professional all describe the house standard as an important tool in the fit-out process. Across the interviews, the house standard is presented as both a quality level and a way of collecting information about what applies in a specific property. Project manager B states that the intention is to stay within the house standard as much as possible, although the level has developed over time as tenant expectations have increased.

The project director describes the house standard as a way of collecting and communicating knowledge about a specific property. Information that was previously spread across drawings, documents and individual experience has been gathered in the house standard. This includes, for example, technical descriptions, possible pantry locations and answers to recurring tenant questions. According to the project director, this supports the leasing process because the leasing team can answer many questions without always involving the project manager or technical manager. The leasing and property management professional similarly explains that Hufvudstaden has worked with concepts or standards for specific buildings for a long time, but that a written house standard makes it clearer what applies in each property.

In existing premises, the house standard is mainly connected to long-term quality and consistency. The leasing and property management professional explains that Hufvudstaden often works with a higher quality level because the company thinks long term. A higher quality level may be more expensive initially, but the respondent connects it to tenant satisfaction and longer leases. The head of sustainability also connects long-term material choices to future use, explaining that low climate impact is not only about choosing materials with low emissions, but also about choosing solutions that remain attractive and are not replaced after only a few years.

The head of sustainability describes long-term quality and timelessness as important because it is difficult to know what future tenants will want. The respondent explains that high-quality materials and design that remain attractive over time can reduce the risk that elements are removed only because they no longer fit a tenant's preferences.

In Kvarter Johanna, the house standard becomes more specific because the first tenant fit-outs are being built from a raw starting point. Several respondents describe the house standard as both a boundary and a negotiation point. Project manager B explains that the house standard functions as the basis for what is included in the premises and what the tenant can expect. Some parts are described as more fixed, such as WC groups, pantry solutions, door sections and glass partitions, while other parts, such as colours and certain finishes, can be influenced by the tenant within a limited range.

“There are certain things in it that we do not change. We do not change WC groups, for example, and we try to hold very firmly to the pantries as far as possible.”

- Project manager B

Project manager A explains that the house standard mainly concerns details, materials and visible surfaces in the premises. Some elements, such as wall colours, carpets and certain interior finishes, can be influenced by the tenant to different degrees. Other parts, such as external walls, window-related elements, technical components and installation-related details, are more fixed. The respondent therefore distinguishes between the house standard as a framework for visible and material choices, and the building's technical limitations, which are also shaped by underlying systems and design conditions.

Project manager A, project manager B and the leasing and property management professional all connect the house standard to future usability. Tenant-specific deviations, such as special colours, ceiling panels, wood elements or kitchen solutions, may be accepted in some cases, but the respondents describe them as potentially difficult if they are not attractive to the next tenant or if they are hard to replace, reuse or combine with other spaces. The leasing and property management professional also explains that if a tenant grows within the building, the intention is that walls can be moved and additional space can be added without the premises becoming too different from each other.

Coloured ceiling panels are described by project manager A as an example of a deviation that may create future problems. If a panel breaks later, it can be difficult to replace because the colour may require a special order. Wood panels, coloured door sections and specific pantry solutions are also mentioned as examples of deviations that may increase quality or support the tenant's identity, but that can reduce flexibility or make future adaptations more complicated.

At the same time, deviations from the house standard are not completely excluded. Project manager B explains that the house standard is the foundation, but that deviations may be accepted if they are important for the tenant, commercially motivated or connected to a long lease. Project manager A similarly describes that the importance of securing tenants in Kvarter Johanna has affected how strictly the standard can be applied in some cases. Deviations may also be handled through additional costs or restoration requirements if a tenant wants a solution that Hufvudstaden expects will need to be restored later.

“We have a house standard that is our foundation. We should keep to it as far as possible, but sometimes deviations have to be made because otherwise there may not be an agreement.”

- Project manager B

Project manager B explains that if a tenant strongly wants a certain material and the requirement is included in the agreement, it can be difficult for Hufvudstaden to back away from it later. The respondent also explains that if the request is important for the tenant, connected to a long lease and paid for by the tenant, the organisation may allow it even if it differs from the house standard.

5.5 Climate data, collaboration and organisational routines

The respondents describe sustainable resource use in tenant fit-outs as something that is handled through a combination of formal tools, internal standards, project experience and everyday judgements. The tools mentioned in the interviews include Byggvarubedömningen, climate calculations and the use of Produkt. At the same time, the respondents describe these tools as supporting decisions rather than fully determining them. Sustainable resource use is therefore also connected to practical assessments of material choices, future reuse potential and how climate information can be used in the fit-out process.

The head of sustainability explains that Hufvudstaden has requirements connected to Byggvarubedömningen and standards for how the company should think and build. However, the respondent also describes the work as partly person-dependent, since there is no fully standardised system that determines exactly how every choice should be made in tenant fit-outs.

“There is no ISO system saying this is how you should do it and this is how you should choose. It is quite person-dependent.”

- Head of sustainability

5.5.1 Existing premises

In existing premises, sustainable resource use is described mainly in relation to avoiding unnecessary replacement and assessing whether existing materials can remain in use. The head of sustainability emphasises that reuse should not only be understood as moving products from one project to another. Keeping a door, wall or other building element in place can also be an important form of resource efficiency, even if it is less visible than moving reused products between projects.

“The important thing is still that we should not rebuild from the beginning. Moving doors is not the important thing; the important thing is to build a premises that lasts over time.”

- Head of sustainability

Material assessment is mainly described through Byggvarubedömningen. Project manager B explains that materials used in fit-outs can be checked in the system and assessed environmentally. If a product is already included, the system shows its environmental rating. If it is not included, an assessment can sometimes be requested. The respondent describes this as especially relevant when tenants request products or finishes that are outside the usual range.

“If the product they want exists, you can enter it there and see if it has a happy or sad face, green, yellow or red.”

- Project manager B

Project manager B also connects material choices to reuse potential. Some elements, such as glass partitions, textile carpets and ceiling tiles, are described as possible to reuse or move between projects. Other elements are more difficult to reuse when they are highly specific to one tenant or one building. The respondent explains that special wood elements, unusual

ceiling solutions or distinctive kitchen solutions may be harder to use again if the next tenant does not want the same expression.

Project manager B also describes examples from existing premises where components have been kept and refreshed rather than replaced, such as repainting kitchens, relacquering doors or reusing existing materials where possible.

The leasing and property management professional describes sustainability as something that is not only handled by a separate sustainability role. Instead, the respondent explains that sustainability must be included in the interaction between the leasing side and the project side. In this role, the respondent mainly connects sustainability to limiting the extent of rebuilding, while the project side is described as having more responsibility for material requirements, markings and production-related sustainability issues.

“The sustainability question lies with each one of us. It is not someone else who controls it. It is in our interaction that it has to work.”

- Leasing and property management professional

Climate calculations are described as a developing part of Hufvudstaden’s work. The head of sustainability explains that the company has moved from more generic calculations towards calculating more specifically in projects. In practice, this can involve using a cost estimate or calculation template and entering it into ProdiKT. However, the respondent also explains that there can be differences between what is planned at the beginning and what is actually built, for example if more carpets are replaced than expected or if other choices are changed during the process. For this reason, the respondent describes climate calculation data as useful, but not yet exact enough to draw strong conclusions about achieved reductions in tenant fit-outs.

The head of sustainability states that there are no fixed limit values for how high the climate impact of a tenant fit-out may be, for example in CO₂ per square meter. Instead, the respondent refers to Hufvudstaden’s broader goal of reducing emissions. This means that climate calculations are used to create knowledge and follow up the work, but they are not described as fixed thresholds that determine what can or cannot be included in a fit-out.

