Lund University
SGEL36, Fall 2020

Department of Human Geography
Supervisor: Nicklas Guldåker

Coliving in the Sustainable City

A study of coliving as a sustainable urban housing strategy in Stockholm

Human Geography: Bachelor Thesis in Urban and Regional Planning

LUND UNIVERSITY

Abstract

The challenge to limit global warming to 1.5°C requires substantial transitions in cities. Shifting consumer behaviours, property use and development are necessary to meet urban housing shortages and ensure a liveable future. Isolation and loneliness are increasing in cities and with the rise of the sharing economy system, traditional ways of living are questioned. While shared housing is nothing new to the world, new forms have evolved in response to unbalanced housing conditions and, in recent years, cities have witnessed the rise of coliving. This study intends to contribute to a deeper understanding of the prospects of key stakeholders on coliving as a model for sustainable housing. The research explores coliving within an urban planning context to identify challenges and positive implications, complimentary to the housing market. This has been done with a combined inductive and deductive approach of five qualitative interviews, document analysis, and a case study of Stockholm. The results indicate that coliving affects sustainability in urban environments by encouraging reduced consumption through sharing and access to social capital, lowering carbon emissions from densification, and providing social belonging. The findings suggest that the benefits of coliving could extend beyond urban residential spaces, providing value to local communities.

Keywords:

Coliving, Environmental sustainability, Shared forms of housing, Sharing economy, Social capital

Table of Contents

Abstract **1**

1 INTRODUCTION **5**

1.1 Aim and Research Question 7

1.2 Definitions 7

1.3 Delimitation 8

1.4 Disposition 9

2 LITERATURE REVIEW **10**

2.1 The Sustainability Paradigm 10

2.2 The Climate Impact of Housing 12

2.3 The Sustainability of Shared Housing 14

2.4 The History of Shared Housing 15

2.5 Research on Coliving 17

2.6 Summary 19

3 THEORETICAL FRAMEWORK **20**

3.1 Chattertons Post-Carbon Cities 20

3.2 Social capital 22

3.3 The Planner's Triangle 23

3.4 Summary 25

4 METHODS AND MATERIALS **26**

4.1 Research Design 26

4.1.1 Case-Study Method 27

4.1.2 Research Method 27

4.2 Interviews 28

4.2.1 Pre-interview phase 29
4.2.2 Semi-structured interviews 29
4.3 Document analysis 31
4.4 Data analysis 32
4.5 Reflections 35
5 FINDINGS & ANALYSIS 37
5.1 The Housing Situation In Stockholm 37
5.2 Drivers 40
5.2.1 Demand for Housing Diversification 40
5.2.2 Market Gaps 41
5.2.3 Isolation and demand for belonging 43
5.3 Potential Challenges 44
5.3.1 Size, Diversity, and Mixed-use 44
5.3.2 Stigmatization and Lacking Standardizations 47
5.4 Positive Implications of Findings 48
5.4.1 Social Capital: Exchanged Values Through Networks 48
5.4.2 Environmental Benefits of Sharing 50
5.4.3 Potential Positive Externalities of Co-living in Neighborhoods 51
5.4.4 Reducing Vacant Space and Need For Construction 52
5.5 Sustainability Analysis 53
6 FINAL DISCUSSION 55
6.1 Future Research 56
6.2 Closing Statement 57
7 REFERENCES 59

8 APPENDIX 68

List of Figures

Figure 1. The United Nations 17 Sustainable Development Goals Integrated 12

Figure 2. Consumer-based greenhouse gas emissions 2009-2017. 13

Figure 3. Worldwide Google Searches for coliving. 18

Figure 4. The Planner's Triangle. 23

Figure 5. Research Design. 27

Figure 6. Inductive vs Deductive Research. 28

Table 7. The Seven Stages of Interview Investigation. 28

Figure 8. Summary of stakeholders. 30

Table 9. Summary of interviews. 31

Table 10. Summary of codebook. 34

Figure 11. Historical and expected population development 2000-2025. 38

Table 12. Commercial Coliving spaces in Stockholm. 39

Figure 13: Overall CO2e per household per year. 50

Appendices

Appendix 1: Description of interviews 68

Appendix 2: Interview guide 1 70

Appendix 3: Interview guide 3 71

Appendix 4: Interview guide 3 73

Appendix 5: Interview guide 4 75

Appendix 6: Interview guide 5 77

Appendix 7: Households in Stockholm 78

1 INTRODUCTION

"We must voluntarily choose sustainable practices since there is no immediate survival or market imperative to do so." (Campbell, 2016:9).

The challenge to limit global warming to 1.5°C requires fast and substantial transitions in cities (IPCC, 2018). Among other high-emission industries, the housing sector is responsible for large greenhouse gas emissions and needs to undergo restructuring to meet critical climate targets (Naturvårdsverket, 2019). At the same time, Sweden is facing one of the biggest housing crises on the planet where the equivalent of a new Stockholm has to be built every five years (Moore, 2020). As we face increasing environmental threats and population needs, we more and more need to resign to the visions of the current sustainable urban development paradigm which guides modern urban planning (Hall, 2014).

Cities are disproportionately vulnerable to the risks of these environmental threats, giving rise to the need for urban resilience. In Sweden, with some of the highest consumption-based carbon emissions per capita, finding more efficient ways of living is a necessity (Naturvårdsverket, 2010). Simultaneously, the global urban population expects a rise to 6 billion people by 2045 (World Bank, 2020) while soaring real estate values are making life in urban areas inaccessible for many. Consequently, an acute housing shortage subsists in major global cities (Hagbert, P, Larsen, HG, Thörn, H & Wasshede, C, 2019). Stockholm city has experienced a housing crisis for decades with new strategies for constructing thousands of homes within the next ten years. Decision-makers and urban planners are trapped between different priorities; solving urgent housing shortages and finding solutions to decarbonize the world economy by 2050 (IPCC, 2018).

In a search for solutions to these challenges, a growing number of housing forms that reject old practices of housing, neighbourhoods, and planning cities, have risen. Shared housing, where biologically unrelated individuals live together (Tummers, 2016), is nothing new to the world; however, with more people living isolated in cities than before, the demand for connection has manifested in new forms of shared living (Kim, Woo & Cho, 2020). Amongst other concepts in a renewed housing typology, the Global North has seen a rapid spread of coliving across urban landscapes since its inception (Pepper & Manji, 2019). While coliving is a relatively new term for urban planners, this form of communal rental housing is becoming more widespread (Bergan, Gorman-Murray & Power, 2019). Central to this concept is the values of the sharing economy, a system in which ownership is exchanged for accessibility to a wider range of products and services through renting or collective ownership (Raworth, 2017).

Community housing is often placed in the context of sustainable urban development and framed as an alternative to traditional housing forms with the capacity to meet the complexities of the housing shortage and climate crisis (Hagbert et. al., 2019). Exploring coliving as a growing urban movement and conceptualizing it within a planning context was the starting point of this study. The driving factors behind the rise of coliving, the specific challenges, and positive implications of this new housing form has been analysed from five key stakeholder interviews. The findings have been connected to existing sustainability conflicts in the city of Stockholm through document analysis and case study of the housing situation in the capital. The intention is to generate knowledge about how coliving affects sustainability in urban environments, to help planners operationalize shared housing in future housing strategies.

1.1 Aim and Research Questions

The purpose of this thesis is to explore coliving within an urban sustainability planning context to understand the challenges and positive implications as a complement to the housing market. This study aims to contribute to a deeper understanding of key stakeholders prospects on coliving as a model for sustainable living. These stakeholders include urban planners, coliving residents, coliving developers, and operators. The main research question is:

In what way does coliving affect sustainability in urban environments?

Based on the main research question, the following sub-questions are as follows:

- *What are the main qualities of coliving?*
- *What factors are driving the current development of coliving?*
- *What are challenges and positive implications with coliving?*
- *How can the concept of coliving be operationalized in urban sustainability strategies?*

1.2 Definitions

In this section, the central concepts used in this bachelor's thesis are defined.

Sharing economy

An economic system built on ideas of sharing, renting and lending, different assets, products or services to reduce individual ownership. The sharing economy enables access to products and services by exchanging ownership for rental. Consequently, the capacity of a product, service or space is used more efficiently (Raworth, 2017)

Cohousing

Cohousing is the most commonly adopted term when referring to a house where both spaces and facilities are shared (Durrett & McCamant, 1988). In contrast to coliving, cohousing is often built collectively and self-managed by its residents (Tummers, 2015).

Coliving

Like cohousing, coliving is an intentional and purpose-driven housing form. It diverges as it is privately managed and delivered shared housing. The principal objectives of coliving are to create flexibility, increase creativity among residents and community and foster meaningful relationships. Coliving transcends beyond the physical sharing of spaces and suggests a stronger focus on soft values, which is achieved by creating and upholding a sense of community (Steding, 2019).

Post-Carbon

Post-carbon is a process that moves cities from fossil fuel dependency towards a society built on long term sustainable practices. The label post-carbon regards transitioning from high greenhouse gas (GHG) emissions to solving climate change and securing energy conservation while including economic and social concerns such as economic justice, land ownership, behaviour change and community self-management (Chatterton, 2013).

Social Capital

Social capital is the sum of the potential or actual resources available through relationships and acquaintances that are more or less institutionalized. It is another form of capital collectively owned and credited by individuals through membership of a group or network (Bourdieu, 1985).

1.3 Delimitation

This bachelor's thesis is centred on the implications of coliving in urban areas and will geographically focus on the Stockholm region. To gain a broader understanding of coliving, key stakeholders have been interviewed. Although real estate is an important role in the development of coliving, this perspective is not included in this study. Since the foremost intention is conceptualizing coliving in an urban planning context to understand its implications and potential contributions to housing strategies. The planning perspective and the experiences of people involved in coliving as a resident or developer has hence been prioritized. It is important to note that all aspects of coliving are not covered but rather a selection of relevant scientific

perspectives that contributes to an increased understanding of coliving in the planning context. The limitations of this study are further elaborated on in section 4.5 Reflections.

1.4 Disposition

Chapter 1 – Introduction

Presents the housing crisis and need for ecological sustainable housing. Introduces coliving, aim, research questions and reoccuring definitions.

Chapter 2 – Literature Review

Explores the challenges within the housing sector and discusses different shared housing concepts, their relation to coliving and reviews previous research on the topic.

Chapter 3 – Theoretical framework

Describes theories that are applied to the empirical findings to conduct the analysis. Concludes with a summary of the theoretical framework.

Chapter 4 – Methods & Materials

Presents and discusses the research design, methods and material that have been used for data collection and analysis.

Chapter 5 – Findings & Analysis:

Explores the housing situation in Stockholm. Presents results from stakeholder interviews and document analysis. Analyses the data through the theoretical framework and discusses the sub-research questions in the final discussion.

Chapter 6 – Conclusion:

Answers the main research question through highlighting the key findings. Proposes future research topics.

2 LITERATURE REVIEW

The following chapter provides a background of coliving in contemporary and historical contexts. Local and national sustainability targets, the environmental impact of the housing sector, and previous research on shared housing and coliving will be presented. Due to the research gap on the subject matter, a selection of relevant literature is presented to analyze the empirical findings to answer the research question.

2.1 The Sustainability Paradigm

Although 'sustainability' appears as a recent buzz-word, the search for sustainable urban development has been a defining theme in planning for over three decades (Hall, 2014). While most are familiar with the quote from the Brundtland Report published in 1987, "[Development] which meets present needs without compromising the ability of future generations to achieve their own needs and aspirations", a shared understanding of what sustainability implies in everyday decisions and planning context remains a difficulty (ibid). Sustainability is a resolution based on three dimensions; economic, social and environmental (Lélé, 1991). In contrast to the initial objectives of the Brundtland commission, these three pillars have often been tackled separately causing institutions to continuously design programmes that focus on one, or in ideal cases, two of the dimensions. The agenda has predominantly been shaped by resolving technical and environmental issues, while social problems just recently have gained attention (Campbell, 2016).

The role of urban planning in developing living environments where all three dimensions unite is undoubtedly imperative in the means of reaching national and international sustainability targets. In Sweden, policies such as the Climate Act, adopted by the government in 2017 with the goal of zero emissions of greenhouse gases by 2045 and subsequently negative emissions, requires strategies that combine all dimensions. The policy describes necessary actions to reduce

greenhouse gas emission by 63% from the 1990 levels by 2030 (Regeringskansliet, 2017). In a planning context, the objectives are often generalized as; developing building forms that minimize emissions and conserve energy; make the city reachable by walking and bicycling; discourage private-use driving by advancing public transport and facilitate activities around public transport nodes (Hall, 2014). It is important to keep in mind that without a shared definition of sustainability, interpretations of these objectives vary depending on the person and their role. An activist, developer, planner or politician will have different ideas about what sustainable development means. Consequently, underlying philosophy determines the proponents perspective, priorities and choices about which policies to implement and actions to take (Paoli and Addeo, 2019).

The ambiguity of sustainability is one reason it took 21 years before the world united over a global and legally binding agreement on climate action. In December 2015. *The Paris Agreement*, that requires all parties to present their best efforts to stop global warming under 2°C degrees, was signed by 187 of 197 parties (UNFCCC, 2020a). The same year, the *2030 Agenda for Sustainable Development* was adopted by the United Nations. The agenda outlines 17 Sustainable Development Goals (SDGs) designed to *"[end] poverty, ensure prosperity for all and protect the planet"* (see figure 1). *Goal 11: Sustainable Cities and Communities* and its subgoals, such as reducing *"[the] adverse per capita environmental impact of cities"* (target 11.6) or providing access to *"[adequate], safe and affordable housing"* (target 11.1) is of priority for planners to translate into practical actions. *Goal 12: Responsible Consumption* and *Production* and *Goal 13: Climate Action* is also of relevance for the objectives of planning as they align with visions of improved capacity for participatory and integrated planning for human settlement that protects and safeguards vital natural heritages (UN, 2017).

Figure 1. The United Nations 17 Sustainable Development Goals Integrated. (SRC, 2020).

Quite predictably, corporations and governments cherry-pick certain SDGs over others based on economic, political or national interests, defying the inherent purpose of integrating the three sustainability dimensions (Forestier & Kim, 2020). As illustrated in *figure 1,* Johan Rockström challenges the way SDGs are used by emphasizing the need to embed social and economic actions as part of a functioning biosphere (SRC, 2017). To reach these goals within the coming decade, integrating sustainability practices within all sectors is imperative, not least within the housing sector.

2.2 The Climate Impact of Housing

There is evidence showing substantial impacts of the housing sector on climate-change inducing emissions. In 2017, the Swedish construction and real estate sector was responsible for approximately 19 percent of Sweden's total domestic greenhouse gas emissions (Boverket, 2020). Of the total emissions from the sector in 2017, construction is responsible for 50 percent

and property management and heating for 30 percent. According to Boverket (2020), the emissions within each sector are continuing to increase.

