EXTERNAL ENABLERS OF COMMERCIAL REAL ESTATE ACTORS ENGAGING IN THE CIRCULAR ECONOMY

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The circular economy has emerged as a tool for addressing the current linear economic system, producing massive amounts of waste and exacerbating climate change. During the recent crises and instabilities, the potential of the circular economy has been further highlighted. However, the concept remains undefined, and little is known of its implementation in practice. This thesis explores the circular economy and its implementation among six Swedish commercial real estate actors, through interviews and an investigation of their official documents, with the aim of discovering signs of the circular economy, how those signs have emerged and the knowledge and capabilities necessary to capitalize on them. The External Enablers Framework by Davidsson et al. (2020) is used to find the external enablers that facilitate a shift towards more circular business practices. The thesis discovers multiple signs of circularity in the empirical material, in targets, strategies and activities. It also identifies several external enablers potentially impacting the implementation of circular activities in existing real estate ventures, such as collaboration networks, climate change awareness and the recent crises and instabilities. The real estate actors themselves also potentially influence the industry around them towards circularity, in an ecosystem of enablement.

Keywords: Circular economy, circularity, external enablers, renovation, real estate, sustainability
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1. Introduction

The need for addressing climate change is evident. The world’s current model of linear mass production and mass consumption has proven unsustainable and continues to push the physical limits of the planet. Global demand will require the resources of two planets by 2030 and by 2050, annual waste generation is projected to increase by 70%. (Esposito et. al., 2017; European Commission, 2020). Countless different concepts and solutions have been developed to mitigate or adapt to the problems associated with a warming global climate. The circular economy is one such concept. Despite being a rather well-known and developing concept, its implementation in practice remains low (Merli et. al., 2018). According to the Circularity Gap Report (RE:Source, 2022), Sweden is currently only 3.4% circular, meaning there is a circularity gap of 96%. Most resources used in Sweden come from virgin sources and more than 266 million tons of resources enter the country’s economy each year. The ongoing climate crisis puts critical stress on society to transition to more sustainable practices, but progress has arguably been slow-moving. However, the recent turbulent years could bring the circular economy into a new light.

The recent energy crises and soaring interest rates have increased costs for both individuals and organizations, highlighting the need for energy efficiency and resource efficiency in general (Energimyndigheten, 2023). The National Institute of Economic Research states that high inflation and increasing interest rates are pushing the Swedish economy into a recession in 2023. Households have less money to spend as costs of living (food, energy, housing etc.) increase and companies are equally affected (KI, 2022). Seeing as energy costs are projected to remain high or even increase, a new impetus for a more circular and energy-efficient approach has emerged (Brodin et. al., 2022). As a response to all these crises, many have called for a shift towards a more circular, resilient and low-carbon economic system, to ensure overall economic resilience (Kennedy & Linnenluecke, 2022). An increasingly resource-scarce world could continue to exacerbate the volatility of energy and material prices. Such scarcity can also lead to political instability, which in turn leads to more crises (Esposito et. al., 2017).

Similarly, the Covid-19 pandemic brought with it numerous changes in people’s movement patterns and behaviors. Working from home suddenly emerged as a viable option and e-commerce experienced exponential growth, leading to changes in the way people commute, work, and run errands. This could have major implications for both urban development and the built environment (Delventhal, 2022). According to the European Commission (2020), the
changing demand on our buildings and the need for efficient use of resources has highlighted a need for substantial renovations on a large scale, shifting away from building new and instead using what already exists.

By disequilibrating parts of the economy, these crises and environmental changes could improve the prospects for certain new ventures and challenge incumbents’ current economic activities (Kimjeon & Davidsson, 2022). The ‘External enablers’ (EE) framework” by Davidsson et. al. (2020) attempts to provide tools for analyzing the effects of environmental changes on new venture creation, expanding on the previous focus on opportunities within entrepreneurship research. Davidsson et. al. (2021; 2022) highlight the regulatory and socio-cultural changes unleashed by the COVID-19 pandemic and how it enabled the creation of new ventures for technology-based online solutions for work, medical consultations, shopping and more. As such, these crises, that are smaller in scope and more sudden than climate change, could induce motivations for change and stimulate the necessary demand for new circular business models and a more circular real estate industry to emerge, with more focus on innovative uses of existing materials and buildings, rather than new constructions.