5.5.2 Kvarter Johanna

In Kvarter Johanna, the first tenant fit-outs have a different starting point because they are carried out in raw or newly developed premises. This means that resource use is less about preserving existing interiors and more about understanding the climate impact and future usability of the first solutions that are built into the premises.

The project director explains that Hufvudstaden has started using ProdiKT to gather climate data and establish a baseline. In Kvarter Johanna, climate calculations have been carried out for several premises, and all project managers now have access to the tool. The respondent describes the work as a learning process, where the company is collecting figures in order to understand the current level and later reduce emissions.

“In the Johanna project, we have carried out carbon calculations for five or six premises so far, to know approximately where we are.”

- Project director

The project director also explains that the calculations in Kvarter Johanna indicate that the project is performing relatively well compared with an industry average, although the respondent adds that such figures should be treated with some caution. Glass partitions are described as one of the larger emission drivers in tenant fit-outs. The respondent connects this to the possibility of reusing or moving partitions in future adaptations, and explains that carbon figures could be used in discussions with tenants to show the effect of reusing existing partitions instead of choosing new or more specific alternatives.

Project manager A similarly describes climate calculations as part of the work in Kvarter Johanna. The respondent explains that the fit-outs are climate calculated, which makes it possible to see how much carbon dioxide is added through different choices. However, the respondent also states that there is no strict limit value that prevents a tenant from choosing a higher-impact alternative. For example, if a tenant chooses a carpet with a higher climate impact than the house standard carpet, this affects the project's figures. The respondent raises the question of whether tenants are aware of how their choices affect emissions, and whether they might make different decisions if this information was presented more clearly.

Project manager B also explains that the ambition in Kvarter Johanna is to reuse or move certain materials where possible, such as partitions, textile carpets and ceiling tiles. However, the respondent describes tenant-specific choices as difficult when they are strongly connected to one tenant's identity. In some cases, climate impact, lifetime and reuse potential are considered, but the final choice may still be affected by what has been agreed with the tenant.

The interviews also show that climate data is not yet fully integrated into the tenant dialogue. The head of sustainability explains that climate arguments are not currently used in a systematic way by the leasing side when presenting alternatives to tenants. The project director describes the organisation as moving towards using climate data more actively, while project manager A explains that the calculations could help make the consequences of different choices more visible.

The respondents also describe tenant-side consultants and architects as actors that can influence resource use. Project manager B explains that many tenants bring their own interior architect into the process, which can make it more difficult for Hufvudstaden to steer the fit-out towards its preferred solutions. The head of sustainability similarly describes external consultants as part of the complexity, since architects and advisors may introduce new requirements or encourage more extensive changes.

6. Discussion

6.1 Sustainability and the early formation of the fit-out scope

6.1.1 The leasing stage as an early point where resource use is defined

The leasing and property management professional describes the fit-out process as starting in the sales stage, when a tenant need is identified and a premise is assessed in relation to that need. This is significant for sustainable resource use because the scope of intervention can begin to take shape before the project phase formally starts. In existing premises, the leasing stage can reduce resource use when a tenant is matched with a space that already works, or when the required changes are limited to minor adjustments. Sustainability is therefore not only a question of which materials are selected later, but also of whether a larger fit-out can be avoided from the beginning. This finding is in line with Thuvander et al. (2012), who explain that important project decisions are often made in early stages, when scope and ambition are established. Watt et al. (2023) and Andrade and Bragança (2019) similarly emphasise that early decisions affect how easily buildings can respond to future change. In tenant fit-outs, this means that the leasing stage can either preserve room for resource-efficient choices or narrow the available options before sustainability consequences have been fully considered. If a broad adaptation scope is agreed too early, later project decisions may have limited ability to reduce material use.

The interviews show that project expertise can enter this early stage, but not always in a continuous way. The project director and project manager A describe how the project side may be asked to assess technical feasibility, time and cost before signing. However, project manager A also explains that the formal project work often starts after the lease agreement has been signed, when the scope and time schedule are handed over. This creates a difference between being consulted on specific questions and being involved in shaping the fit-out scope as a whole. From a resource perspective, this matters because technical and sustainability-related consequences may be identified, but not necessarily integrated into the tenant dialogue before the agreement becomes more fixed.

The distinction between existing premises and Kvarter Johanna is important. The leasing and property management professional describes that in existing premises, the resource-saving potential is mainly connected to preserving what is already there. This relates to Fauth and Pieper's (2022) sufficiency perspective, where resource use should be limited to what is necessary to satisfy user needs. In Kvarter Johanna, the first fit-outs start from raw or newly developed spaces, which means that there are fewer existing interior elements to preserve. However, the early stage remains important because the first solutions built into the premises become the starting point for future adaptations. Since Casas-Arredondo (2021) shows that fit-outs concern faster-changing interior layers, the first fit-outs in Kvarter Johanna therefore influence not only the current tenant's office, but also future resource use, flexibility and replacement needs.

6.1.2 Tenant-specific requirements, market pressure and uncertain future demand as barriers

Project manager B and the leasing and property management professional both describe tenant requirements as a central driver of fit-out scope. Tenants want offices that support their organisation, workplace needs and identity, which is consistent with Nanayakkara's (2021) description of office layout as an expression of organisational culture and values. The sustainability challenge is not that tenants have needs, but that some tenant-specific solutions may be difficult to reuse, adapt or keep attractive for future tenants. This is visible when respondents discuss deviations from the house standard as potentially problematic for future usability. Forooraghi (2025) describes a similar tension between customisation for a specific user group and standardised solutions that can work for several users over time. In existing premises, the tension concerns how far the owner can adapt the current space without losing the value of existing rooms, materials and technical solutions. In Kvarter Johanna, it concerns how tenant-specific choices shape the first built interior layer and later flexibility.

Market conditions make this balance more difficult, particularly in Kvarter Johanna. The leasing and property management professional explains that the slow market has made it difficult to hold back tenant-specific requests. Project manager A connects the scope of adaptations to the importance of securing large or well-known tenants, since they can make the building more attractive to other tenants. These role-specific perspectives are not contradictory. The leasing role emphasises the customer relationship and agreement, while the project role also considers how early tenants affect the broader development of the building.

Halvitigala and Zhao (2014) similarly describe how landlords may allow greater tenant influence when responding to market conditions and important tenant requirements. The interviews also show that tenant needs are not stable. Project manager B describes changes in workplace requirements after the pandemic, while the project director explains that tenants may be uncertain about their future space needs. This connects to Martani et al. (2023), who argue that remote work and changing work patterns create uncertainty about future office demand and can increase the risk of functional obsolescence if offices are too rigid. Tenant-specific requirements are therefore a barrier not only because they may create unique interiors, but also because the requirements themselves may change before the next tenant cycle. A solution tailored closely to one tenant's current workplace model can become less resource-efficient if it is difficult to keep, divide or reuse later.

Hufvudstaden's customer profile helps explain why this becomes relevant. The company's focus on high-quality premises, service, flexibility and long-term customer relationships can support durable solutions that remain attractive over time. At the same time, a quality-oriented customer segment may expect more customised office environments. This means that customer focus can support sustainable resource use when it leads to long-lasting quality, but it can also increase pressure for tenant-specific adaptations. The effect depends on how the fit-out scope is negotiated.

6.1.3 Technical and spatial constraints as hidden barriers

Technical and spatial constraints limit sustainable resource use when a desired layout requires more intervention than it first appears to. In existing premises, project manager A describes room division as a central challenge because an existing room cannot automatically be reused for any new function. A room that has worked as an office for one person may require changes to ventilation, acoustics, fire safety or other technical systems if it is used as a meeting room for several people. This means that preservation is not only a question of whether walls and finishes are physically still in place, but also whether the existing technical capacity can support the new use.