Hagbert et. al (2019) however notes that low-energy buildings, improved construction processes, circular material use and other eco-efficient technologies are increasingly adopted within the industry to strive towards creating urban development projects that are within a safe and just operating space for humanity and within the earth's biophysical thresholds, also referred to as the nine planetary boundaries by Rockström (2013). The emissions caused by household consumption, public sector consumption and societal investments account for about half of Sweden's total emissions (Figure 2, Naturvårdsverket, 2019). Despite technical advancements, national emissions (territorial and non-territorial) remained overall unchanged in the last decade, as Figure 2 depicts. This underlines that the challenge is not only a technical one, but rather a transitional one that requires momentous cultural, societal, and economic changes (Hagbert et. al, 2019).

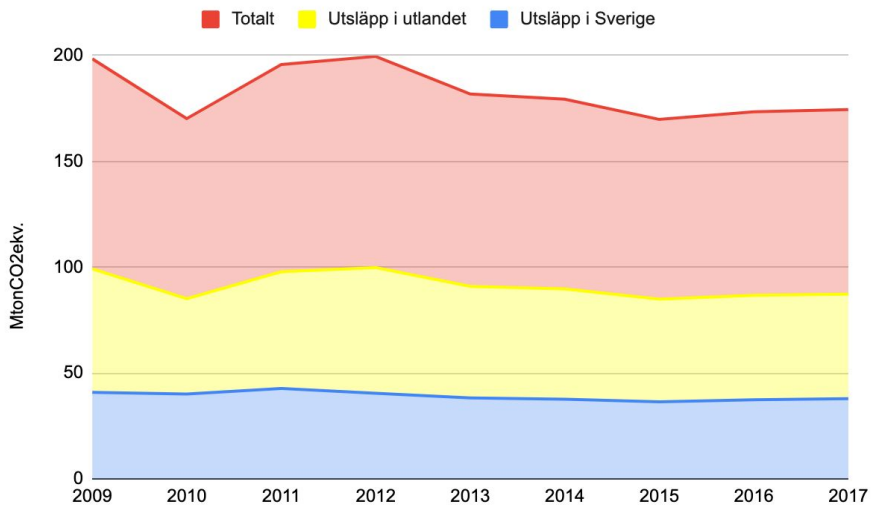

Figure 2. Consumer-based greenhouse gas emissions 2009–2017 (red: total emissions, yellow: non-territorial emissions, blue: territorial emissions). (Naturvårdsverket, 2019).

2.3 The Sustainability of Shared Housing

Purpose-driven shared housing forms can be placed in the context of global interdependence as a collaborative approach to solving climate change (Hagbergt et. al, 2019). The demographics are often described as environmentally and socially responsible residents who seek more affordable housing, community, and low-carbon solutions. Hagbert et. al (2019) stresses the importance of relating such claims to the "ecological modernization" that dominates today's urban governance, reinforcing the role of regulations and technology and that sustainability can be achieved without challenging economic development (Hall, 2014). This worldview originates from ideas like "green growth", indicating that "sustainable consumption" and infinite economic progress are plausible. Similarly, the discourse has been dominated by claims that sustainability challenges can be addressed through innovation and adaptation which can also be applied to market mechanisms, stimulating less environmentally destructive consumption and production patterns (Hagbert et. al, 2019). The opposing idea of the "risk society" instead argues that the reformative, social purposes that once shaped planning are lost as bureaucracy and technical exercise controls. This perspective calls for a resurgence of ideology and proactive planning to truly achieve sustainability (Hall, 2014).

In a study of European cohousing communities, Hagbert et al. (2019) found that ecological sustainability savings primarily emerged from low-climate impact building design and lowered-resource use from sharing. Resource efficiency increased as a result of sharing common spaces like kitchens, living rooms and bathrooms. The communities also promoted more environmentally-friendly lifestyles among their residents. Architect Dick-Urban Vestro (2014) similarly implies the sustainability benefits of shared living and phrases it as "saving by sharing" achieved by more efficient sharing habits than the average household. Specifically, the shared housing form cohousing involves four sustainability claims: the opportunity to implement more sustainable technologies within the model; more compact space; community housing appears to encourage pro-environmental lifestyles; and the fact that smaller households gain environmental advantages. Shared living enables collaboration and community-level action that may otherwise be difficult to organize. Cohousing can therefore be connected to the discourse of a

contemporary “responsibilisation process” of green governmentality where self-management of everyday life and choices are central (Hagbert et al, 2019).

A recent study of five different coliving and shared housing cases in Sweden made by Akademiska Hus (2020) presented key factors defining sustainable shared households. Firstly, sharing rate and utilization within the accommodation regarding interior environments, products, and services, are influential factors reducing carbon footprint per capita (CO2e-footprint/capita). Other determinants are the degree of generality, flexibility and elasticity of building design, interior environments, products, and services within the home. Measurements of the CO2e-footprint/capita of the five shared housing cases show that function planning of the space is one of the determining factors for reducing CO2e-footprint/capita. As mentioned in previous research, higher density results in lower climate impact. The study concludes that when these design practices are applied to the development of the coliving spaces, CO2e-footprint/capita can be cut by 50 percent (ibid).

2.4 The History of Shared Housing

While coliving is a newcomer, the related term cohousing has been around for decades (Vestbro, 2014). The renewed recognition for shared housing forms can be reflected in the first-ever international conference on cohousing arranged in Stockholm in 2010 (Vestbro, 2014). There is no accident that the interest in collective housing resided in Stockholm, as many cohousing pioneers, activists and activist-researchers have been based in Scandinavia. One of them is the architect Dick-Urban Vestbro, who published an extensive book in 1982 examining the history of cohousing (Hagbert et. al, 2019). In his book, cohousing is presented as neighbourhood development occurring in a bottom-up fashion where residents take charge of the housing situation with the environment in mind (Vestbro, 2014). Cohousing is the most adopted term in the English speaking community and has been described as the most appropriate concept when referring to housing where both facilities and communal spaces are shared (Vestbro, 2010). The foremost attributes of cohousing are participatory processes, resident management, and neighbourhood design (Durrett and McCamant, 1988).

The umbrella term *shared housing* includes a number of variations that can be understood differently depending on geographical and cultural contexts. During the cohousing conference, the following concepts were classified and examined: *collaborative housing, cohousing, collective housing, intentional communities* and *ecovillages* (Vestbro, 2010). *Collaborative housing* is one of the broadest terms used to define housing with shared facilities and entails an existing collaboration between the residents to organize living (Fromm, 1991). Similar to collaborative housing, *collective housing* includes shared housing and facilities, but instead of residents being responsible for services, an external company arranges the service facilities (Franch and Ahrentzen, 1989). *Cooperative housing* describes cooperative ownership of housing but since shared facilities of common spaces are not shared between the residents, it is implied that the term should not be used in the *"*shared housing" context (Vestbro, 2010). People in *intentional communities* have 'chosen to live together with a common purpose, working cooperatively to create a lifestyle that reflects their shared core values' (Kozeny, 1995). According to the *Fellowship for Intentional Community,* it is based on the principles; non-violence, inclusivity, cooperation, and unregulated freedom to leave the community at any point in time (Vestbro, 2010).

Lastly, *ecovillages* is another predecessor found in different parts of the world where a group of 5-500 people use local participatory processes to live in alignment with ecological, social, economic and cultural values of sustainability with the aim to regenerate natural and social environments (Clark, 2017). While coliving and cohousing usually are embedded within mainstream urban society, ecovillages are predominantly rural and exist in the periphery. Graham Meltzer defines ecovillages as *"Human scaled, full-featured, harmlessly integrated with nature, supportive of healthy human development and sustainable"* (Vestbro, 2010:28-29).

In 1935, the first Swedish modern collective house was developed in Stockholm (Vestbro, 2014). From an idea of rational living, a food lift existed to provide the residents with meals from their apartments. The cohousing units mainly attracted middle-class intellectuals despite the small apartment sizes accredited to the service included in the living. Rather than being built on cooperation, through a division of labour, employed staff served the residents with everything

from room cleaning to laundry which is why Vestbro describes it as a “special solution for privileged people” (ibid). In this form, the housing model was not obtainable by the broader population but shortly after, the cohousing “self-work model” started to form which became more adopted in the 60s and 70s (Steding, 2019).

2.5 Research on Coliving

While different forms of shared housing have existed for centuries, coliving diverges from earlier collective housing forms through its focus of sustainability (Steding, 2019). The concept is yet to be universally defined and is often misconceived as the broader definition of cohousing (Osborne, 2018).

According to WeLive, one of the largest coliving providers, coliving has three main objectives; *(1) to create meaningful relationships, (2) to enable flexibility, and (3) to foster innovation and creativity among the residents of the coliving community*. These goals are achieved in various ways but most commonly through spatial planning where a building, house, or apartment floor consists of smaller private rooms connected to larger shared amenities and communal spaces. These are usually composed of groups of 8 to 12 people. Coliving spaces are rental properties, often fully furnished and inclusive of services that act as sharing economy solutions, like cleaning and housekeeping, to mitigate conflicts that generally arise from shared living. It reduces social conflicts and intends to make it easier to move in and out. On the other hand, it can also result in shorter leases and some discomfort among residents as there are limitations to personalizing their own space. In general, interdependency, security, and belonging are fostered depending on the size and characteristics of the coliving (Steding, 2019).

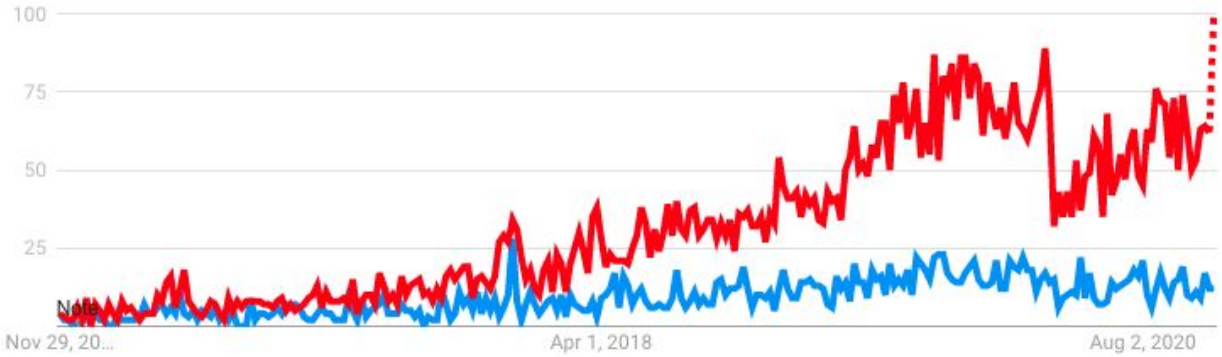

Figure 3. Worldwide Google Searches for 'Coliving' (red) and 'Co-living' (blue) between November 25 2015 - November 25 2020. (Google Trends, 2020).

The concept of coliving sparked with the rise of Silicon Valley as tech workers sought innovative solutions to staggering rents and housing shortages (Steding, 2019). Coliving as an idea started appearing in newspapers around 2011 and 2012, but it took another five years before it gained traction (Figure 3). Until late 2019, there was no clear conceptual definition of the term, which is why Steding (2019) designated his master's thesis to present a conceptual definition of coliving. The author highlights some earlier descriptions of the term that gives an understanding of it:

> "*Coliving is a form of rental housing that seeks to create community among its residents by providing features such as extensive share spaces and community managers paid with typically small, furnished private spaces*" (Osborne, 2018, para. 1)

The crowd-sourced Urban Dictionary further describes coliving as *"Shared housing designed to support a purpose-driven life. A modern urban lifestyle that values openness, sharing, and collaboration"* (Urban Dictionary, 2013). Furthermore, The Danish architect and cofounder of *Freiraum Kollektive*, Hannah Wood, describes coliving as an umbrella term for various housing structures managed and set up by external agents like a developer or an entrepreneur (Steding, 2019). British *Action and Research Centre* (ARC), provides a similar description and denotes

that coliving in contrast to flatshares and other shared living arrangements, actively seeks to create a social contract between residents and local communities (Shafique, 2018).

These definitions highlight some fundamental elements of coliving. (1) Coliving endeavours to create community; (2) Coliving spaces mainly exist within a *"rental*" structure of shared houses and apartments; (3) Most communities are located in dense urban areas; (4) Residents generally consist of young people, who seek flexible housing solutions in a transitional time of their lives (Osborne, 2018). Bergan et. al (2019) emphasize that coliving is a commodified form of shared housing that caters to knowledge economy labourers and acknowledges the link between successful social life and professional life. Coliving organisations help foster meaningful relationships through enduring networks, which is an example of how the economy is embedded in the home as dimensions of productivity are rooted in the dimensions of home (ibid).

2.6 Summary

With the pressing climate issue, there are increasing demands to live less resource-intensive through sharing and reduced private space (Hagbert et. al, 2019). Through an understanding of the ruling theme of sustainability within the planning and the policy frameworks shaping the urban sustainability agenda, coliving can be contextualized and analysed further. The potential for lowering carbon footprints through increased sharing is highlighted in this literature review. It can be understood that coliving as a term has emerged from previously shared housing forms as a blend of the characteristics of intentional community and collective housing where housing and services are provided and managed externally. While flexibility and convenience have been fundamental to the concept from the start, values of sustainability are more recently identified as a defining (Steding, 2019). Starting as a niche housing form, coliving is now occupying more space as a residential supply and as a social asset.

3 THEORETICAL FRAMEWORK

This section describes the theories used to interpret and analyze the findings in Chapter 6. These are Chattertons cohousing research finding, Bourdieu's social capital theory and Campbell's theory about planning conflicts related to sustainability. The theories originate from an interdisciplinary background of human geography, social sciences, and sociology and are employed to answer the research questions through a descriptive and critical lens.

3.1 Chattertons Post-Carbon Cities

Chatterton (2013) explores one of the UK's first ecological, affordable cohousing communities, Lilac, and presents six main findings from his research. *Firstly*, intentional cohousing communities require strategies to work across multiple institutional and governmental scales and frameworks that consider planning, legal, financial and governance issues. The case illustrates the need to build governance frameworks that foster the holistic development of shared housing to deliver its objectives.

Secondly, he emphasizes democratic accountability, self-determination and control. Community-level decision making is vital to change individual consumer behaviour and move towards post-carbon cities. Community housing cultivates self-determination and advocates regaining control of energy usage, land ownership of homes, food production and decision making. Chatterton (2013) indicates that this challenges the way urban space is planned, used and integrated. Different types of community living decrease space for individual dwellings, reduce car ownership, maximise residential cooperation, increase space dedicated for sharing, and improves integration of previous communities with new projects. Chatterton (2013) notes that the limitations are existing planning and policy frameworks.