Ventilation is especially important in existing premises. Project manager A describes it as a recurring limitation because older buildings may lack sufficient air capacity for the number of people tenants want to place in a smaller area. This can require new shafts or ventilation units, or limit how the premises can be leased. The leasing and property management professional also identifies, for example, ventilation capacity and occupancy as issues that need to be checked early. Gärtner et al. (2020) help explain why this becomes a resource issue, since different office functions place different demands on HVAC systems and technical zoning. In existing premises, the barrier is therefore not only that the building is old, but that the intended use of the space may no longer match the capacity of the existing services layer. Arge's (2005) distinction between building layers helps explain this: the space plan may seem possible to retain, while the services layer may still require changes when the tenant's functional requirements change.

In Kvarter Johanna, the technical barrier appears in another form. The premises may look open because the first fit-outs start from raw spaces, but the building is already shaped by a technical and spatial logic. The project director, project manager A and project manager B, all describe the building as flexible, but not as a building where everything can be changed freely. Instead of being limited by previous interiors, Kvarter Johanna is limited by less visible conditions such as technical systems, fixed functions and planned floor logic. This makes the barrier more difficult to communicate, because tenants may experience the empty space as more changeable than it is.

This difference can also be understood through Arge's (2005) building layers. In existing premises, previous space plans and services may limit reuse. In Kvarter Johanna, the space plan may seem open, while the services layer already defines what can change without further intervention. Sadafi et al. (2014) argue that separating building layers can reduce future interventions, but the interviews show that this also depends on how well the technical logic is understood and communicated. Project manager A's description of digital models as a way to explain hidden constraints to tenants is therefore relevant. Communication of technical boundaries can influence whether tenant requests are adjusted early or become resource-intensive changes later in the process.

6.2 Trade-offs between current tenant value and long-term usability

6.2.1 Flexibility as planned capacity rather than unlimited change

The flexibility in Kvarter Johanna can be understood as a planned capacity to support different layouts within defined technical and spatial boundaries. The predefined floor segments, the possibility to place walls between window positions and the technical solutions that support both open-plan and cellular layouts all contribute to adaptability. However, the interviews also show that flexibility depends on whether tenant requirements remain compatible with this planned logic. Flexibility is therefore not the same as unlimited choice; it is a capacity that can be strengthened or weakened through fit-out decisions.

This differs from existing premises, where flexibility is more closely connected to how much of an already adapted space can be retained or modified for a new tenant. In existing premises, the sustainability question is often whether previous rooms, installations and materials can support a new tenant with limited intervention. In Kvarter Johanna, the question is instead whether the first fit-outs will support or limit future changes. This distinction is important because the absence of existing interiors in Johanna does not remove the resource question. It shifts the focus from immediate preservation to future adaptability.

Arge (2005) concepts of generality, flexibility and elasticity help interpret this. Kvarter Johanna appears to support several possible office layouts and divisions of space, but these qualities are dependent on the building's technical assumptions being maintained. The predefined floor segments relate especially to elasticity, since they concern the possibility of leasing and dividing space in different ways. The wall-placement logic and technical grid relate more to flexibility, since they make it possible to change layouts without necessarily rebuilding the whole technical system. However, the interviews also show that this capacity has limits, for example around wet rooms, pantry locations, larger meeting rooms and communication rooms that require cooling.

This is where Watt et al.'s (2023) distinction between lean design and design for adaptability becomes important. A first fit-out may appear resource-efficient if it uses only what the current tenant needs and creates little immediate waste. However, if the solution weakens the building's planned adaptability, it can lead to more extensive rebuilding later. Martani et al. (2023) strengthen this point because future office demand is uncertain due to changing work patterns and remote work. In that context, flexibility has value not only because it supports the current tenant, but because it reduces the risk that the premises become difficult to adapt when future needs change.

Project manager B's view that the building's flexibility will be tested more fully in future adaptations is therefore important. It shows that the resource effect of flexibility cannot be evaluated only during the first tenant cycle. A fit-out that works well for the first tenant may still create future limitations if it moves too far away from the planned structure or becomes too specific. The trade-off is therefore not only between current tenant needs and current resource use, but between creating a well-functioning solution for the current tenant and the ability to keep the premises usable for future tenants without extensive rebuilding.

6.2.2 The house standard as boundary, negotiation tool and protection of adaptive capacity

The house standard can be understood as a way of translating long-term ownership into more concrete boundaries for fit-out decisions. In the interviews, it is described as a quality level, a collection of property-specific knowledge and a framework for what tenants can expect. This is important because tenant fit-outs are not only shaped by the current tenant's needs, but also by how the premises should remain usable for future tenants. The house standard therefore does not remove the trade-off between tenant adaptation and future flexibility, it makes that trade-off more explicit by defining which parts of the premises should remain stable and which parts can be negotiated.

In existing premises, the house standard is closely connected to durability and resource efficiency. The leasing and property management professional connects higher quality to long-term ownership and tenant satisfaction, while the head of sustainability connects higher quality materials choices to climate impact and the risk of premature replacement. These two perspectives approach the same issue from different roles. The leasing perspective emphasises customer value and retention, while the sustainability perspective emphasises whether materials remain useful over time. When durable and timeless solutions reduce the need for replacement, commercial and resource-related considerations can therefore point in the same direction. This reflects Fauth and Pieper's (2022) principles of durability and simplicity, where resource use is reduced when solutions last, remain understandable and do not require unnecessary replacement.

In Kvarter Johanna, the same issue becomes more critical because the first tenant fit-outs are built from a raw starting point. The solutions chosen in these first adaptations become part of the premises that future tenants will later inherit. A deviation is therefore not only a response to the current tenant. It can also affect how easy or difficult the premises will be to adapt in the future. This is why deviations from fixed functions and technical principles have a different sustainability meaning than choices that are easier to replace or adapt. In this sense, the house standard helps protect the building's planned flexibility from being gradually weakened by individual tenant choices.

Søiland & Hansen (2019) discussion of spatial negotiation helps explain why this boundary cannot be treated as completely fixed. Søiland & Hansen (2019) shows that management can guide how space should be used through rules and spatial arrangements, while users also try to adapt the space to their own needs. In this study, the house standard works as the property owner's framework for steering tenant adaptations, while tenant-specific requests create a negotiation around identity, function and quality. The issue is therefore not whether negotiation should exist, but how far it can go without reducing future usability. This also relates to Forooraghi (2025), who shows that standardisation can support future use but may also conflict with user-specific needs.

Project manager B describes the house standard as the foundation, but also explains that deviations may be accepted when they are important for the tenant, commercially motivated or connected to a long lease. Project manager A similarly connects deviations in Kvarter Johanna to the importance of securing tenants. These findings correspond with Halvitigala and Zhao's (2014) argument that landlords may allow stronger tenant influence when important tenant requirements and market conditions are at stake. However, from a resource perspective, the sustainability value of the house standard depends on how these deviations are assessed. If they are treated mainly as commercial exceptions, their long-term effects on replacement and adaptability may become less visible. If they are assessed in relation to future usability, technical compatibility, replacement risk and climate impact, the house standard can become a stronger tool for balancing tenant identity with long-term adaptability.