Thirdly, Chatterton (2013) contends that post-carbon initiatives must find ways to address political conflicts that arise when working towards different urban futures, as these often compete with other interests. Chatterton (2013) describes it as being “in”, “against” and “beyond” existing urban planning models. Post-carbon communities experience tension by existing within current cultural, financial, regulatory and planning frameworks while seeking alternatives to building long term sustainability rather than being passive to changes. Consequently, these initiatives may appear vague and be strenuous to place in an existing planning context. Chatterton (2013) stresses that cohousing needs to find ways to translate big, holistic visions into manageable and measurable initiatives that are simple, integrated into local plans and replicable in mainstream society.

Fourth, post-carbon housing initiatives provide a new way of imagining urban transitions. Rather than focusing on predetermined *outcomes*, it enables an approach focused on making the *process* more inclusive, durable and participatory. Chatterton (2013) stresses the need to set and measure milestones to monitor the urban transition. The lessons of radical post-carbon communities could be used as a roadmap to challenge the *"business-as-usual"* way of developing housing through committing to accessibility, affordability and economic equality. There is yet to exist a generalized model that can multiply in lower-income urban areas and intermediate housing markets, validating the need for continuous development of the model.

Fifth, prioritizing strategic action planning to make community living replicable is of importance. It requires resources and assistance to assure democratic formations, alignment with planning, building from demands of communities in different geographical locations, including raising capital and funding to allocate land for community-led housing. Beside governmental frameworks, joining forces with multinational corporations may help leverage impacts of shared housing communities (ibid).

Sixth, the spatial limits of urban and rural communities need to be reconsidered. So the connection between global networks and peripheral locations can improve. Chatterton (2013) argues that it is required to reach objectives such as justice, cooperation and solidarity, central to

initiatives such as cohousing communities housing. Planning must derive from an understanding of which neighbourhood patterns and housing forms limit dangerous fossil fuel dependency to truly contribute to the post-carbon city.

3.2 Social Capital

Social capital is an important concern in urban planning and community development. It can empower the success of housing planning, promote community integration, enable a sense of belonging, promote affluence, and cooperation in neighbourhoods (Ruiu, 2016). Bourdieu (1985) was the first to adopt the term 'social capital' and defined it as:

> *"Social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition - or in other words, to membership in a group - which provides each of its members with the backing of the collectively owned capital, a "credential" which entitles them to credit, in the various senses of the word."* (Bourdieu, 1985:248-249)

In Bourdieu's (1985) *The Forms of Capital*, social capital is described positively as the advantages gained through membership in a group or community. To develop solidarity, social networks where individuals access social capital is fundamental. Socially instituted forms, such as families, tribes, schools, or a party, foster relationships and are a way to create and maintain social networks. Proximity in physical geographical space, and social or economic space, are other aspects that strengthen the exchange of social capital. Bourdieu (1985) explains that the volume of social capital depends on the number of people within a network and the capital worth (cultural, economic and symbolic).

Social networks are the result of endless efforts that are established and maintained by institutional acts. Bourdieu (1985) emphasizes the role social formations have played throughout history to create and reproduce relationships to secure material or symbolic values. Networks require efforts such as investments to emerge and sustain. Investment strategies that are practical and directed at transforming shallow relationships, such as at the workplace or in a

neighbourhood, into deeper relationships with durable obligations such as gratitude, friendship, or respect are imperative.

3.3 The Planner's Triangle

The urban planner Scott Campbell first published the article *"Green cities, Growing cities, Just cities?"* in 1996 to spotlight complex relationships within sustainability. His model is adopted to illustrate how the three dimensions of planning: *economic, social and environmental* aspects dispute. In this section, Campbell's original article and edited version from 2016 are used to describe the theory that is applied in section 6. Findings & Analysis.

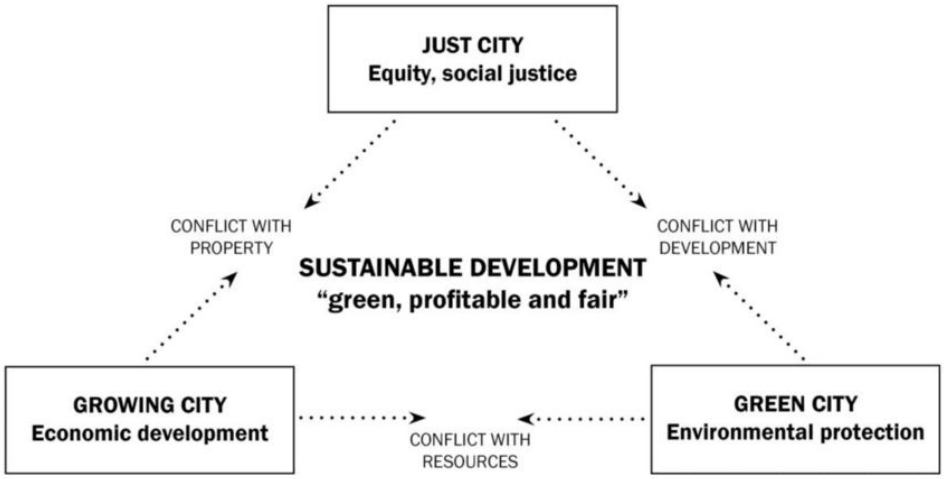

Figure 4. The Planner's Triangle. The three priorities of planning and their associated conflicts.

Campbell (1996) initiates by pointing out the challenge planners face in deciding between economic growth, social justice, and protecting the green city. While sustainable development offers an attempt to present a holistic way to resolve these conflicts, Campbell (1996) asserts that they are rarely solved effortlessly. Although the intentions with sustainable development are to find balanced solutions, Campbell (1996) acknowledges the vulnerability of adopting the concept as a holistic vision rooted in vague idealist ideas. *The Planner's Triangle* depicts three opposing

priorities in each corner; *economic development, environmental protection,* and *social justice*. The aspirational goal of sustainable development, “green, profitable and fair", is at the heart of the triangle where economy, equity and environment meet. These three interests would be in equilibrium in an ideal world. In reality, Campbell (1996) contends that overarching authoritarian and bureaucratic objects restrict planners from serving the broader public while harmonizing preservation, growth and equality. Consequently, planners tend to represent one specific goal. Such as increased green areas, raised property taxations or more affordable housing, instead of generating solutions that balance the needs of all three interests.

The three priorities equal three different standpoints from which planners operate and examine the city. The *economic-growth planner* sees the city as a place for innovation, production, consumption and distribution. Cities are in constant competition to attract and maintain existing, and emerging markets, industries, tourists and residents. Space is perceived as a container for market areas, highways and commuter zones of people and commodities. In contrast, *the environmental planner* understands the city as a place in dispute with nature and pays attention to the scarcity of resources and land. Space in this context is the ecological space, ecological niches and river basins. Lastly, for the planner advocating for *social equity*, the city is recognised as a place where inequalities play out through resource distribution and competition between social groups.

The three interests lead to three central conflicts: *“The Property Conflict”, “The Development Conflict”* and *“The Resource conflict”*. Competing interests in property between landlords and residents, gentrifying professionals and long-lived citizens, or ownership and use of properties creates *the first conflict* between economic growth and equity - one of the core conflicts analysed in this study. *The resource conflict* arises from the tension between, on the one hand, the economic utility of natural resources in industrial society and on the other, their ecological value and scarcity in the natural environment. *The development conflict* appears amid environmental and social interest and is seen by Campbell (2016) as the most challenging one to resolve. This conflict exists between urban communities and resource-dependent communities regarding

where heavy industries, landfills, and other deleterious land uses are located, which often derives from environmental racism.

In the revised version of the article, Campbell (2016) highlights the complexity of solving social disputes. The occurrence of gentrification and segregation in a neighbourhood is connected to global circuits. Housing- or neighbourhood redevelopment tend to attract a new group of residents as the rents change. Gentrification can occur as new groups move in and long-term residents are forced to move. Additionally, when groups of like-minded people, with similar cultural, economic, ethnic or social backgrounds live together in the same location, the risks for segregation transpire. The Planner's Triangle can nonetheless be considered a simplified model for solving sustainable development issues and critically examining urban planning conflicts. Thus, Campbell (2016) emphasizes the importance of recognizing interdependence and that no sustainability conflict is a "spatial fix": the understanding that no solutions on a geographical scale can solve overarching regional, national or global issues.

3.4 Summary

The findings from the interviews and document analysis are analyzed in *Chapter 6. Findings & Analysis* through the theoretical framework composed by Chatterton, Bourdieu and Campbells conceptions. Chatterton's "lessons" from the cohousing community Lilac help examine the driving factors, challenges, and positive implications brought up by the interviewees. It also provides an analysis of the similarities and differences between coliving and cohousing. Chatterton's theory can be seen as a framework to elaborate on what coliving can learn from past experiences to be an accelerator towards post-carbon cities. The social capital notion is connected to the interviews to explore the social benefits of community that coliving brings. Finally, Campbell's theory is applied to the findings to analyze *social*, *environmental,* and *economic* sustainability mentioned in the interviews and documents.
The challenges and positive implications of coliving from the finds are equated to sustainability conflicts within urban planning.

4 METHODS AND MATERIALS

The following chapter presents the research design and methods used to collect and analyse data for this study. Five qualitative stakeholder interviews with an urban planner, coliving residents, a coliving consultant and operator took place. A case study of the housing situation in Stockholm and document analysis highlighting planning challenges was conducted to triangulate the information.

4.1 Research Design

In this bachelor thesis, different research methods have been applied and triangulated to present a more comprehensive overview of the subject. The adopted methods are selected to provide different perspectives that can yield answers to the research questions. In this study, a literature review was conducted to identify material for the document analysis and gather data to design the interview guides. In tandem with the interviews, a document analysis of Stockholm city's master plan has been conducted based on the delimitations of the case study - which is to investigate coliving as a compliment on the housing market in Stockholm. Overall, the nature of the data collection and data is qualitative (interviews and document analysis), but some quantitative data is used in compliment. These are primarily statistics from SCB (see appendix 7), research on coliving measuring CO2e-footprint/capita by Akademiska hus (2020) and Penny Clark who investigates the environmental sustainability of coliving spaces (Coliving Insights, 2020). Qualitative methods, such as semi-structured interviews and document analysis are used to answer the research questions with depth rather than breadth, which helps the reader form a more profound understanding of coliving and its role in a planning context (Denscombe, 2018). The following figure summarizes the research design.

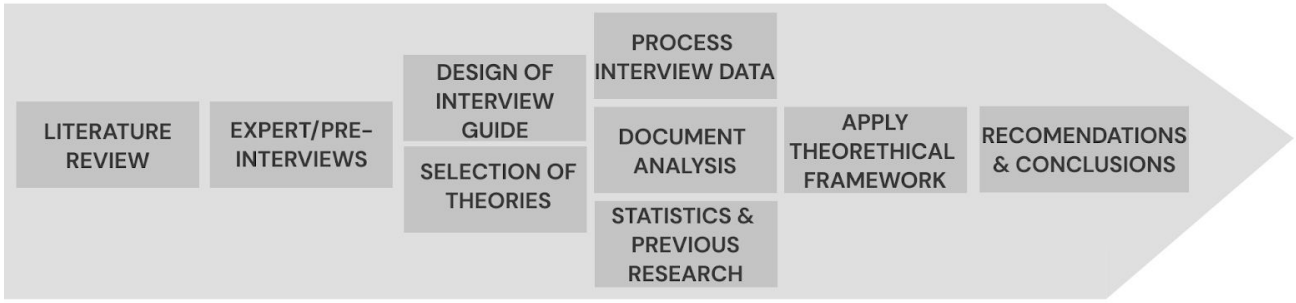

Figure 5. Research design (Hafström, 2020).

4.1.1 Case Study Method

A case study on coliving in Stockholm was conducted. It is motivated by the housing shortage which is larger in Stockholm than the majority of other Swedish municipalities (Boverket, 2018b). The case-study method enables depth through understanding a limited place, context or object (Denscombe, 2018). As coliving is an urban housing concept, examining the emergence of this housing form in the city is of interest. The intention has been to contextualize coliving in information concerning the housing situation and planning strategies to answer the research questions. The table summarized in *Chapter 5. Findings & Analysis* consists of data that was collected through Google searches for coliving in Stockholm. A limitation of this method is that there could be coliving spaces that did not appear in the searches.

The problem with utilizing the case study method is that the conclusions from the analysis can be less generalizable as they can originate from geographical or cultural circumstances within the case. If a conclusion may be that coliving in Stockholm contributes to gentrification, this knowledge may not necessarily apply to every city with coliving housing. Which depicts both the weaknesses and strength of this research design as it enables a specific understanding of one phenomenon, yet limits the degree of generalization (Denscombe, 2018).

4.1.2 Research Method

The thesis stems from a mix between inductive and deductive approaches (see figure 4). An inductive approach is when an open research question is used to guide an explorative approach towards the data collected from the case. This method stems from the objective to observe the

phenomenon to develop theory, without preconceptions. As Farthing (2016) notes, there are always some initial ideas that guide the researcher which is why the scope and inductive research questions must be transparent about the guiding principles. In contrast, the deductive method derives from an existing hypothesis about the phenomenon and the empirical data collection is hence designed to *verify* or *falsify* the theory (Farthing, 2016). The research questions in this study derive from more of an inductive nature, but some deductive approaches occur when triangulating the findings in Chapter, *6. Results & Analysis*. Hence, the two methods are combined. The questions are examined both from preconceived ideas and an explorative approach (Farthing, 2016).

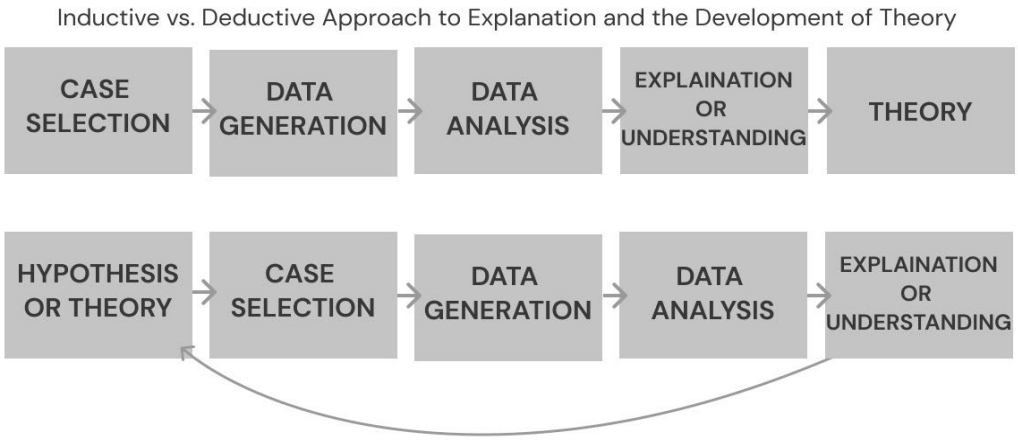

Figure 6. Inductive vs Deductive Research (Farthing, 2016. Layout by Ulrika Hafström 2020)

4.2 Interviews

Interviews are adopted to provide in-depth knowledge about a topic by understanding individual interpretations and views on a specific issue or situation. In contrast to questionnaires, interviews enable depth by understanding "why and how" questions that are captured in the subjective experiences of an individual. To provide a broader understanding of this relatively unexplored topic, various stakeholders were interviewed to cover different perspectives on coliving. Interviews are used as a research instrument to widen the scope of knowledge about a studied phenomenon through the interactive nature that enables new topics and questions to emerge during the process (Kvale, 2007).

Table 7. The Seven Stages of Interview Investigation (Kvale, 2007).

Stage	Step	Explanation
1	Thematizing	The purpose of the research and the general theme of investigation is formulated.
2	Designing	The research is designed with the objective to generate the intended knowledge about the topic while taking moral implications of the study into consideration.
3	Interviewing	Interviews are carried out with a reflective and adaptive approach in accordance with an interview guide.
4	Transcribing	Interviews are transcribed to written text in preparation for the analysis.
5	Analysis	The data is analyzed in accordance with relevant methods for the topic and aim of the study.
6	Verification	The interview findings validity, reliability and generalizability is evaluated.
7	Reporting	The methods for data collection and modes of analysis are communicated in a clear and concise manner that considers ethical issues and follows scientific standards.

4.2.1 Pre-interview phase

Before conducting the interviews, a pre-interview was conducted. The interviewee is a former student at The Royal Institute of Technology (KTH) who had written a masters thesis about coliving and now works within the real estate sector. The questions asked were intended for learning more about the topic, identify relevant stakeholders to interview, and discuss potential problems. The interview was semi-structured and covered a broad range of questions and topics concerning the scope of research on coliving. Pre-interviews are helpful to generate new ideas, perspectives and dimensions in preparation for the official interviews (Blomqvist and Hallin, 2015).

4.2.2 Semi-Structured Interviews

Five semi-structured interviews with different stakeholders took place. These included an urban planner at *Stockholm city*, a co-founder of the coliving startup *Allihoop*, a coliving consultant from the organization *Conscious Coliving,* and two residents from the coliving space *K9* in Stockholm (see appendix 1-6 for in-depth information about the interviews and interview

guides). All interviewees are anonymous and were carried out for 40 minutes (see table 8). The semi-structured interviews included a list of topics prepared with associated questions, which allows for a more flexible dialogue between interviewee and interviewer as the questions can be tailored based on the answers. It enables the interviewee to elaborate more in-depth on their perspective and the researcher to follow up with spontaneous questions during the conversation (Denscombe, 2018). The questions were designed to be relatively open, which allows the researcher to follow up with relevant questions based on the context (ibid). Some questions have been asked consistently throughout all interviews, while some have been adapted. The questions were formulated depending on stakeholder, interview context, and the evolution of the conversation. The follow-up questions have emerged during the conversation to provide deeper knowledge of certain aspects of the subject matter. As there are no established rules for conducting qualitative interviews, this method yields an openness that has been beneficial in this study which stems from a more inductive approach when exploring the particular matter (Kvale, 2007).

Figure 8. Summary of stakeholders. (Hafström, 2020)

All interviews were conducted via the online meeting applications Zoom, a cloud-based video conferencing program that provides services such as secure recording of sessions during online meetings (Zoom Video Communications Inc., 2016). The benefits of using virtual meeting solutions are the time- and cost efficiency as the interviewee and researcher do not need to travel to meet up in person for the interview. Another advantage is that the participants can be in their

respective setting of choice, which can foster a more relaxed conversation. In turn, this reduces the risk of the "interview effect" that otherwise can influence the answers from the interviewee (Denscombe, 2018:288). The disadvantage of digital communication method is that it may make it more difficult for the interviewee to get across certain messages. Consequently, the communication between the participants can be disturbed. A study of Zoom as a qualitative research tool, however, shows that it is a suitable method for collecting interview data in comparison to other Voice over Internet Protocol technologies (i.e Skype or Microsoft Teams) (Archibald, Ambachtsheer, Casey & Lawless, 2019). The tool is often described positively in terms of its security, convenience, interactivity and ability to foster personal interactions between people (ibid).

Table 9. Summary of interviews.

Presented in the interview	**Interviewee 1**	**Interviewee 2**	**Interviewee 3**	**Interviewee 4**	**Interviewee 5**
Actor	Stockholm City	Resident at K9	Conscious Coliving	Allihoop	Resident at K9
Title	Urban planner	Coliving Resident	Coliving consultant	Co-founder	Coliving Resident
Interview date and time	2020-11-22 11.00-11.40 40 min.	2020-12-1 14.00-14.40 40 min.	2020-12-2 13.00-13.40 40 min.	2020-12-2 15.00-15.40 40 min.	2020-12-8 13.20-14.00 40 min.

4.3 Document Analysis

A document analysis of Stockholm city's master plan from 2018 has been carried out as a complement to the interviews and case study. The document was accessed through the Stockholm municipality's webpage and was selected for its ability to provide a general overview of the city's plans for housing development, urban design, and sustainability goals. The document describes how buildings, land, and water use will be developed over the coming decade. It can be connected to the Campbell theory as it outlines strategies to reach goals within environmental, social and economic sustainability. This method aims to help strengthen the validity of the interviews by comparing the answers about coliving to housing, planning and

sustainability issues central to Stockholm. Initially, the idea was to code keywords in the document, but the term "coliving" did not exist in any identified planning documents from Stockholm city. Instead, search words such as *housing, densification, mixed-use, housing stock, properties, social diversity*, and similar terms are used to identify and interpret the municipality's prospect on coliving. The analysis has been executed by identifying relevant or meaningful terms and paragraphs of the text and interpreting it qualitatively through content analysis and thematic analysis (Bowen, 2009). The information was then analysed through the theoretical framework in the same way as the interviews described in the following section.

4.4 Data Analysis

After completing the interviews, the audio-recordings were transcribed and coded before analysis. Coding is an approach for qualitative analysis where one or more keywords are attached to a text segment (Kvale, 2007). In this thesis, the interview transcripts were coded to conduct a qualitative content analysis, which helps "quantifying" qualitative data (Denscombe, 2018). The interview transcripts were dissected and relevant categories based on the interview guide, theoretical framework, and relevant keywords were identified from the interviews (see some of the keywords in table 10). Based on commonly found themes from the interviews, a graphic thematically categorizes the data (see table 10). The codes are elected to highlight driving factors, challenges, and positive implications of the subject. This process has been followed by thematically coding the transcripts according to the relevant categories (Kvalie, 2007). This method makes the analysis more systematic, transparent and rigorous as the researcher can trace insights directly back to data segments (Denscombe, 2018). Through analyzing the different units and comparing their frequency and relation to one another, the analysis becomes more sophisticated and allows the researcher to reveal information that may at first not have been noticed (ibid).

The themes are directly originating from the interview guide designed based on the aim and research questions. Drivers, challenges, positive implications, and the three sustainability dimensions were classified to identify vital sub-themes analyzed through the theoretical framework. The sub-themes derive from keywords explicitly mentioned in the interviews. The

17 SDGs presented in the literature review have defined the three sustainability dimensions identified by Campbell, providing the framework to thematically organize the interviews (see table 10 for definitions). The following codes have been sorted and summarized in preparation Chapter 6. Analysis & Findings.

Table 10. Summary of codebook.

Themes and sub-themes	Definition	Example
Drivers - housing shortage - market gaps - demand for community	Factors potentially causing the growth of coliving identified by informants.	"The labor market also demands it, as it has become more common for people to work in project form and therefore need to be in different places for a shorter time and be able to move easily." (Author's translation, Interviewee 5, 2020-12-8)
Challenges - lack of standardization - discimination - transient housing	Potential problems and difficulties with coliving identified by informants.	"If it is a large area with many coliving, or any small-size apartments, then relocation is likely greater and there may be less stability." (Author's translation, Interviewee 1, 2020-11-22)
Positive implications - diversified housing stock - neighbourhood engagement - social capital	Potential positive effects from coliving on a micro, meso and macro level identified by informants.	"I view it positively on the basis that there will be greater diversity in the housing market. More people will be able to more easily find an accommodation that is suitable and affordable. So, as a complement, I only see benefits" (Author's translation, Interviewee 1, 2020-11-22)
Social Sustainability - social capital - diversity - discrimination	Statements about human welfare, justice, rights, power and individual needs referenced by interviewee. Defined by the 17 SGDs (UN, 2017).	"And with the trust that exists, you get great opportunities because everyone knows different things and do different things and yeah, we all have different networks and lives" (Author's translation, Interviewee 2, 2020-12-1)
Environmental Sustainability - sustainable lifestyle - sharing - less consumption	Statements about emissions and consumption production, and energy- and water saving and ecological values referenced by interviewee. Defined by the 17 SGDs (UN, 2017).	"If people live in a smaller space, they will buy less stuff because they don't have a place to put it. And they will be more considerate of their purchases." (Interviewee 3, 2020-12-2).
Economic Sustainability - local economic value - property conflicts - business model	Statements about economic growth strategies referenced by interviewee. Defined by the 17 SGDs (UN, 2017).	"Spaces where like, local businesses and people can set up pop-up shops, or they can teach there, so you're boosting the local economy." (Interviewee 3, 2020-12-2).

4.5 Reflections

Everyone perceives the world differently based on certain assumptions and ideas about the world. Whether a phenomenon is studied by natural or social scientists, individual perceptions about the world will to some extent be based on presumptions, rather than unfiltered observations (Farthing, 2016). Allemdinger (2002) argues that all research includes a subjective element to some extent since "*All theory is to greater or lesser degrees normative, i.e., suffused with values and embedded within a social and historical context*" (Farthing, 2016:17). Values, and how they help shape the research process, is, hence, vital to account for to understand relationships between the researcher and the research (ibid). In this case, the curiosity for coliving originates from a personal concern for environmental issues and the knowledge and understanding gained throughout my studies within human geography, sociology and environmental studies. These values have steered this inquiry, and several previous research projects, to investigate sustainability within urban planning.

The primary data collected from the interviews help strengthen the validity and reliability of this study. Through the first-hand contact with the interviewees, the relevance of the data can be checked during the conversation and controlled after. Consequently, the risk of collecting inaccurate information before the analysis reduces. Interviews are particularly useful for small-scale research projects (such as this bachelor's thesis) that are limited by time and resources, as it provides valuable depth for the researcher in the exploration of the subject (Denscombe, 2018). A limitation with the stakeholder interview method is nonetheless the generalizability of the findings. The answers can not be compared equally to one another as the different informants have different roles and relationships to the subject. On one hand, this enables a broader understanding to answer the research question. But it can reduce reliability as the responses are not comparable, i.e. coliving operators or planners with different roles. It could increase the integrity of the study by interviewing multiple representatives of each "role" to compile added data from each perspective. This reasoning was a motive to conduct a second interview with a coliving resident from K9. Having *two* data sets to compare deepens the analysis and delivers more reliability on the conclusions.

A stakeholder that could have been included in hindsight is the real estate perspective. Coliving operators often work closely with real estate developers and owners, interviewing with a representative could have added depth to how coliving affects urban environments. Nonetheless, there are previous studies on coliving that focus on the role of real estate (i.e. Steding 2019, Karpmyr & Landkvist 2019, Almgren & Melander 2020). The priority was instead to relate the subject to urban planning, as no such study was found. Rather than bringing in real estate prospects, the document analysis of Stockholm city's master plan was selected as it was considered to bring a more foundational understanding of how coliving can be an alternative housing form to prevailing housing solutions on the market.

Despite this reflection of identified limitations of this study, there are both strengths and weaknesses to the selected research design, methods and material. This study intends to contribute to a research gap about the implications of coliving in a planning context: the aspiration has been balancing between width through including *multiple* stakeholders, and depth through the semi-structured interviews and document analysis. There will always be alternative approaches to analyzing qualitative data. Using a different method to investigate the meaning of identified themes could have been achieved by conducting a critical discourse analysis. This may have provided *more* depth, yet the thematic analysis method chosen in this study was considered more relevant for the aim and research questions. Due to the efficiency of identifying recurring themes and patterns, and key factors, rather than the *implicit* meaning reaped by deconstructing text in discourse analysis (Denscombe 2018).

5 FINDINGS & ANALYSIS

This section presents the six major themes, with sub-themes, identified from the coding of the data as follows; Drivers, Challenges, Positive Implications, Social Sustainability, Environmental Sustainability, and Economic Sustainability. The three first themes outline the structure of this chapter followed by an analysis of the sustainability implications. The main empirical findings are analyzed through the lens of the theoretical framework presented in Chapter 3.

5.1 The Housing Situation In Stockholm

Stockholm, the capital of Sweden, has the highest population in the country of 974,000 people (Stockholms stad, 2020) with an expected 1.3 million inhabitants in 2040 (Stockholms stad, 2018). Internationally, Stockholm is ranked high for its innovative capacities, life quality, and secure social systems attracting students, professionals, and other populations to launch their lives in the city (ibid). *The European Digital City Index* (EDCi, 2016) ranks Stockholm 2nd best out of 60 cities for startups based on the high number of success stories within entrepreneurship, highly skilled workforce and strong government and public funding for innovation. Regarding sustainability efforts, *Arcadis Sustainable Cities Index* (2016) ranks Stockholm 3rd among 100 global cities based on present and future social, environmental and economic plans (Stockholms stad, 2016).

While there are positives to the attractiveness of Stockholm, such as the local and regional economic development, negative consequences accompany this growth. In Stockholm city's master plan, two main issues are stressed: the need for housing and the need to expand existing infrastructure (such as roads and public transit) to meet present and future demands (Stockholms stad, 2018). The city has experienced a housing shortage for decades (Emanuelsson, 2015) and rents for rental apartments have increased more than 70 percent over the last 10 years (Boverket, 2018a). There is a gap between the population development and the number of completed

dwellings and in 2018, the population growth doubled the number of houses entering the market (see figure 10). According to the European Commission (2019), the average monthly rental rate in Stockholm is among the highest in Europe, even though the circumstances are similar in other major European cities. As housing is a fundamental aspect of a functioning city for individuals and society, an uncertain housing market also provokes stress in many people's lives (Boverket 2018b).