6.2.3 Business logic, project logic and sustainability logic in the same decision

The interviews show that trade-offs are handled through several considerations at the same time. The project director links adaptation scope to rent, cost and lease length. A longer lease can make it possible to accept higher project costs and more extensive rebuilding, but the respondent also states that Hufvudstaden does not want to rebuild more than necessary because climate impact, cost and time must be considered. Project manager A adds a project-related perspective by showing that the timing of requests matters: a tenant request can be easier to handle before it is built and more costly once the process has moved forward. Technical feasibility is often described as a strong reason for rejecting requests, particularly when they conflict with the building's systems or the house standard. These role-based perspectives show that trade-offs are not made in one step or by one consideration alone.

Institutional logics provide a useful way to interpret these decisions. Gluch and Hellsvik (2023) describe sustainability logic, project logic, corporate business logic and governance logic as different value systems that may exist at the same time. In the interviews, corporate business logic is visible when tenant importance, market conditions and lease length influence what can be accepted. Project logic appears through client requirements, time schedules and technical feasibility. Sustainability logic appears through reuse, avoiding unnecessary rebuilding and preserving future usability. Governance logic appears through tools and structures such as the house standard, Byggvarubedömningen and climate calculations.

The trade-offs are therefore not only about economy versus sustainability. In some situations, cost, time and climate point in the same direction, for example when avoiding unnecessary rebuilding reduces all three. This seems particularly relevant in existing premises, where preserving usable solutions can be commercially, practically and environmentally beneficial at the same time. In other situations, the logics create tension. A tenant-specific solution may support the business goal of securing a lease but reduce future adaptability. A deviation from the house standard may strengthen tenant satisfaction but create a higher risk of future replacement. In this way, sustainability is present in the decision-making, but it does not always become the strongest priority.

In Kvarter Johanna, the relationship between these logics appears more sequential and sometimes more tension filled. The logics still coexist, but they may enter the process with different strength at different moments. Securing tenants in a slow market can first expand the room for tenant influence, after which project and sustainability considerations are used to manage the consequences within the agreed scope. Sustainability is therefore present but may be incorporated after business conditions have already shaped the room for decision-making.

Cervi and Christopoulos (2024) describe how institutional logics can coexist, compete or become hybridised. In this case, coexistence means that tenant needs, technical feasibility, the house standard and climate considerations are all present in the same decision process. Competition appears when they point towards different priorities, such as when a tenant-specific solution supports the lease agreement but may reduce future adaptability. Hybridisation is visible when tools such as the house standard or climate calculations translate sustainability concerns into project and business decisions. This helps explain why respondents can describe clear sustainability ambitions while still accepting deviations or more extensive adaptations in specific situations. Sustainability is therefore an active consideration that is continuously balanced against business, project and governance conditions.

6.3 Organisational conditions for less resource-intensive fit-outs

6.3.1 From individual judgement to shared routines and indicators

The interviews show that Hufvudstaden already has several organisational conditions that can support less resource-intensive fit-outs, including early leasing assessments, project involvement, the house standard, Byggvarubedömningen, Prodikt and experience from previous adaptations. However, the head of sustainability points out that the sustainability work is still partly dependent on individual judgement, since there is no fully standardised system. This is also reflected in the other interviews, where decisions depend on role interaction, project experience and how well actors understand the building's technical and spatial conditions. Sustainable resource use is therefore present in the process, but not always guided by shared criteria.

This matters in different ways in existing premises and Kvarter Johanna. In existing premises, routines are needed because each premises has different existing conditions, and the decision to preserve, adjust or replace often depends on case-specific judgement. In Kvarter Johanna, routines are needed because the building has a planned technical and spatial logic that must be consistently understood and communicated. Project manager A's observation that fewer deviations were allowed as the project organisation became more familiar with the building shows that steering capacity increases when knowledge becomes shared rather than individual.

Ferreira et al. (2024) argue that sustainability requirements may exist in principle but remain difficult to translate into project decisions without routines and decision support. Stanitsas et al. (2021) add that project managers need sustainability indicators that structure economic, environmental and social dimensions across project phases. This is relevant because the interviews show that Hufvudstaden already has several tools and ambitions, but not yet a fully shared decision system for tenant fit-outs. More structured indicators could make the judgement of fit-out scope less dependent on individual interpretation by comparing adaptation cost and lease length with climate impact and tenant value.

Larsson and Larsson (2019) strengthen this point by emphasising that sustainable project management requires collaboration, common goals and organisational learning across relevant actors. In Hufvudstaden's tenant fit-outs the issue is not only whether leasing, project and sustainability functions are involved but whether their knowledge is integrated early enough to guide the same decision. The leasing side may understand the tenant's needs and business conditions, the project side may understand technical feasibility and cost, and sustainability functions may understand material and climate consequences. If these perspectives remain separate, sustainability risks becoming an additional consideration rather than part of how the fit-out scope is defined.

Czelusniak-Serviss (2023) adds to this by emphasising that organisations need a shared understanding of sustainability and a systems-thinking approach, where actors understand how decisions in one part of the process affect the whole. In tenant fit-outs, this means that a decision made during leasing, a layout developed by a tenant-side consultant, or a deviation from the house standard can later affect material use, technical interventions, climate impact and future adaptability. Shared routines therefore need to do more than document requirements. They need to help the different actors recognise how early choices shape resource use across the fit-out process.

6.3.2 Tenant dialogue and steering of choices before expectations become fixed

A second organisational condition concerns how Hufvudstaden communicates sustainability and technical boundaries to tenants and tenant-side consultants. Project manager B and the head of sustainability describe external architects and consultants as actors that can influence layouts, material choices and expectations. Internal standards may therefore have limited effect if they are not translated into clear guidance in the wider tenant process.

Nyoni et al. (2023) show that real estate firms can actively influence tenant-related sustainability decisions by encouraging eco-friendly material choices, while Miller and Buys (2008) argue that tenants may have limited understanding of technical solutions and their performance. This is important because the interviews suggest that tenants may not always see the resource consequences of their choices. A tenant may request a material, colour, layout or technical function because it supports identity or daily work, without seeing how it affects replacement risk or climate impact. Sustainable tenant dialogue therefore needs to

make these consequences understandable, rather than relying on tenants already valuing the more resource-efficient alternative.

Wong & Chan (2024) describe tenancy guidelines as a way to connect the sustainability goals of the base building with tenant fit-out decisions before the scope becomes fixed. This is closely connected to Kvarter Johanna, where the first fit-outs are shaped through negotiations between tenant preferences, the house standard and the building's planned technical logic. The house standard already gives Hufvudstaden a framework, but the interviews suggest that it functions more clearly as a technical and material boundary than as a full sustainability dialogue tool. A development area is therefore to use the house standard together with clearer tenant guidance, where alternatives are presented not only in terms of appearance and cost, but also in relation to for example climate impact.

This does not mean that Hufvudstaden should shift responsibility for sustainability to tenants. Rather, the organisation can use its role as long-term property owner to guide the tenant process more actively. Ferreira et al. (2024) emphasise early and transparent dialogue, while Larsson and Larsson (2019) highlight the need to involve a suitable width of stakeholders in sustainable project management. For tenant fit-outs, this suggests that tenant-side architects and consultants should be brought into the same understanding of the house standard, technical boundaries and resource goals early in the process. If this happens only after a preferred layout or material concept has been developed, sustainability becomes harder to use as a steering principle.

6.3.3 Climate and material data as decision support

Climate and material data are already part of Hufvudstaden's work, but the interviews indicate that their role is still developing. In Kvarter Johanna, Prodikt is used to gather climate data and establish a baseline for the first tenant fit-outs. Project manager A and the project director describe climate calculations as a way to make the impact of different choices more visible. However, the head of sustainability explains that climate arguments are not yet used systematically by the leasing side when presenting alternatives to tenants. This shows a difference between producing climate data and using it as part of tenant-facing decision-making.