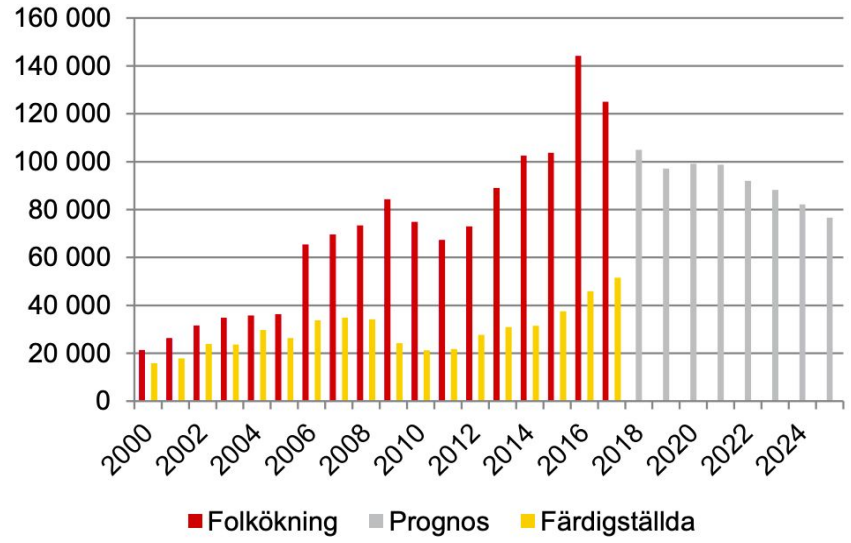

Figure 11. Historical and expected population development and the number of completed dwellings (red: population development, yellow: completed dwellings, grey: prognosis) (Boverket, 2018).

By 2030, 140,000 houses will have to be built in Stockholm, however, with the expected population growth, the need for increased housing supply will most likely continue after this (Stockholms stad, 2018). As seen in Figure 11, the current housing development shows little promise to close the gap between the number of houses developed and the added demand from populations migrating into the city (Boverket, 2018a). This challenge creates a unique opportunity for Stockholm to leverage long-term sustainability that achieves critical social, economic and environmental targets (Stockholms stads, 2018). In line with national sustainability objectives, Stockholm has set the goal to become a fossil-free city by 2040 to limit global warming under 2°C degrees before the year 2100 (European Commission, 2020).

In Stockholm city's master plan, the necessity of densification and mixed-use is highlighted, with a rising need for space to be used more effectively. Besides the economic and social benefits of a mixed-use urban environment (Fainstein, 2016), this strategy is necessary to cope with segregation issues in the city (Stockholms stad, 2018). The document highlights the need to diversify the housing stock to contribute to more diverse and less segregated neighbourhoods (ibid). In combination with the high volume of single-person households in Stockholm, this points to a requirement for alternative housing forms (see appendix 6). More than 40 percent of homes are occupied by just one person and among this group; the *young* and *elderly* population constitute a majority (SCB, 2019a). There is a necessity to target young adults and the elderly through housing plans. Simultaneously, the municipality of Stockholm must ensure livable and affordable housing for all, while striving towards limiting the ecological impact from the construction of homes.

Stockholm municipality makes no explicit mention of coliving in their master plan, yet planning targets aligned with the principles of coliving exist. Such as the need to diversify the housing stock, reduce climate impact and increase integration and diversity in neighbourhoods (Stockholms stad, 2018). To this date, there are few coliving housing units in Stockholm, but the number is growing (Fastighetsvärlden, 2020). The table below provides an overview of the main coliving operators identified by the researcher.

Table 12. Commercial Coliving spaces in Stockholm. (Hafström, 2020)

Nr.	Name	Operator	Location	Opening date	Min. rent in swedish kronor (services included)
1	K9	Tech Farm	Kommendörsgatan 9, Stockholm	2016	6000
2	Colive Lab	Colive	Nytorgsgatan 44, Stockholm	April 2019	8030
3	Parkstråket	Colive	Örnens väg 1, Handen	November 2020	5990
4	U25	Colive	Agavägen 40, Lidingö, Sweden	November 2020	7480
5	Dalenum Place	Allihoop	Agavägen, Lidingö	September 2020	8990
6	Kransen Icons	Allihoop	Vårgatan 4, Hägersten	September 2020	8490
7	Södra Långgatan 19	20-30	Södra Långgatan 19, Solna	October 2020	7900

5.2 Drivers

5.2.1 Demand for Housing Diversification

"[...] I think the housing shortage is behind it. It is so difficult for young people to enter the housing market and so this is a way to get a bit more affordable rents and a form of housing that probably a lot of younger people appreciate." (Author's translation, Interviewee 1, 2020)

All five interviews brought light to the housing crisis as a driving force to the development of coliving. The need to solve the unbalanced situation is also emphasized by the city of Stockholm in the master plan which outlines that "the ambition is to densify the urban environment through building new houses as a complement in every part of Stockholm" (Stockholm city, 2018). The need for large investments in more homes of different sizes, lease forms and housing types

expresses in the document as a necessity to solve the crisis (ibid). The planner from Stockholm city reinforced the information in the planning documents and stated that "*We consider the question of segregation and mixed-use, we try to create a mixture of tenancies throughout the city.*" (Author's translation, Interviewee 1, 2020).

The interviewees shared different perspectives on the topic, but a common inference was that coliving is primarily serving as a complement to the housing market. The planner from Stockholms city expressed that *"There are probably very few in planning who think any of these alternative forms of housing will be dominant."* (Author's translation, Interviewee 1, 2020). The coliving operator confirms that they do not see coliving becoming mainstream, but rather "*it's more like we try to solve a piece of the housing puzzle."* and adds, *"let's say that all of the residences that are being built, let's say that 10% of the space should be always coliving, then we can make an impact."* (Interviewee 4, 2020).

5.2.2 Market Gaps

The founder at *Allihoop* explains that there are existing "gaps" in the housing market, which real estate developers and coliving entrepreneurs are catching up with. This can be interpreted as an indicator towards post-carbon urban transitions as Chatterton (2013) stresses. Moving away from fossil fuel dependency involves making communities centred around environmental and social values more replicable. The coliving operator states that no collaborations with local municipalities have taken place but that there are interest and hope for shared projects in the future. He explains that more than 2,000 people in Stockholm have registered interest in their coliving apartments but, due to a lack of properties and uncertainty about the location of future projects, there is still higher demand than supply. *"I think that if we are in a project from the beginning with a city, then we can do some amazing things"* Interviewee 4 (2020) mentions and emphasizes that they could create more homes for people through being part of housing plans from the start. Increasing numbers of research projects (i.e. Akademiska hus, 2020) and financial investments going into coliving (Fastighetsvärlden, 2020) can nonetheless be considered as growing demand for community housing. Despite being responsible for major greenhouse gas

emissions, finding a common ground with the industrial sector to scale up community housing could be a way to accelerate the transition towards post-carbon cities (Chatterton, 2013).

The interviewees illustrate this market gap in different ways. The coliving consultant explains that *"[...] There are so many different types of coliving models out there that are serving slightly different people or people who would like slightly different things."* (Interviewee 3, 2020). One coliving resident emphasizes the high percentage of single households in Stockholm and states that coliving *"Is the ultimate solution to that problem, which is living with more people in a community"* (Author's translation, Interviewee 2, 2020). There are many different coliving spaces, which creates potential difficulties for planners to incorporate coliving into housing strategies. Nevertheless, the variation of the housing form enables coliving to be tailored to the demands of different demographics and geographical contexts. Consequently, coliving can be shaped to directly address the high single-housing numbers rather than pulling consumers from non-single households.

The coliving consultant points out that the growing sharing economy and trend towards renting is a driving force: *"If they're going to rent, they want a really nice rent experience. So that's part of what coliving is offering."* (Interviewee 3, 2020). Besides community, the demand for a higher quality rent experience entails the need for increased convenience and flexibility as the coliving resident adds;

"People want flexibility! There is a need for flexibility in housing as people live more flexible lives. The labor market is also demanding it, as it has become more common for people to work in project form and therefore a need to be in different places for a shorter time and be able to move easily." (Author's translation, Interviewee 5, 2020).

In response to the old "business-as-usual" way of developing housing, cohousing emerged, offering accessibility, affordability and economic equality (Chatterton, 2013). Similarly, elements of sharing in coliving provide people with more conveniences and flexibility without having to pay expensive rental prices for living in urban areas (Interviewee 3, 2020). With an increasingly mobile workforce, Interviewee 4 (2020) comments:

"I think it just comes as a natural need to live temporarily, but not a hotel, or a boring long-stay or like some unsure Airbnb. (...) It's more like wanting to go to a place where you feel like, okay, here I can be part of something, I can launch my life, get a good start." (Interviewee 4, 2020).

5.2.3 Isolation and demand for belonging

Isolation, and the damaging nature of loneliness, is highlighted by the interviewees. This problem can be related to the desire for community mentioned as a driving factor in all interviews. People are also forming families later in life, causing focus to shift towards more professional and social life instead. As interviewee 4 (2020) describe, "*there's this thing that people always say about millennials, valuing experiences over things."*, which can be related to the word "belonging" brought up by both coliving residents - *"people are seeking a feeling of belonging and purpose"* (Author's translation, Interviewee 2, 2020). It indicates that millennials and generation Z, who constitute the target groups in coliving housing (Steding, 2019), prefer coliving for the social values that are less achievable through single-household apartments. Likewise, this can be connected to Bourdieu's (1985) theory as belonging and purpose are values that qualify as social capital credited through a group or community.

The founder of Allihoop describes coliving as a way to *"challenge the status quo"* (Interviewee 4), as it questions the way housing is developed and operated. Before launching the startup, the founder worked within architecture, giving rise to an awareness that housing often lacks focus on the residential experience. Consequently, this became a personal driver to begin shaping a housing form where people and life quality are in focus, as the interviewee describes it;

"And we started thinking about unlocking new homes, or as soon as possible, creating more community driven homes for people so that we can actually solve a problem rather than creating a cool product that is convenient." (Interviewee 4, 2020).

Chatterton (2013) notes that community living has yet to find a way to align with planning. Similarly stated above by the coliving operator, to ensure democratic structures of the communities and that the sustainability benefits are distributed in society, strategies for replicating the concept in different types of neighbourhoods is critical. Governance frameworks increased funding and collaboration with municipalities are therefore necessary. Another way to

integrate coliving spaces into existing communities is through collaborations with multinational corporations (Chatterton, 2013).

5.3 Potential Challenges

5.3.1 Size, Mixed-Use and Diversity

The coliving consultant from Conscious Coliving states that *"The interesting thing is that there are so many different types of coliving models out there that are serving slightly different people or people who would like slightly different things."* (Interviewee 3, 2020) and that the number of residents ranges from a few individuals to hundreds. The challenge with increased size and large clusters of coliving spaces is maintaining the connection and community, avoiding the experience of anonymity that can transpire in groups larger than 10, ensuring a diversity of tenants. She explains that if a coliving space consists of 500 people and each room is a studio with a kitchenette, but there is also a communal kitchen that is *"massive [...] then it's not very likely that people will be coming there to cook together"* (Interviewee 3, 2020). The risk with larger coliving spaces is the potential loss of social capital when a size threshold surpasses. Although geographical proximity is an aspect that increases access to social capital, transforming acquaintances into meaningful relationships requires active efforts that bring people together (Bourdieu, 1985).

The inherent benefits from densification of already developed properties are not only environmental (in terms of reduced resource use per capita) but also economical (Campbell, 2016). This causes conflict between social and economic interests when coliving developers prioritize short-term economic growth and returns. The coliving consultant explains that some projects in the UK have been paused due to their large scale plans with hundreds of people living together;

"There's a real danger as well that developers come in who don't really care about the community side, they see like, here's a potential for profit, we will say that it's going to be a place that promotes community but they won't put in the resources and the work needed to actually try and facilitate that community developing." (Interviewee 3, 2020).

In line with this, Interviewee 5 (2020) mentions that a big problem is concerned with developers focused on short-term economic growth and returns. *"They want to solve the housing crisis and get a quick return on investments and build on a large scale, but fail to deliver what people are actually looking for, and it's community."* (Author's translation, Interviewee 5, 2020). As reinforced by the interviewees, the business proposal that the coliving housing model offers entails higher rental margins through an increased number of tenants in a building;

"So part of the reason that coliving is such a good business proposition is because of the increased density, you're packing a greater amount of people into a smaller amount of space." (Interviewee 3, 2020)

This aspect attracts the real estate sector but can cause arising social problems and lack of community. The planning conflicts Campbell (1996) depicts between social and economic interest can be seen here. Social and economic values are in a dispute where values such as social capital are prioritized rather than squeezing hundreds of people into a building for the sake of economic surplus.

Another conflict coliving face in terms of social sustainability is ensuring *diversity* without *discrimination*. The coliving consultant mentions that a process of induction where coliving operators arrange interviews with potential tenants commonly occur. *"Often, operators are looking for people who are interested in having a social life within the building"* (Interviewee 3, 2020). The coliving operator comments that there are some values they look for in potential tenants, *"We look at engagement and commitment. We also look at ambition"*. Different coliving actors are more or less nisched, and while *Allihoop* focuses on young professionals who are new to the city, the coliving consultant explains that each operator may value the management of the social dynamic differently (Interviewee 3, 2020). The risk of discrimination that can occur in the selection process must nonetheless be accentuated. One of the K9 residents mentions that there are discussions about how the induction processes can be made as fair as possible, as it may otherwise contravene the Discrimination Act (Interviewee 5, 2020). This connects to Campbells (2016) point on the risk of creating gentrification when housing- and neighbourhood redevelopment takes place and attracts certain groups of residents to a new area. As coliving evolves in the Stockholm region, the induction process of residents must be transparent and

inclusive to reduce the risk of creating segregation of homogenous communities of people with similar cultural, socio-economic, cultural and ethnic backgrounds.

To ensure diversity of people in the building is one aspect, creating a dynamic neighbourhood through a mixed-use urban environment with a diversity of housing forms is another one brought up by the planner, *"As a complement, I only see benefits with Coliving. If it becomes very extensive, then maybe there could be worrying issues, but that applies to all types of housing"* (Author's translation, Interviewee 1, 2020). The interviewee used the example of elderly homes; when one age-group is isolated, that may create a neighbourhood with little or the same type of activity. The coliving consultant confirms that it can be difficult to integrate coliving spaces into a neighbourhood when people have the prejudices of young people who will cause noise, trouble and be transient, whilst only living there temporarily. From incidents of this nature, coliving has been banned in Ireland and planned coliving projects in the UK are halted (Interviewee 3, 2020). On the contrary, limiting students and temporary residents would also make it an exclusive housing form. Akademiska Hus (2020) similarly notes that the challenge and success of coliving lie in the balance between gathering groups of like-minded people while ensuring inclusivity. Connected to the Planner's Triangle (Campbell, 1996), a planning challenge is to understand how resources can be distributed fairly between coliving spaces and other housing forms to help solve the housing shortage while maintaining a mixture of tenure forms.

While coliving is illustrated as a viable solution to the housing crisis (Steding, 2019), interviewee 3 (2020) mentions hesitations rooted in the fear that after coliving spaces are built, the building may be abandoned, filled with rooms that are difficult to use for other types of housing. The urban planner reinforces that constructing clusters of small apartments creates an increased risk of *"greater relocation, greater wear and tear, (...) you get a much more homogeneous population"* (Author's translation, Interviewee 1, 2020). He raises the importance of creating homes that are not only space-efficient but *durable*, *"We need to build high quality homes as well. [...] if you take it too far by reducing quality and size to create somewhere to live, then that's not a long-term solution."* (Author's translation, Interviewee 1, 2020). The coliving

consultant asks, *"What happens after the building has stopped being used for coliving?"*, raising implications on resource efficiency in the long run.

In this question of densification of land-use, economic and environmental interests often clash (Campbell, 2016). Coliving can be comprehended in this context as another tool that enables planners to use the existing housing stock more efficiently, while ensuring economic sustainability through the increased number of tenants (Interviewee 3, 2020).

5.3.2 Stigmatization and Lack of Standardization

A difficulty arising when discussing coliving with the planner is the lack of a common definition of coliving and inconsistent perceptions of "shared housing". Similarly to the vagueness of sustainability and what it entails in practical urban plans (Campbell, 2016), the lack of a common understanding of coliving acts as a barrier for planners in their discipline. This issue has been recognized by others in existing literature (i.e. Steding, 2019) and explains the lack of existing research that involves the term coliving along with the absence of the coliving as a term in Stockholm city's master plan (Stockholms stad, 2018).

The second coliving resident mentions the importance of developing a zoning type for coliving to integrate it into municipal detail-plans (Interviewee 5, 2020). As the planner from Stockholm city explains, coliving is not planned for on the municipal level. Due to the lack of standardization, it is difficult to plan a coliving space and understand how it will integrate into a neighbourhood. While this could be understood from the standpoint that coliving is a form of community living and that each "community" has its own unique set of rules, values and systems, (Interviewee 3, 2020), from a planning perspective, the lack of cohesiveness could be a reason it is difficult to communicate and advocate for coliving. Similar problems are experienced by cohousing communities, which highlights Chattertons (2013) point out that community housing models must be defined to be replicable in other areas.

5.4 Positive Implications of Findings

When asked about the positive effects of coliving, one of the interviewees laughs and says "*Oh, this will take a long time. There is no end to that question!*". Overall, the interviewees have a positive attitude towards coliving and the potentials it brings, although as identified, there are challenges that arise as the housing form evolves. The opportunities with coliving are analyzed through Bourdieu's (1985) social capital theory.

5.4.1 Social capital: exchanged values through networks

Connected to Bourdieu's (1985) theory about social capital, individuals that live in a community have access to resources that are connected to a network as described in the interviews.

"The great possibilities are that when you live with someone, a trust in each other is created that automatically comes from sharing life in this way. And with that trust, there's great opportunities because just as we know different things and we do different things, we have different networks and lives." (Author's translation, Interviewee 2, 2020).

One coliving resident explains everyone gains access to each other's social and professional networks through shared living. She explains that this allows people to share knowledge, ideas and competencies. The informant describes the struggles of moving to a new city, with difficulties integrating into new cultural, social- or professional settings. The word "trust" is emphasized as the result of a successful community at K9, and the resident adds *"It's a greater closeness to everything that exists in society through that trust*" (Author's translation, Interviewee 2, 2020). Through cultivating mutual trust in coliving, it is easier to access social- and business networks (Interviewee 2, 2020), which are examples of social capital. Confirming Bourdeiu's (1986) idea that the volume of social capital depends on the size of the network, similarly does the volume of economic, cultural or symbolic capital possessed through coliving.

The interviewee explains that activities and engagement transpire when unrelated people get together and share their experiences, knowledge and ideas, as possibilities are greater when people live together *"Because there's more of you to give energy and passion to something."*

(Interviewee 3, 2020). She mentions that it is not surprising to see a coliving community set up a local market or community gardening. The founder of *Allihoop* confirms that activities such as dinners, group workouts and events are initiated both by the community and the operator. This illustrates Bourdieu's (1985) theory that networks are not necessarily naturally or socially formed, but are the result of efforts and investment strategies intended to reproduce durable social relationships.

"There is diversity. Not only in ethnicity, income and types of individuals, but also diversity in other types of resources. There are different types of rooms in different price ranges, there are different people from different parts of the world, people with different types of views on life and different ages. Diversity in a multitude of areas and in interaction and cooperation." (Author's translation, Interviewee 5, 2020).

When coliving is available in a variety of forms in terms of room size, rent, and activities, it facilitates a range of people to interact. Seen from Bourdieu's (1985) lens, opportunities for people to gain, not only social support systems but also professional networks, can be connected to the diversity of residents as expressed above by one of the coliving residents. The coliving operator explains that there is a broad diversity of nationalities in their apartments. He mentions that in one location of 25 residents, there are approximately 10 different nationalities (Interviewee 4, 2020). The interviewed coliving residents also highlight that the relationships formed through shared housing go beyond age, class, gender, ethnicity and socioeconomic status (Interviewee 2, 2020).

Despite the economic and demographic growth in Stockholm, segregation is increasing. Consequently, fewer people with different backgrounds are interacting (Stockholms stad, 2018). Although Stockholm wants to be "A city for everyone" (ibid), no practical strategy to tackle segregation presents. With increased diversity of people living together, planning tensions linked to the distribution of resources, opportunities, and services that exist between groups, communities, and neighbourhoods in Stockholm could be resolved more fairly (Campbell, 2016). The question is if urban sustainability strategies could integrate coliving to mix different demographics to halt growing separation. Campbell (2016) may agree, yet emphasizes the importance of dividing resources more equally throughout the city.

5.4.2 Environmental benefits of sharing

"What it is, is sustainability.", one of the residents at K9 declared when asked to define coliving. He referred to it as an opportunity to live more sustainably (Interviewee 4, 2020). The other resident expresses that *"I think there are more "sustainability-conscious" people living in collectives, who are passionate about environmental and humanitarian issues and so forth."* (Author's translation, Interviewee 2, 2020). The coliving operator explains that sustainability values are communicated both in a top-down and bottom-up way, but that most suggestions are initiated by the tenants. The interviewee states that *"One thing that we notice is that 95% of our tenants are very aware of sustainability and climate issues and so they take their own initiatives."* (Interviewee 4, Allihoop, 2020).

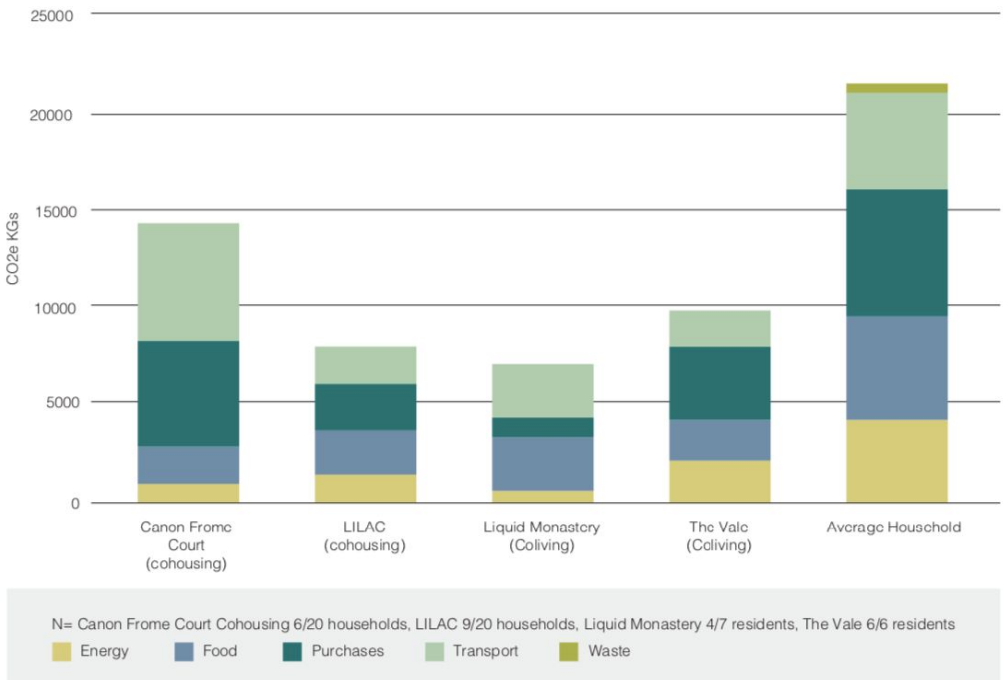

Figure 13. Overall CO2e kgs per household per year. (Coliving Insights, 2020).

From previous literature and the interviews performed, it is clear that sharing is fundamental to the concept of coliving. One of the K9 residents explains that it *"fosters a minimalist lifestyle"* (Author's translation, Interviewee 5, 2020) since different belongings are shared. It can be conceded as another social capital that emerges from community living (Bourdieu, 1985).

Similarly, the other resident adds that *"It requires less individual resources when people live together, so it is a lot more energy-efficient."* (Author's translation, Interviewee 2, 2020). This aligns with the findings of Akademiska Hus (2020). The research concludes that shared consumption reduces everyday resource use per person through shared transportation resources such as car- and bike pools, or shared belongings. From measuring carbon footprint, waste, energy usage and daily habits of two cohousing and two coliving spaces, Penny Clark also finds that housing emits about half of the emissions of an average UK household (see figure 13) (Coliving Insights, 2020).

The environmental benefits of coliving are primarily rooted in the densification of space that occurs when people reduce their individual space in exchange for larger communal spaces. The coliving consultant specifies that reduced numbers of washing machines, toilets and cooking appliances that are needed cause instant emission reductions. They, and one of the K9 residents, make a point that *"they will buy less stuff because they don't have a place to put it. And they will be more considerate of their purchases, generally speaking"* (Interviewee 3, 2020). The interviewee also states that whether the communities have intended to be more "sustainable" or not, a culture around the values of environmental sustainability frequently emerges. She explains that if someone in the community prefers a vegan diet, then it is more common that the shared meals will be vegan as it reduces social friction from having to make five separate meals. She illustrates the point with an example: *"If I know my neighbour goes to a lot of effort to cycle. So then when I look at my car, I think, oh, maybe I should make the effort as well."* (Interviewee 4, 2020).

5.4.3 Potential Positive Externalities of Coliving in Neighbourhoods

One of the residents at K9 explains that the positive effects of 'community capital' (the combined social, cultural capital) of a coliving space have the potential to be transferred to local neighbourhoods. There are many examples of coliving actors abroad that have adopted a "neighbourhood engagement plan". It is a strategy used to target positive ways that the coliving can integrate into the local neighbourhood (Coliving Insights, 2020). The resident explains that *"The idea is to create a spillover effect so that the residential area around coliving housing has*

access to the social and environmental sustainability created in coliving housing." (Author's translation, Interviewee 5, 2020). While no neighbourhood plans were found on the Swedish coliving spaces webpages, the resident states that there is a lot to learn from international coliving actors and highlights that it should be planned for *"so that the positive things that are created in our community are shared with others.*" (Author's translation, Interviewee 5, 2020). Increasing spillover effects allows for social community benefits to be extended (Chatterton, 2013). Going beyond the advantages reaped by the individual inhabitants could make coliving more attractive on political and economic standpoints since benefits extend past the consumers of coliving

5.4.4 Reducing Vacant Space and Need For Construction

In the wake of the pandemic, the Central Business District of Stockholm has experienced an increased vacancy rate. The real estate consultancy Savills (2020) notes the highest percentage of vacant spaces in five years at 4.8% corresponding to 80,000 square meters of vacant space in the city. Similarly, the coliving operator notes that *"[...] the opportunities are everywhere, especially now after the pandemic. So much office space is becoming vacant and available."* (Interviewee 4, 2020). He affirms that there is potential in solving parts of the housing crisis while reducing the need to construct housing by using existing and vacant properties. The fact that vacancy rates are increasing, indicates a mismatch between demand and supply of housing in Stockholm. It shows that there is a supply of *other* kinds of property (i.e. office spaces) and as explained by the founder of *Allihoop*, coliving could potentially restructure floor plans of buildings that may not have been intended for housing at first through mixing private and common spaces. Seeking new ways to manage properties abandoned by the crisis becomes more critical to make local economies stay afloat, and as the coliving operator explains: *"If there are hotels going bankrupt now, can we help them somehow right? And we're working with two hotel operators to perhaps take like half of the building and shape it into our concept."* (Interviewee 4, 2020).

Spatial conflicts related to land-use are fundamental to planning (Campbell, 2016) in which different interests collide. In Stockholm city's master plan, it is explained that the ambition is to densify the city with new houses to meet the needs of a growing urban population (Stockholms

stad, 2018). Nonetheless, the method where existing properties can be utilized more efficiently through shared housing is not discussed. Conventional planning solutions for housing shortage have often translated into new development such as *Miljonprogrammet* (Boverket, 2010). From an environmental planning perspective, the city is always in competition with nature for scarce land and resources, and the consumer society is threatening the ability of the planet to regenerate (Campbell, 2016). Considering ambitious climate targets of carbon neutrality by 2045 (Regeringskansliet, 2017) and achieving *Agenda 2030* (UN, 2017), creative solutions are needed to resolve both issues. Chatterton (2013) also stresses that post-carbon urban initiatives have to be broad-ranging, holistic and prepared to handle the complex challenges they face as they work across existing institutional and governmental frameworks. Reaching Stockholm city's goal of building 140,000 new houses by 2030, demands more efficient space use to ensure vital environmental qualities such as green belts, parks, water basins, and, ensuring the preservation of ecological habitats (Stockholms stad, 2018). Alternatively, coliving could be a way to reduce the increasing demand for new constructions by renovating and restructuring existing spaces.

5.5 Sustainability Analysis

The findings reveal a relationship between coliving and an increased possibility to live more environmentally, socially and economically sustainable lives. Although, specifying what sustainability means in the context of its use, how it can be measured and the conflicts that arise between the three dimensions, as provided in Campbells (1996) Planner's Triangle, is of importance.

The long-run property development conflict highlighted by Campbell (1996) where economic growth and equity are in dispute is seen in the development of coliving. If pure economic interests rule, there are risks for large-scale coliving facilities developing solely to maximize profit margins and property tax revenues without considering the social consequences. If community facilitation (which is the basis for social capital evolving) and mixed-tenure forms are not invested in as a result of prioritizing economic interests, coliving risks enhancing existing segregation in Stockholm as homogenous clusters of people form. Real estate developers may use coliving as a trendy concept to attract affluent residents to a new neighbourhood. This would

add to planning issues in Stockholm, such as gentrification, as long-term residents are pushed out of an area with increased rents. A trade-off between private economic interests and the social benefits arises, which relates to the idea that perpetual economic growth will trickle-down to society and be redistributed. It is realistic to argue that such mechanisms are not always able to occur naturally, reinforcing Chattertons (2013) idea that community housing must be strategically incorporated within planning frameworks to deliver positive environmental and social externalities to neighbourhoods and larger societies.