The absence of common CO₂ benchmarks or guiding values for individual tenant fit-outs is relevant here. The head of sustainability explains that there are no fixed thresholds, such as a maximum amount of CO₂ per square metre, for what level of climate impact is acceptable in a fit-out. Based on Czelusniak-Serviss (2023) and Stanitsas et al. (2021), a shared benchmark could function as a common reference point rather than an absolute rule. This could make climate impact easier to compare across projects and reduce the risk that similar choices are assessed differently by different project actors.

This distinction is important because data has limited influence if it enters the process after tenant expectations or agreements have already been formed. Czelusniak-Serviss (2023)

argues that measurement systems can help organisations identify improvement areas, while Ferreira et al. (2024) emphasise that sustainability criteria need to be considered together with financial criteria. In tenant fit-outs, this suggests that climate data becomes most useful when it is introduced at the same time as cost, time, function and aesthetics are discussed. If climate data remains mainly a follow-up tool, it can support organisational learning, but it has less ability to influence the scope of the current fit-out.

The role of climate and material data also differs between existing premises and Kvarter Johanna. In existing premises, data could make the value of retention visible when the alternative is to replace an existing element with a new product that may appear more attractive or environmentally assessed. This links to Celadyn's (2019) discussion of repair, remake, replacement and adaptive reuse, since resource efficiency may involve extending the life of existing components rather than introducing new materials. In Kvarter Johanna, data can instead support comparisons between first-time choices, such as standard materials, glass partitions or tenant-specific alternatives, and show how they affect climate impact and future adaptability.

Fauth and Pieper's (2022) concept of comprehensibility is relevant because climate data must be understandable to influence behaviour. The interviews show that climate calculations exist, but also that CO₂ figures can be difficult to communicate and are not yet consistently used in leasing dialogue. Miller and Buys (2008) help explain why this matters, tenants may not have enough technical knowledge to assess sustainable alternatives unless these are explained in relation to process, cost and benefit. A development area is therefore not only to calculate emissions, but to translate the data into formats that support actual choices, for example by comparing a standard solution, a tenant-specific deviation and a reuse-based alternative in terms of cost, delivery, climate impact and future usability.

Farmanesh et al. (2025) suggest that AI-based decision-support tools can help analyse large amounts of environmental data and manage uncertainty in complex sustainability decisions. This could be relevant in the longer term if Hufvudstaden wants to compare accumulated data from several fit-outs, identify recurring emission drivers or make different alternatives easier to evaluate. However, Farmanesh et al. (2025) also emphasise that such tools depend on financial resources, knowledge and strategic implementation. In this study, AI should therefore be understood less as a direct solution to the fit-out problem and more as a possible longer-term support. The more immediate issue is whether existing tools, such as ProdiKT and Byggvarubedömningen, are connected to the decision points where tenant requirements, project conditions and sustainability consequences are weighed against each other.

7. Conclusion

The aim of this study was to examine how sustainable resource use can be promoted in tenant fit-outs of office premises. Through a case study of a newly developed office block, the study has analysed how barriers and trade-offs are perceived and managed in early project decisions, and what working methods and organisational conditions can support more resource-efficient and sustainable tenant fit-outs in future office projects. The main conclusion is that sustainable resource use in tenant fit-outs is shaped before construction begins. The leasing stage is especially important, since the scope of the adaptation can start to take form before the project phase formally begins. This means that resource efficiency is not only about choosing better materials later in the process. It is also about how tenant needs are interpreted, how premises are matched to tenants, and how much rebuilding is accepted from the beginning.

The study identifies several barriers that can limit sustainable resource use. Tenant-specific requirements are one important barrier. Tenants need offices that support their organisation, identity and way of working, but very specific solutions can be difficult to adapt for future tenants. This becomes more challenging when future office needs are uncertain, as changing work patterns can make today's solutions less suitable in a later tenant cycle. Market pressure can also make it harder to limit tenant-specific requests, especially when securing important tenants is necessary. Technical and spatial conditions are another important barrier. The possibilities for sustainable resource use are shaped by the building's technical systems, spatial logic and long-term adaptability. The study shows that flexibility is not the same as unlimited change. Instead, flexibility depends on whether tenant fit-outs can be carried out within the building's technical and spatial boundaries without creating unnecessary future interventions.

The trade-offs in early project decisions are handled by weighing several considerations at the same time. Tenant value, cost, time, lease length, technical feasibility, climate impact and future usability all influence what can be accepted and prioritised. These considerations do not always conflict. In some cases, avoiding unnecessary rebuilding can reduce both cost and climate impact. Durable and timeless solutions can also support both tenant satisfaction and sustainable resource use, since they reduce the risk of premature replacement. However, the study also shows that tensions can arise. A tenant-specific solution may help secure a lease, but it can also make the premises harder to adapt in the future. A longer lease can make more extensive adaptations more acceptable, but it does not remove the need to consider long-term flexibility and resource use. This is especially important in first tenant fit-outs, where early choices can either support or limit the building's ability to respond to future change.

The study further concludes that working methods and organisational conditions are important for supporting less resource-intensive tenant fit-outs. Early collaboration between leasing, project and sustainability roles can make it easier to identify technical limitations, assess how resource-intensive specific tenant requests may become, and future usability issues before tenant expectations become fixed. Common standards, shared routines and

clearer decision support can also help make sustainability less dependent on individual judgement and more integrated into the fit-out process. Climate and material information also has greater potential to support sustainable resource use when it is connected to early decision-making. If this information is mainly used for follow-up, it can support learning, but it has less influence on the current fit-out scope. When it is made understandable and relevant in early discussions, it can help clarify the consequences of different choices before the scope becomes fixed.

Overall, the study concludes that sustainable resource use in tenant fit-outs can be promoted by assessing the resource intensity of different choice earlier and more systematically. The most important issue is not only what is built, but also what can be avoided, what can be kept, and how current tenant needs can be balanced against future usability. Less resource-intensive tenant fit-outs therefore depend on early collaboration, clear technical boundaries, active tenant dialogue and decision support that makes long-term consequences visible before the fit-out scope becomes fixed.

7.1 Recommendations

Based on the findings, the first recommendation is to develop shared routines and clearer decision criteria for tenant fit-outs. The study shows that sustainable resource use is already considered, but that decisions can still depend on individual experience and judgement. A more structured process could help ensure that resource use, climate impact, technical feasibility and long-term adaptability are assessed together when decisions are made. This would make sustainability less dependent on individual actors and more clearly embedded in the organisation's ordinary way of working.

The second recommendation is to strengthen the shared understanding of sustainability within the organisation. Sustainable resource use should not only be understood as a question of material choices or climate calculations, but as something that is affected by how tenant needs are interpreted, negotiated and translated into a fit-out scope. This means that actors involved in leasing, project management and sustainability need a shared basis for understanding how early decisions can influence later material use, climate impact and future flexibility. This could also make it easier to connect sustainability goals to everyday decisions in tenant fit-outs.

The third recommendation is to involve relevant actors earlier in the process. Collaboration between leasing, project and sustainability roles can support better decisions when the fit-out scope is still open to adjustment. This is also important in relation to tenant-side architects and consultants, since their proposals can strongly influence the direction of the adaptation. By involving them earlier in discussions about the building's conditions, the house standard and sustainability ambitions, tenant-specific solutions can be developed with greater awareness of long-term resource consequences.