Like cohousing, the presented findings of the environmental sustainability of coliving can be related to the dominating ecological modernization discourse in urban planning (Hagbert et. al, 2019). Framing coliving as a solution to the climate crisis fits into the idea that sustainability is achievable without large scale systemic- and economic changes (Hall, 2014). This perception is elusive as it rejects the interconnectivity of environmental issues by simplifying a global issue into a local "spatial fix": which is described by Campbell (2016) as "no geographic scale can, in itself, eliminate all conflict, for not all conflict is geographic" (p.8). There are negative implications to not including a social justice perspective when discussing this, as greenhouse gas emissions to a large extent stem from the unsustainable lifestyles of affluent minorities, such as in countries like Sweden (Kaijser & Kronsell, 2013). From an intersectional perspective, if not incorporated into society, coliving spaces could cultivate environmental elitism, which defeats the purposes of accelerating a systemic shift towards post-carbon cities (Chatterton, 2013). In coliving, the degree of socio-economic diversity that is desired, in theory, may not be feasible in its application due to its trendy nature and therefore fragility to be affiliated with socio-economic exclusivity.

6 FINAL DISCUSSION

This bachelor's thesis aimed to explore coliving within an urban sustainability planning context to identify challenges and positive implications as a complement to the housing market. Five in-depth interviews with key-stakeholders, Stockholm city's master plan, and previous literature were analysed through the theoretical lens of Chatterton, Bourdieu, and Campbell to examine coliving as a method of planning for sustainable housing. The *driving factors*, *challenges, and positive implications* of coliving have been situated in the case of Stockholm to provide an analysis and answer the aim and research questions. The findings demonstrate the sustainability advantages and conflicts with coliving and identify negative implications that must be addressed for the longevity of this housing form. The main benefits include reduced carbon footprint, increased social-emotional connection, and a solution to a part of the housing crisis. By answering the research questions, the findings demonstrate how this study illustrates coliving as a method of achieving social, environmental, and economic urban sustainability goals.

In what way does coliving affect sustainability in urban environments?

- *What are the main qualities of coliving?*
- *What factors are driving the current development of coliving?*
- *What are challenges and positive implications with coliving?*
- *How can the concept of coliving be operationalized in urban sustainability strategies?*

From previous research and the conclusions drawn from the analysis, the main qualities of coliving can summarize as *sharing*, *flexibility*, and *mobility*. It is found that sustainable habits and behaviours more easily cultivate in a coliving through sharing of space and belongings. This study suggests that *minimalism* and *sustainability values* can be incorporated as central qualities of the concept. Planning documents from Stockholm city and key stakeholders show that coliving has developed in response to the housing market disequilibrium. With a shift from

ownership to renting, a rental experience that meets the desire for *community*, *social capital*, *convenience*, and *belonging* can also be considered driving factors. Additionally, the challenges that arise with coliving concerns size and the number of residents living together. Finding synergies between coliving operators and municipalities can be a way to ensure that the positive aspects of coliving are enhanced. Encouraging community building without discrimination in the induction process has been highlighted as another challenge. Likewise, the negative implications of transience are obstacles planners and coliving operators must find aligned solutions to.

When coliving is offered in a variety of forms, the positive implications are many; *social capital, diversity, social*, *cultural* and *professional* integration as mentioned by coliving residents. By standardizing and integrating coliving into local planning strategies, the findings show potential positive externalities that can spread to local neighbourhoods. Coliving offers an additional method for transforming vacant properties into housing by restructuring existing floor plans by mixing private and common spaces. Examples of coliving operators transforming abandoned hotels or emptied offices are highlighted as potential local economic opportunities that concurrently reduce the need for new resources in the building process. Alternatively, coliving could reduce the ever-growing demand for *new* housing expansions and contribute to environmental targets through reduced greenhouse gas emissions. In an urban planning context, establishing a shared definition is crucial to overcome planning hesitations and develop standardizations of coliving. As the analysis demonstrates, governance frameworks are required to balance all three sustainability dimensions as there are examples where either one or two, of the interests, are prioritized but not all three.

6.1 Future Research

This study investigated the driving factors, challenges and positive implications of coliving to understand how it relates to the current sustainability paradigm in planning and affects urban areas. The findings indicate the need to explore the housing form further in a planning context. Coliving was studied in the context of Stockholm, which limits the findings, since certain geographical circumstances may not apply to another location. Replicating this study in other cities could produce a more ubiquitous understanding of other geographical drivers,

opportunities and challenges connected to coliving. Investigating cases where coliving was banned can also yield valuable knowledge for urban planning. Likewise, defining best practices to improve coliving models would help steer coliving operators towards more sustainable practices. The finds raise awareness about potential positive externalities that can contribute to neighbourhoods. Future research could measure these effects through methods such as survey questionnaires distributed to coliving residents and neighbours. More specific measurements of social sustainability and diversity of the residents in a coliving are of value to solidify the information presented in this study.

6.2 Closing Statement

With these findings, we can conclude that coliving is a promising complement to the housing market as it offers more socially connected, lower carbon intensive, and affordable ways of living rooted in community and values of sharing. By establishing a shared definition of coliving that appeals to the need of a broader population, we can construct a societal foundation of community driven progress that accelerates the transition towards post-carbon cities. The lack of knowledge about what coliving offers enables prejudices against potentially beneficial living environments and life experiences. By closing the knowledge gap, coliving can more readily become a standardized form of housing that benefits both communities and the planet. Additionally, through stimulating the coliving movement, sustainable living practices can permeate the mainstream, and demands for attainable modern housing solutions can be met. Looking at where there is an excess supply of wasted vacant properties or inefficiently allocated housing, planning authorities could offer subsidies to renovation companies to incentivize them to produce coliving units.

Aligning planning strategies with the development of these types of coliving spaces would dramatically reduce greenhouse gas emissions from the housing sector. It would also provide planners with another tool to create equitable housing and integrate segregated areas by offering multiple living options. Ethically developing coliving communities would require vigilance against gentrifying tactics that enable profit-first mindsets. Replicable institutionalized frameworks that prioritize specific holistic views of sustainability must be authorised now to

ensure that coliving housing can have the maximum benefit on interconnected neighbourhoods in an increasingly interconnected world. As a nexus for sustainability education and cultural exchange, coliving could in time spread crucial values and practices through the lives of the people who benefited from the opportunities it offered. The unique solutions to the climate and housing crises offered by coliving, and its positive externalities, necessitates government funding in the future. By utilizing the untapped potential of coliving in urban planning, this could revolutionize the way that we approach some of the biggest challenges of our generation.

7 REFERENCES

Addeo, F. Paoli, D. A. (2019) *Assessing the SGDs: A Methodology to Measure Sustainability.* Athens Journal of Social Sciences, Vol. 6, Issue 3. pp. 229-250. https://doi.org/10.30958/ajss.6-3-4

Akademiska Hus. (2020). *Framtidens delade boende - En rapport om hållbarhet i livsstil och bostad.* Accessed 22-12-2020 from https://www.akademiskahus.se/globalassets/dokument/tekniska-publikationer--bilder/framtidens_delade_boende_2020-webb_enkelsidig.pdf

Allihoop. (2020). *Locations*. Accessed 7-12-2020 from https://www.allihoop.se/

Almgren, M. & Melander, L. (2020). *Co-living Real Estate in Sweden: A new investment opportunity*. M.S thesis, KTH Royal Institute of Technology, Stockholm. http://kth.diva-portal.org/smash/record.jsf?pid=diva2%3A1439971

Bergan, T. L., Gorman-Murray, A. & Power, R. E. (2019) *Coliving housing: home cultures of precarity for the new creative class.* Sydney: Taylor & Francis Group. https://doi.org/10.1080/14649365.2020.1734230

Bourdieu, P. (1985). *The forms of capital.* Handbook of Theory and Research for the Sociology of Education, ed. JG Richardson, pp. 241-58. New York: Greenwood.

Boverket. (2010). *Boendesegregation - orsaker och mekanismer.* Appendix 1 to the report "Socialt hållbar stadsutveckling - en kunskapsöversikt". Accessed 31-12-2020 from https://www.boverket.se/globalassets/publikationer/dokument/2010/bilaga-1.pdf

Boverket. (2018a). *Rapport 2018:29, Uppdrag att följa utvecklingen på andrahandsmarknaden*. Accessed 18-11-2020 from https://www.boverket.se/sv/om-boverket/publicerat-av-boverket/publikationer/2018/uppdrag-att-folja-utvecklingen-pa-andrahandsmarknaden/

Boverket. (2018b). *Behov av nya bostäder 2018–2025.* Karlskrona: Boverket. Accessed 31-12-2020 https://www.boverket.se/globalassets/publikationer/dokument/2018/behov-av-nya-bostader-2018_2025.pdf

Boverket. (2020). *Utsläpp av växthusgaser från bygg- och fastighetssektorn.* Accessed 3-01-2021 https://www.boverket.se/sv/byggande/hallbart-byggande-och-forvaltning/miljoindikatorer---aktuell-status/vaxthusgaser/

Bowen, G, A. (2009). *Document Analysis as a Qualitative Research Method.* I Qualitative Research Journal, 9 Iss: 2, pp. 27-40. https://doi.org/10.3316/QRJ0902027

Campbell. S. (1996). *Green Cities, Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development.* Journal of the American Planning Association (APA), 62:3, 296-312, DOI: 10.1080/01944369608975696

Campbell, S. (2016). *The Planner's Triangle Revisited: Sustainability and Evolution of a Planning Ideal That Can't Stand Still.* Journal of the American Planning Association (APA), 8 2:4, pp. 388-397. https://doi.org/10.1080/01944369608975696

Coliving Insights. (2020). *Impact & Sustainability in Coliving*. 3rd edition. Accessed 16-11-2020 from https://www.colivinginsights.com/publications/impact-and-sustainability-in-coliving

Conscious Coliving. (2020). *About Conscious Coliving*. Accessed 7-12-2020 from https://www.consciouscoliving.com/about/

Chatterton, P. (2013). *Towards an Agenda for Post-Carbon Cities: Lessons from Lilac, the UK's First Ecological, Affordable Cohousing Community.* International Journal of Urban and Regional Research. https://doi.org/10.1111/1468-2427.12009

Clark, P. (2017). *Making Connections: the Narratives of Motivation for Moving to an Eco-community.* M.S thesis, University of Surrey. https://westminster.academia.edu/PennyClark

Denscombe, M. (2018). *Forskningshandboken: för småskaliga forskningsprojekt inom samhällsvetenskaperna.* Lund: Studentlitteratur.

EDCi. (2020). *European Digital City Index 2016. Cities: Stockholm.* Accessed 7-12-2020 from https://digitalcityindex.eu/city/28

Emanuelsson, R. (2015). *"Supply of housing in Sweden".* Financial Stability Department of the Riksbank, Sveriges Riksbank Economic Review 2015:2. Retrieved 18-11-2020 from http://archive.riksbank.se/Documents/Rapporter/POV/2015/2015_2/rap_pov_artikel_3_150917_eng.pdf

European Commission. (2019). *Eurostat – 2018 current market rents*. Accessed 18-11-2020 from https://ec.europa.eu/

European Commission. (2020a). *2050 long-term strategy.* Accessed 17-12-2020 from https://ec.europa.eu/clima/policies/strategies/2050_en

European Commission. (2020b). *Emissions monitoring & reporting.* Accessed 18-11-2020 from https://ec.europa.eu/clima/policies/strategies/progress/monitoring_en/

Fainstein, S. S. & DeFilippis, J. (2016) *Readings in Planning Theory*. John Wiley & Sons, ProQuest Ebook Central. Chapter 13: Spatial Justice and Planning.

Farthing, S. (2016). *Research design in urban planning.* London: SAGE publications.

Fastighetsvärlden. (2020). *Wallenstam blir delägare i coliving-bolag.* Accessed 3-1-2021 from https://www.fastighetsvarlden.se/notiser/wallenstam-blir-delagare-i-coliving-bolag/

Forestier, O., Kim, E. R. (2020). *Cherry‐picking the Sustainable Development Goals: Goal prioritization by national governments and implications for global governance.* Sustainable Development, Volume 28. https://doi.org/10.1002/sd.2082

Fromm, Dd. (1991). *Collaborative Communities. Cohousing, Central Living and Other New Forms of Housing with Shared Facilities*. New York: Van Nostrand Reinhold.

Hagbert, P, Larsen, HG, Thörn, H & Wasshede, C (2019) Contemporary Co-housing in Europe: Towards Sustainable Cities? Routledge. https://doi.org/10.4324/9780429450174

Hall, P. (2014). The City of the Tarnished Belle Époque. *Cities of tomorrow: An intellectual history of urban planning and design since 1880.* 4th edition. West Sussex: John Wiley & Sons, Ltd. pp. 443-529

Interviewee 1. (2020). Interview with urban planner at Stockholms Stad. Ulrika Hafström. 2020-11-22.

Interviewee 2. (2020). Interview with coliving resident at K9. Ulrika Hafström. 2020-12-1.

Interviewee 3. (2020). Interview with a coliving consultant at Conscious Coliving. Ulrika Hafström. 2020-12-2.

Interviewee 4. (2020). Interview with a co-founder of Allihoop. Ulrika Hafström. 2020-12-2.

Interviewee 5. (2020). Interview with coliving resident at K9. Ulrika Hafström. 2020-12-8.

IPCC. (2018). Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. *World Meteorological Organization, Geneva, Switzerland.* Accessed 24-11-2020 https://www.ipcc.ch/sr15/chapter/spm/

Kaijser, A. & Kronsell, A. (2013). *Climate change through the lens of intersectionality.* Environmental Politics. Volume 23. https://doi.org/10.1080/09644016.2013.835203

Karpmyr, S. & Landkvist, F. (2019). *COLIVING - en boendeform för framtiden?.* M.S thesis, Lund University, Lund. https://lup.lub.lu.se/student-papers/search/publication/8976507

Kim, J., Woo, A. & Cho, G-H. (2020), *Is shared housing a viable economic and social housing option for young adults?: Willingness to pay for shared housing in Seoul.* Cities, Volume 102. ISSN 0264-2751. https://doi.org/10.1016/j.cities.2020.102732

Kvale, S. (2007). *Doing Interviews*. SAGE publications https://dx.doi.org/10.4135/9781849208963

Lélé, S. M. (1991). *Sustainable development: A critical review*. World Development, Elsevier, vol. 19(6), pages 607-621, June. https://doi.org/10.1016/0305-750X(91)90197-P

McCamant, K. and Durrett, C. (1988). *Cohousing – A Contemporary Approach to Housing Ourselves.* Berkeley, California: Habitat Press/Ten Speed Press.