A fourth recommendation is to use the tenant dialogue more actively as a way to guide choices. The house standard and sustainability requirements should not only function as

internal frameworks or technical limits, but also as tools for explaining why certain solutions are more suitable over time. This can help tenants understand how different choices affect durability, adaptability and future rebuilding needs. In this way, sustainability can become part of the discussion about quality and long-term value, rather than something that is introduced as a restriction late in the process.

The fifth recommendation is to make climate and material data more useful in early decision-making. Climate calculations, such as those from ProdiKT, can have greater impact if they are introduced together with discussions about cost, time and aesthetics. Instead of mainly being used to follow up completed decisions, this information could be used to compare possible solutions while there is still room to adjust the scope. For example, showing the consequences of different fit-out alternatives could make it easier for both the organisation and tenants to understand what is gained or lost through each choice.

A final recommendation is to improve the visualisation of technical and spatial boundaries. In tenant fit-outs, many limitations are not immediately visible, especially in raw or newly developed spaces. Digital models and other visual tools could help communicate hidden technical systems, spatial constraints and planned flexibility to tenants and tenant-side consultants. This could reduce the risk that tenant requests develop in a direction that later requires unnecessary rebuilding or limits the future adaptability of the premises.

7.2 Future research

While this study has provided insights into how sustainable resource use can be promoted in tenant fit-outs of office premises, further research is needed to develop a deeper understanding of the topic.

Firstly, future research could follow Kvarter Johanna after the first tenant cycle to study how the planned flexibility works in practice. This would make it possible to examine whether the first fit-outs support later adaptations, or whether certain tenant-specific solutions lead to new resource-intensive interventions. Such a study could provide a clearer understanding of how early decisions affect the long-term use of office premises.

Secondly, future studies could include tenants, tenant-side architects and consultants. These actors influence fit-out decisions and requirements, but were outside the main scope of this study. Including their perspectives could provide a broader understanding of how sustainable resource use is negotiated between different actors in tenant fit-out processes. In addition, comparative studies across several property owners could provide deeper insight into how different organisational structures and decision-support tools affect the ability to promote less resource-intensive fit-outs. This could also help identify whether the barriers and trade-offs found in this study are specific to the case project or more common in office fit-out processes.

Lastly future research could also connect qualitative findings to quantitative data on material use, waste generation and climate impact. This would make it possible to measure how

different fit-out choices affect resource use over time and could support the development of benchmarks or guiding values for tenant fit-outs.

References

- Abu-Lail, D. M. A., & Zoltán, E. S. (2024). The practical implementations of axes in the design of a systematic office layout. *Pollack Periodica*, 19(3), 130–136. <https://doi.org/10.1556/606.2024.01024>
- Andrade, J. B., & Bragança, L. (2019). Assessing buildings' adaptability at early design stages. *IOP Conference Series: Earth and Environmental Science*, 225(1), Article 012012. <https://doi.org/10.1088/1755-1315/225/1/012012>
- Arge, K. (2005). Adaptable office buildings: Theory and practice. *Facilities*, 23(3–4), 119–127. <https://doi.org/10.1108/02632770510578494>
- Ayton, D., Tsindos, T., & Berkovic, D. (2023). *Qualitative research: A practical guide for health and social care researchers and practitioners*. Council of Australian University Librarians. <https://oercollective.caul.edu.au/qualitative-research/>
- Bodin Danielsson, C. (2024). *Ett annat kontorsliv*. Areim. <https://www.areim.se/a-different-office-life-a-study-about-the-changed-office-landscape>
- Brand, S. (1995). *How buildings learn: What happens after they're built*. Penguin Books.
- Budiyani, G. A. (2023). *Embodied carbon and waste generation of building refurbishment: Case studies of office fit out in Sweden*.
- Casas-Arredondo, M. (2021). *Circular economy and office fit-out: An analysis for office fit-out processes based on material flows*.
- Celadyn, M. (2019). Interior architectural design for adaptive reuse in application of environmental sustainability principles. *Sustainability*, 11(14), Article 3820. <https://doi.org/10.3390/su11143820>
- Cervi, F., & Christopoulos, T. P. (2024). Dynamics of institutional sustainability logics in organisations: A systematic literature review. *Cadernos EBAPE.BR*, 22(2). <https://doi.org/10.1590/1679-395120230086x>
- Czelusniak-Serviss, C. J. (2023). Profitable corporate sustainability strategies and processes achieve competitive advantage in the construction industry. *Journal of Strategic Innovation and Sustainability*, 18(2).
- De Gier, A., Gottlieb, S. C., & Frederiksen, N. (2025). Construction clients as drivers of

- change? How communities filter institutional pressures for sustainability. *Construction Management and Economics*, 43(8), 599–616.
<https://doi.org/10.1080/01446193.2025.2480866>
- Ejvegård, R. (2003). *Vetenskaplig metod* (3:e uppl.). Studentlitteratur.
- Fastighetstidningen. (2025). *En halv miljon kvm vakanta kontorsytor i storstäderna*.
<https://fastighetstidningen.se/forvaltning/en-halv-miljon-kvm-vakanta-kontorsytor-i-storstaderna/>
- Fauth, R., & Pieper, M. (2022). Designing sustainable office spaces: How to combine workspace characteristics with sufficiency strategies. *IOP Conference Series: Earth and Environmental Science*, 1078(1), Article 012032. <https://doi.org/10.1088/1755-1315/1078/1/012032>
- Ferreira, M. de A. V., Morgado, C. do R. V., & Estellita Lins, M. P. (2024). Organisations and stakeholders' roles and influence on implementing sustainability requirements in construction projects. *Heliyon*, 10(1), Article e23762.
<https://doi.org/10.1016/j.heliyon.2023.e23762>
- Forooraghi, M., Hultberg, A., Jonsdottir, I. H., & Babapour Chafi, M. (2025). Exploring alignments between design principles and work unit needs in activity-based flexible offices: A case study. *Ergonomics*, 68(9), 1472–1490.
<https://doi.org/10.1080/00140139.2025.2475350>
- Gärtner, J. A., Massa Gray, F., & Auer, T. (2020). Assessment of the impact of HVAC system configuration and control zoning on thermal comfort and energy efficiency in flexible office spaces. *Energy and Buildings*, 212, Article 109785.
<https://doi.org/10.1016/j.enbuild.2020.109785>
- Geltner, D. M., Miller, N. G., Clayton, J., & Eichholtz, P. (2014). *Commercial real estate analysis and investments* (3rd ed.). OnCourse Learning.
- Gluch, P., & Hellsvik, S. (2023). The influence of multiple logics on the work of sustainability professionals. *Construction Management and Economics*, 41(11–12), 893–909. <https://doi.org/10.1080/01446193.2023.2214252>
- Hallin, A., & Helin, J. (2018). *Intervjuer*. Studentlitteratur.
- Halvitigala, D., & Reed, R. G. (2015). Identifying adaptive strategies employed by office building investors. *Property Management*, 33(5), 478–493.
<https://doi.org/10.1108/PM-10-2014-0041>
- Halvitigala, D., & Zhao, S. (2014). Addressing changes in tenant office space requirements: A

landlord perspective. In *20th Annual PRRES Conference*.

Hufvudstaden. (n.d.-a). *Avfallshantering*.

<https://hufvudstaden.se/hallbarhet/hallbarhetsplan/minimera/avfallshantering>

Hufvudstaden. (n.d.-b). *Cirkularitet och återbruk*.

<https://hufvudstaden.se/hallbarhet/hallbarhetsplan/minimera/cirkularitet-och-aterbruk>

Hufvudstaden. (n.d.-c). *Framtidssäkra våra fastigheter*.

<https://hufvudstaden.se/hallbarhet/hallbarhetsplan/framtidssakra>

Hufvudstaden. (n.d.-d). *Hållbarhetsmål och resultat*.

<https://hufvudstaden.se/hallbarhet/hallbarhetsmal>

Hufvudstaden. (n.d.-e). *Kv. Johanna* [Brochure].

https://hufvudstaden.se/globalassets/kv.-johanna/kv-johanna_broschyr.pdf

Hufvudstaden. (n.d.-f). *Kvarteret Johanna*.

<https://hufvudstaden.se/var-verksamhet/projekt/pagaende-projekt/inom-vallgraven-12>

Hufvudstaden. (n.d.-g). *Kvarteret Johanna: Göteborgs mest spännande projekt* [Brochure].

<https://hufvudstaden.se/globalassets/projekt/inom-vallgraven/broschyr-kv-johanna.pdf>

Hufvudstaden. (n.d.-h). *Minimera vårt klimatavtryck*.

<https://hufvudstaden.se/hallbarhet/hallbarhetsplan/minimera>

Hufvudstaden. (n.d.-i). *Modern solutions*.

<https://hufvudstaden.se/en/our-offer/our-office-premises/modern-solutions>

Hufvudstaden. (n.d.-j). *Samarbeta för hållbar stadsutveckling*.

<https://hufvudstaden.se/hallbarhet/hallbarhetsplan/samarbeta>

Hufvudstaden. (n.d.-k). *Våra fokusområden*.

<https://hufvudstaden.se/hallbarhet/hallbarhetsplan>

Hufvudstaden. (2021). *Hufvudstaden utvecklar Kvarteret Johanna i Göteborg och väljer NCC som totalentreprenör*.

<https://hufvudstaden.se/media/pressmeddelanden/2021/hufvudstaden-utvecklar-kvarteret-johanna-i-goteborg-och-valjer-ncc-som-totalentreprenor>

Hufvudstaden. (2025). *Annual and sustainability report 2024*.

<https://hufvudstaden.se/globalassets/finansiell-information/arsredovisning/2024/hufvudstaden-annual-and-sustainability-report-2024.pdf>

- Hufvudstaden. (2026a). *Hållbarhetsbilaga 2025*.
<https://hufvudstaden.se/globalassets/finansiell-information/delarsrapporter/2025/hallbarhetsbilaga.2025.pdf>
- Hufvudstaden. (2026b). *Årsredovisning 2025*.
https://hufvudstaden.se/globalassets/finansiell-information/delarsrapporter/2025/uppdaterade-rapporter-svenska-mars-2026/svenska/hufvudstaden_arsredovisning-2025_v2.pdf
- Kılıç Bakırhan, E., & Tuna Kayılı, M. (2025). Mitigating fit-out waste in rentable offices: The role of flexible design strategies. *Journal of Construction Engineering, Management & Innovation*, 8(4), 521–541. <https://doi.org/10.31462/jcemi.2025.04521541>
- Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the craft of qualitative research interviewing* (2nd ed.). SAGE Publications.
- Larsson, J., & Larsson, L. (2019). Integration, application and importance of collaboration in sustainable project management. *Preprints*.
<https://doi.org/10.20944/preprints201912.0321.v1>
- Mälardalens universitet. (n.d.-a). Reliabilitet. I *Metoddoktorn: Vägledning för uppsatser och PM i företagsekonomi*. <https://libguides.mdu.se/c.php?g=678062&p=4832301>
- Mälardalens universitet. (n.d.-b). Validitet. I *Metoddoktorn: Vägledning för uppsatser och PM i företagsekonomi*. <https://libguides.mdu.se/c.php?g=678062&p=4832296>
- Martani, C., Fiorot, N., González, A., Adey, B. T., & Van Wezemael, J. (2023). Evaluating the impact of flexible offices in coping with the uncertainty in future demand. *Infrastructure Asset Management*, 11(1), 15–40.
<https://doi.org/10.1680/jinam.23.00027>
- Miller, E., & Buys, L. (2008). Retrofitting commercial office buildings for sustainability: Tenants' perspectives. *Journal of Property Investment and Finance*, 26(6), 552–561.
<https://doi.org/10.1108/14635780810908398>
- Mlote, D. S., Budig, M., & Cheah, L. (2024). Adaptability of buildings: A systematic review of current research. *Frontiers in Built Environment*, 10, Article 1376759.
<https://doi.org/10.3389/fbuil.2024.1376759>
- Munaro, M. R., & Tavares, S. F. (2025). Design for adaptability and disassembly: Guidelines for building deconstruction. *Construction Innovation*, 25(2), 665–687.
<https://doi.org/10.1108/CI-10-2022-0266>

- Nanayakkara, K. T., Wilkinson, S. J., & Ghosh, S. (2021). Future office layouts for large organisations: Workplace specialist and design firms' perspective. *Journal of Corporate Real Estate*, 23(2), 69–86. <https://doi.org/10.1108/JCRE-02-2020-0012>
- NCC. (2021, May 19). *NCC bygger om citykvarter i Göteborg åt Hufvudstaden*. <https://www.ncc.se/media/pressrelease/2021/a42ae8cb9a1a3651>
- Nyoni, V., Broberg Piller, W., & Vigren, O. (2023). Sustainability action in the real estate sector: An organisational and institutional perspective. *Cleaner Production Letters*, 5, Article 100049. <https://doi.org/10.1016/j.clpl.2023.100049>
- Sadafi, N., Fauzi, M., Zain, M., & Jamil, M. (2014). Design criteria for increasing building flexibility: Dynamics and prospects. *Environmental Engineering and Management Journal*, 13(2), 407–417. <https://doi.org/10.30638/eemj.2014.045>
- Savin-Baden, M., & Major, C. H. (2023). *Qualitative research: The essential guide to theory and practice* (1st ed.). Routledge. <https://doi.org/10.4324/9781003377986>
- Søiland, E., & Hansen, G. K. (2019). Ideas or reality? Flexible space–flexible people? *Intelligent Buildings International*, 11(3–4), 145–157. <https://doi.org/10.1080/17508975.2019.1573355>
- Stanitsas, M., Kirytopoulos, K., & Leopoulos, V. (2021). Integrating sustainability indicators into project management: The case of construction industry. *Journal of Cleaner Production*, 279, Article 123774. <https://doi.org/10.1016/j.jclepro.2020.123774>
- Thuvander, L., Femenías, P., Mjörnell, K., & Meiling, P. (2012). Unveiling the process of sustainable renovation. *Sustainability*, 4(6), 1188–1213. <https://doi.org/10.3390/su4061188>
- Watt, H., Davison, B., Hodgson, P., Kitching, C., & Densley Tingley, D. (2023). What should an adaptable building look like? *Resources, Conservation & Recycling Advances*, 18, Article 200158. <https://doi.org/10.1016/j.rcradv.2023.200158>
- Wong, Y. T., & Chan, C. W. (2024). A tri-party collaboration empowering tenants and employees to strive towards sustainability goals: The industry-first ESG partnership programme. *IOP Conference Series: Earth and Environmental Science*, 1363(1), Article 012106. <https://doi.org/10.1088/1755-1315/1363/1/012106>

Appendices

Interview Guide

A. Common questions for all respondents

1. Background and role

1. What is your current role at Hufvudstaden, and how long have you worked here?

Follow-up questions:

- What is your professional background and previous experience?
- Do you have previous experience of working with office premises or tenant fit-outs?

2. How would you describe your role in relation to tenant fit-outs of office premises?

Follow-up questions:

- What tasks and responsibilities do you usually have in such processes?
- Are you involved in individual tenant fit-outs, or more on an overall level?
- At what stage of the process do you usually become involved?
- How has this been in Kvarter Johanna? In what way have you been involved there?