Moore, K. (2018). *Sweden's housing problem.* Accessed 7-01-2020 from https://mundus-international.com/swedens-housing-problem/

Naturvårdsverket. (2019). *Konsumtionsbaserade utsläpp av växthusgaser i Sverige och andra länder.* Accessed 23-11-2020 from https://www.naturvardsverket.se/ https://www.naturvardsverket.se/Sa-mar-miljon/Statistik-A-O/Vaxthusgaser-konsumtionsbaserade-utslapp-Sverige-och-andra-lander/#:~:text=De%20konsumtionsbaserade%20v%C3%A4xthusgasutsl%C3%A4gen%20%C3%A4r%20cirka,globalt%20handelsutbyte%20mellan%20v%C3%A4rldens%20l%C3%A4nder

Naturvårdsverket. (2010). *The Climate Impact of Swedish Consumption.* Accessed 5-1-2021 from https://www.naturvardsverket.se/Documents/publikationer/978-91-620-5992-7.pdf

Osborne, R. (2018). *Best Practices for Urban Coliving Communities.* M.S thesis, University of Nebraska. https://digitalcommons.unl.edu/arch_id_theses/16/

Pepper, S. and Manji, A. (2019). *Co-Living as an Emerging Market: An Assessment of Co-Living's Long-Term Resiliency*. M.S, Massachusetts Institute of Technology, Boston, MA. https://dspace.mit.edu/handle/1721.1/123605

Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist.* Vermont: Chelsea Green Publishing.

Regeringskansliet. (2017). *Det klimatpolitiska ramverket.* Accessed 10-12-2020 from https://www.regeringen.se/artiklar/2017/06/det-klimatpolitiska-ramverket/

Rockström, J., Steffen, W., Noone, K. et al. (2009). *A safe operating space for humanity*.Nature 461, pp.472–475. https://doi.org/10.1038/461472a

Savills. (2020). *Högsta vakansgraden på fem år noterad i centrala Stockholm.* 4th of June. Accessed 29-12-2020 https://www.savills.se/insight-and-opinion/savills-news/300742/hogsta-vakansgraden-pa-fem-ar-noterad-i-centrala-stockholm

Shafique, A. (2018). *Co-Living and the Common Good.* London: RSA: Action and Research Centre. Accessed 29-11-2020 from https://www.thersa.org/globalassets/pdfs/reports/rsa-co-living.pdf

Statistiska Centralbyrån, SCB. (2019a). *Sverige i siffror – Människor i Sverige - Hushåll i Sverige.* Statistiska Centralbyrån website. Accessed 18-11-2020 from https://www.scb.se/hitta-statistik/sverige-i-siffror/manniskorna-i-sverige/hushall-i-sverige/

Statistiska Centralbyrån, SCB. (2019b). *Antal hushåll och personer efter region, hushållstyp och antal barn. År 2011 - 2019.* Statistiska Centralbyrån website. Accessed 15-11-2020 from http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BE__BE0101__BE0101S/HushallT05/

Steding, D. (2019). Coliving: an emerging term without a common definition. M.S thesis, KTH Royal Institute of Technology, Stockholm. https://www.diva-portal.org/smash/get/diva2:1371948/FULLTEXT01.pdf

Stockholms stad. (2020). *Befolkning*. Accessed 5-1-2021 https://start.stockholm/om-stockholms-stad/utredningar-statistik-och-fakta/statistik/befolkning/

Stockholm Resilience Centre (SRC). (2017). *"How Stockholm Resilience Centre (SRC) contributed to the 2016 Swedish Agenda 2030 High Level Policy Forum report"* Accessed

7-1-2020 from https://www.stockholmresilience.org/research/research-news/2017-02-28-contributions-to-agenda-2030.html

Stockholms stad. (2016). *Stockholm places third in Sustainable City Index.* Accessed 3-1-2021 from https://international.stockholm.se/news/2016/09/stockholm-places-third-in-sustainable-city-index

Stockholms stad. (2018). *Översiktsplan.* https://vaxer.stockholm/tema/oversiktsplan-for-stockholm/

Tummers, L. C. (2015). *Understanding co-housing from a planning perspective: why and how?*. Urban Research & Practice, 8 (1): 64-78. https://doi.org/10.1080/17535069.2015.1011427

Tummers, L. C. (2016). *The re-emergence of self-managed co-housing in Europe: A critical review of co-housing research.* Urban Studies. 53 (10): 2023–2040. https://doi.org/10.1177/0042098015586696

UNFCCC. (2020a). *The Paris Agreement.* Accessed 18-11-2020 from https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

UNFCCC. (2020b) *What is the United Nations Framework Convention on Climate Change?*. Accessed 1-12-2020 from http://unfccc.int/essential_background/convention/items/6036.php

UN. (2017). *Sustainable development goals*. Accessed 5-12-2020 from https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals

Vestbro, D. U. (2014). *Cohousing in Sweden, history and present situation*. Accessed from http://kollektivhus.nu/pdf/SwedishCohousing14.pdf

Vestbro, D.U. (2010). *Living together-cohousing ideas and realities around the world: proceedings from the International Collaborative Housing Conference in Stockholm 5-9 May 2010.* Stockholm: Division of Urban and Regional Studies, Royal Institute of Technology in Collaboration with Kollektivhus NU.

WeLive, 2018. *WeLive corporate website*. Accessed 19-11-2020 from https://www.welive.com

World Bank. (2020). *Urban Development.* Accessed 02-01-202 from https://www.worldbank.org/en/topic/urbandevelopment

Zoom Video Communications Inc. (2016). Security guide. Zoom Video Communications Inc. Accessed 4-1-2021 from: https://d24cgw3uvb9a9h.cloudfront.net/static/81625/doc/Zoom-Security-White-Paper.pdf

8 APPENDIX

APPENDIX 1 – Description of interviews

All interviews were conducted via Zoom using video and the audio was recorded for transcription purposes. The duration of all interviews was 40 minutes.

Interview 1 was carried out with a planner from Stockholm City. The interviewee was identified and provided by Stockholm city's information centre. Since both participants are native in Swedish, the interview was conducted in this language, as this also encourages a more expressive conversation. The quotations that are presented in the results section have hence been translated by the author, which is important to note as it may influence the interpretation of the findings (see appendix 2).

Interview 2 was conducted with a resident from K9 in Stockholm (see appendix 3). In preparation for the thesis, the researcher attended a panel discussion hosted by the coliving organization Co-Liv. One of the speakers was contacted with the intention to snowball and find other interviewees who could provide a residential perspective on coliving. They shared a message from the researcher to the K9 coliving community and two residents reached back with interest in participating in the study.

Interview 3 was conducted together with a team member from *Conscious Coliving*, an organization that supports coliving spaces to help them "grow and thrive" (Conscious Coliving, 2020). The organisation provides support on sustainability, impact strategy and expertise about community building. The interview was conducted in English (see appendix 4).

Interview 4 was carried out with a co-founder of a coliving startup in Stockholm. Prior to the meeting, different Coliving operators in Sweden were identified and contacted. The organisation *Allihoop* is based in Stockholm with two existing coliving spaces. The conversation was in English as both participants speak the language fluently (see appendix 5).

Interview 5 was held with a second resident from K9. However, technical difficulties cut off the conversation during the last part of the interview, and the last bit therefore not been recorded. The last 10 minutes of conversation have been writtenly summarized by the researcher, which makes it more difficult to cite the interviewee as the information has been interpreted. It is important to note that all citations in this report derive from the material that was transcribed before the recording ended.

APPENDIX 2

Interview Guide for Interview 1 - Urban Planner at Stockholms City with a focus on housing

The interview person

Head of Strategy and Development at the City Planning Office at Stockholm City.

The purpose of the interview

The interview was conducted with the aim to understand Stockholm city's perspective on shared housing and specifically coliving. The intention was to gain an understanding of how Stockholm city is working to solve the housing crisis and perceive shared housing in this context.

Information about the interview

The interview was conducted through Zoom 22/11/2020 at 11.00 and the duration was 40 minutes. Permission to record and use quotes was given in connection with the interview.

Questions:

- Are there any coliving houses planned for from a municipal level?
- What are your thoughts on shared housing? Seen from a planning perspective?
- What opportunities and challenges arise with coliving?
- In what ways can coliving contribute in an urban planning context?
- What sustainability dimensions are prioritised in the housing development of Stockholm city?
- What factors are driving the development of coliving in Stockholm?
- When it comes to environmental impact, both territorial and external carbon emissions that play a role, how does the City of Stockholm work to reduce the ecological footprint in housing?
- Is there a collaboration today between Coliving operators and the city of Stockholm?
    - If not, is there any interest? Do you think coliving developers can collaborate with local municipalities to contribute to sustainability targets?

APPENDIX 3

Interview Guide for Interview 2 - coliving resident in Stockholm.

The interview person

A resident at the coliving space K9 in Stockholm.

The purpose of the interview

The aim with the interview was to gain an understanding of the lived experience in a coliving space and how it may cultivate a more sustainable lifestyle in terms of social (community, social capital, wellbeing), environmental (a culture of sharing through shared space and amenities) dimensions of sustainability. The intention was also to elaborate on what someone who lives in a coliving thinks about coliving and whether it could be suitable for a bigger population.

Information about the interview

The interview was conducted through Zoom 1/12/2020 at 14.00 and the duration was 40 minutes. Permission to record and use quotes was given in the beginning of the virtual meeting.

Questions:

- Can you tell me about your relationship to Coliving?
- How do you define Coliving? What does it imply for you?
- You mention that there is diversity in the coliving space? Can you explain a bit more in which ways?
- What are you practically sharing at K9?
- What factors are driving the development of coliving in Stockholm?
- What opportunities and challenges arise with coliving?
- Is there a particular group of people that live at K9?
    - If so, how are they described?
    - If not, is coliving for anyone?

- Can you explain the selection process of tenants? What factors play a role in determining if someone “fits in” or not?
- Is coliving related to environmental benefits and social sustainability?
    - If yes, how and to what extent?
- What is the relationship between the coliving space and local neighbourhood? Are they involved in some way? If yes, how?
- Is K9 working with local planning authorities in some way? If yes, how?

APPENDIX 4

Interview Guide for Interview 3 - researcher at the organisation Conscious Colving.

The interview person

One of the team members of *Conscious Coliving* who manages research and sustainability questions. The interviewee is currently conducting post-doctoral research on the environmental sustainability of intentional communities and ecovillages.

The purpose of the interview

The aim was to gain a better understanding of coliving in an international context. The main themes discussed were challenges, opportunities and in what ways coliving is related to sustainability. Since the interviewee has been involved in the coliving community for several years, their experience is valuable to understand different coliving models.

Information about the interview

The interview was conducted via Zoom 2/12/2020 at 13.00 for 40 minutes. Permission to record and use quotes was given in the beginning of the meeting and a consent form was signed by the interviewee.

Questions:

- Can you tell me about your relationship to Coliving?
- How do you define Coliving? What does it imply for you?
- In an urban planning context, what role does coliving play?
- What factors are driving the development of coliving in Stockholm?
- In what way can coliving be an alternative to other housing forms at a larger scale?
- Is coliving related to environmental benefits and social sustainability?
    - If yes, how and to what extent?
- How can coliving spaces and their communities influence local neighbourhoods and the city at large? What are your thoughts from your experience?

- Do you see any problems with the rapid development of coliving? What problems can occur in cities?

APPENDIX 5

Interview Guide for Interview 4 - one of the founders of a coliving startup.

The interview person

Co-founder of the startup Allihoop with coliving spaces in Stockholm and Paris.

The purpose of the interview

The interview was intended to give an understanding of the commercial side of coliving and what opportunities and challenges exist with developing coliving in Stockholm. The aim was to understand the driving factors for the development of coliving and to explore potential collaborations between coliving operators and municipalities.

Information about the interview

The interview was conducted via Zoom 2/12/2020 at 15.00 for a duration of 40 minutes. Permission to record and use quotes was given in the beginning of the virtual meeting.

Questions:

- Can you tell me about your relationship to Coliving?
- How do you define Coliving? What does it imply for you?
- Do you think coliving can become mainstream or is it a niche in the housing market?
- What opportunities and challenges arise with coliving?
- What factors are driving the development of coliving in Stockholm?
- Can you explain the selection process of tenants? What factors play a role in determining if someone “fits in” or not?
- Are you collaborating with local planning authorities in some way? If yes, how?
    - If not, is there an interest or future plans to do so?
- What is the relationship between the coliving space and local neighbourhood? Are they involved in some way? If yes, how?
    - If not, are there any plans or strategies for this?

    - What are the strategies for ‘opening up’ and connecting coliving projects to the city? (Coliving operators, coliving residents, urban planners).
- Are you measuring sustainability impact, environmental data or social factors in some way?
- What are key factors to an inclusive coliving community?
- Are there any existing strategies for handling potential problems that arise from the coliving spaces?

APPENDIX 6

Interview Guide for Interview 5 - coliving resident and engaged in the coliving community.

The interview person

Resident at the coliving space K9 in Stockholm.

The purpose of the interview

The purpose was to gain more information about the social and environmental aspects of coliving through speaking with a stakeholder who has lived in coliving for several years. The person is also involved in an international coliving community, which can be considered a bias but also provides deep experience to draw from. Additionally, the aim was to connect the insights to a planning context to discuss challenges and opportunities.

Information about the interview

The interview was conducted through Zoom 8/12/2020 at 13.20 and the duration was 40 minutes. Permission to record and use quotes was given in the beginning of the virtual meeting.

Questions:

- Can you tell me about your relationship to Coliving?
- How do you define Coliving? What does it imply for you?
- What opportunities and challenges arise with coliving?
- What are the main barriers for coliving? Why do you think it is not a more "common" housing form?
- What factors are driving the development of coliving in Stockholm?
- Is coliving related to environmental benefits and social sustainability?
    - If yes, how and to what extent?
- What is the relationship between the K9 coliving space and the local neighbourhood? Are they involved in some way? If yes, how?
    - Are there collaborations with external actors or local planning authorities?

Appendix 7: Households in Stockholm

Table 5. Number of households by year and type of household in Stockholm. (SCB, 2019b).

The Stockholm region	2015	2016	2017	2018	2019
Single without children	375 560	379 058	387 088	397 159	406 334
Single with children 0-24 years	67 441	68 201	69 248	70 309	71 149
Single with children 25+ years	12 834	13 940	14 877	15 660	16 394
Cohabiting without children	191 485	194 600	197 800	201 847	205 238
Cohabiting with children 0-24 years	215 796	217 737	220 019	222 526	225 118
Cohabiting with children 25+ years	12 404	12 993	13 808	14 640	15 174
Other households without children	51 171	52 739	53 917	53 995	54 165
Other households with children 0-24 years	43 457	44 674	45 194	45 376	45 250
Other households with children 25+ years	2 647	2 876	3 061	3 135	3 197