3. How does collaboration with other roles work in the process?

Follow-up questions:

- Which other roles do you usually collaborate with?
- How does the dialogue between, for example, project management, leasing/property management and sustainability take place?
- Is there anything in the collaboration that works particularly well, or anything that could be further developed?

2. Overall experiences of tenant fit-outs

4. Based on your experience, what recurring challenges can arise in tenant fit-outs of office premises?

Follow-up questions:

- Is there anything that tends to recur from project to project?
- Are there examples where the tenant's wishes conflict with the conditions of the property?
- What is usually the most difficult to achieve in practice?

5. Is there anything from your previous experience that you recognise in the work with Kvarter Johanna?

Follow-up questions:

- Have previous experiences influenced how you have reasoned in Kvarter Johanna?
- Was there anything you wanted to avoid or do differently in this project?

3. Trade-offs and decision-making

6. When different requirements or interests conflict in a tenant fit-out, how do you usually reason in order to reach a decision?

Follow-up questions:

- Which factors are considered in such decisions?
- Does it, for example, involve cost, time, standard, technical conditions, sustainability or future usability?
- Which actors are usually involved in these discussions?
- What ultimately determines what is prioritised?

7. How would you describe the balance between tenant needs, sustainable resource use and future flexibility?

Follow-up questions:

- Is there one of these aspects that often weighs more heavily than the others?
- Are there situations where it is particularly difficult to balance these aspects?
- Can you give a concrete example?

4. Future working methods

8. What factors or working methods do you think could contribute to more sustainable resource use in future tenant fit-outs of office premises?

Follow-up questions:

- Is there anything that needs to be introduced earlier in the process?
- Is there anything you already do today that could be developed further?
- Is there anything missing in the current way of working?

9. Is there anything you would like to add that we have not asked about?

B. Role-specific questions

Project manager

1. How did you perceive that the built-in flexibility of the premises in Kvarter Johanna affected the possibility of meeting the tenants' wishes?

Follow-up questions:

- Was there anything that became easier to solve because of the flexibility that was already built into the premises?
- Were there still any limitations?
- Were there any tenant wishes that became easier to meet because the premises had been developed with flexibility in mind?

2. When the tenant's needs became clear in Kvarter Johanna, how did you proceed in defining what should be included in the fit-out?

Follow-up questions:

- What was already fixed from the beginning?
- What was still open to influence?
- How did you assess how far the adaptation should go?

3. What significance did the house standard or the intended quality level have in the tenant fit-outs?

Follow-up questions:

- Did the house standard mainly function as a starting point, a quality level or a boundary?
- Were there parts where you preferred to maintain the standard?
- Were there parts where you were more open to deviations?

4. If a tenant requests something outside the house standard, how do you usually assess this from a sustainability perspective?

Follow-up questions:

- Do you investigate the material or solution more specifically?
- Do you only consider climate impact, or also aspects such as lifespan, material availability and possibilities for future usability?
- Is there any working method for assessing such deviations more systematically?

5. Can you give examples of situations where you have actively tried to reduce resource use in a tenant fit-out?

Follow-up questions:

- What did this involve in practice?
- Did it affect the design or the dialogue with the tenant?
- Was it easy or difficult to implement?

6. Has the way of working in the office fit-outs in Kvarter Johanna changed compared with previous projects when it comes to sustainable resource use?

Follow-up questions:

- Is there anything you do differently there today?
- Has Kvarter Johanna led to new ways of thinking or working that you would like to use going forward?

Project Director

1. Since these were the first tenant fit-outs in new premises, how did this affect the assessment of what was reasonable to adapt?

Follow-up questions:

- Was anything easier because the premises were new?
- Was anything more difficult because these were the first fit-outs?

2. How was flexibility planned into Kvarter Johanna from the beginning?

Follow-up questions:

- How did you reason regarding system choices, installations, kitchenettes, wet rooms and possible divisions of the premises?
- How did you try to create flexibility without requiring major rebuilding for future changes?

3. Which parts of the premises were more fixed from the beginning, and which parts could still be influenced in the tenant fit-out?

Follow-up questions:

- Which technical or functional limitations were important?
- How were these limitations communicated to the tenants?

4. Looking at the tenant fit-outs in Kvarter Johanna overall, which factors became most decisive for how far the adaptations were allowed to go?

Follow-up questions:

- What weighed most heavily in the assessments?
- When is an adaptation still reasonable, and when does it start to go too far?

Leasing and Property Management Professional

1. What challenges do you see when an existing office premise is to be adapted to a new tenant with specific needs?

Follow-up questions:

- Can you give examples of situations where the tenant's wishes conflict with the conditions of the property?

- What is usually the most difficult to achieve in practice?

2. Have experiences from previous tenant fit-outs influenced how you reasoned in the development of the office premises in Kvarter Johanna?

Follow-up questions:

- Was there anything you wanted to avoid or do differently based on previous experience?
- How did this influence the design of the premises, for example in terms of layout, installations or material choices?

3. Which roles were involved in influencing the decisions regarding the design of the office premises in Kvarter Johanna?

Follow-up questions:

- Were you personally involved in that decision-making process? In what way?
- Do you feel that the perspective of those working closest to the tenants was taken into account?

4. What usually determines whether an office premise is easy or difficult to lease again in the future?

Follow-up questions:

- Can you give examples of factors such as location, address, daylight, floor level, layout or technical conditions?
- How can previous tenant fit-outs affect the future leasability of the premises?

5. Was there anything during the project that made you reconsider how the premises should be designed?

Follow-up questions:

- What made you rethink this?
- Is there anything you would have prioritised differently today?

Head of Sustainability

1. How would you describe Hufvudstaden's overall work with sustainability in relation to tenant fit-outs?

Follow-up questions:

- Has this area received greater attention in recent years?
- What is most important to you in this type of project?

2. How do you currently work with following up or calculating the climate impact of tenant fit-outs?

Follow-up questions:

- What do you calculate in practice?

- Are climate calculations mainly used for follow-up, or also as support in early decision-making?

3. Do you currently have any set limits, guiding values or targets for the climate impact of a tenant fit-out, for example in CO₂ per square metre?

Follow-up questions:

- Is there anything like this specifically for Kvarter Johanna?
- Is this something new for Kvarter Johanna, or does it apply to all tenant fit-outs?

4. Have you been able to identify which materials, building components or changes usually represent the largest sources of emissions in a tenant fit-out?

Follow-up questions:

- Are there certain choices that almost always increase climate impact more than others?
- Have you also seen this in Kvarter Johanna?

5. Have you been able to see how much you have actually managed to reduce emissions in tenant fit-outs so far?

Follow-up questions:

- What would you say has had the greatest effect so far?

6. Have you been involved in the work with the house standard in Kvarter Johanna or in other office projects?

Follow-up questions:

- How do you reason when choosing which materials and solutions should be included in the house standard?
- Is the main idea to choose materials with low climate impact, or is it more about quality, long lifespan and future usability?

7. When you talk about the target of halving emissions by 2030, what do you think the next step needs to be in relation to tenant fit-outs?

Follow-up questions:

- Is it about clearer requirements, different material choices, better follow-up, changed working methods or something else?
- What do you think will be the most difficult going forward?

8. Have you tried to guide the customer more actively towards certain solutions, instead of placing a lot of responsibility on the customer?

Follow-up questions:

- Have you tried to present more sustainable alternatives more actively?
- Do you think a different mindset is needed, where the property owner takes greater responsibility for what is chosen



CHALMERS
UNIVERSITY OF TECHNOLOGY