Kimjeon & Davidsson (2022) state that business research literature which focuses on environmental changes as drivers of entrepreneurship is limited and scattered. Furthermore, they identify a need for using more qualitative and case-based data and looking into micro-level behavior, something that I hope to address with this thesis. The aim of the thesis is to explore the circular economy and its implementation among six Swedish commercial real estate actors, focusing especially on renovation, to discover any signs of circularity and investigate what enabled those signs to emerge. With this as a background, I will attempt to answer the following research questions:

1. To what extent are there signs of circularity, focusing especially on renovation, within commercial real estate companies?
2. What are the potential external enablers of new and existing circular business ventures within the real estate industry?
3. How do crises impact new and existing circular business ventures within existing real estate companies?
4. Which resources and capabilities are needed to implement circular business models in existing firms?
By interviewing six different real estate actors and investigating their official documents, this thesis will firstly attempt to identify signs of the circular economy in their strategies and business models, with a specific focus on renovation as detailed above. Secondly, the focus will turn to impact of external events on new and established circular economy ventures along with the resources and capabilities necessary to create possibilities and opportunities from the arguably negative events discussed above. For this I will make use of the previously mentioned External Enablers framework by Davidsson et. al. (2020) along with literature on the Circular Economy, creating a framework around which I base the analysis of the empirics collected for this thesis. I intend to limit the study to commercial buildings, partly as their role have been especially challenged by the behavioral changes relating to Covid-19 and partly because it is a generally less researched area. Much of the literature on renovations and refurbishments focuses on residential housing, therefore this thesis investigates the process from a business-to-business perspective in the commercial real estate sphere.

The thesis will start with a review of literature and concepts relating to the circular economy and renovation, followed by a chapter on the External Enablers, which will be used as the theoretical framework. Chapter 4 details the methods used, and chapter 5 gives some context to the empirical material. The following section will present and analyze the collected empirical material while chapter 6 provides as discussion of the key results followed by the conclusion.
2. Literature Review: The Circular Economy and Renovation

This chapter will introduce the circular economy concept and its related frameworks, summarizing potential benefits and drawbacks, and diving deeper within certain areas relevant to this thesis, such as renovation and circular business models. Two primary frameworks will be discussed and later used in the results and analysis.

The circular economy concept (CE) has received increasing attention over the last decade (Merli et. al., 2018). The concept serves to address the current linear model of economic growth, which has proven unsustainable, often framing it as a decoupling of economic growth from resource use while upholding competitiveness. Some authors even claim the circular economy will surpass the sustainable development movement, which is still is based on the linear economy and thus continues to push the planetary boundaries (European Commission, 2020; Korhonen et. al, 2018).

The phrase Circular Economy was first mentioned by Peace and Turner in 1990, although the core principles of the concept (a closed system with limited natural resources) are often accredited to Boulding in his 1966 article, The Economics of the Coming Spaceship Earth (Merli et. al., 2018). However, most of the development of CE has been done outside of academia, by practitioners and actors, such as the Ellen MacArthur foundation (2023), several national governments and business organizations around the world. The European Union adopted its first Circular Economy Action Plan in 2015 which increased the focus on the topic within Europe (European commission, 2022; Korhonen et. al., 2018). However, the concept was adopted and developed by the Chinese government a decade earlier, when they first introduced a circular economy promotion law (Merli et. al., 2018).

No one commonly accepted definition of CE exists yet within in academia, instead several different definitions and frameworks have been suggested (Korhonen et. al, 2018). Kirchherr et. al. (2017) merges several definitions and attempts to define CE as:

“an economic system that replaces the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes. It operates at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, thus simultaneously creating
environmental quality, economic prosperity and social equity, to the benefit of current and future generations. It is enabled by novel business models and responsible consumers.”

2.1. Frameworks and indicators of the Circular Economy

There exist a multitude of different CE frameworks, metrics and assessment methods from academia, practitioners, and policymakers (Sassanelli et. al., 2019; Parchomenko et. al., 2019). Two complementary frameworks will be discussed within the scope of this thesis and combined into a guiding framework to capture as many aspects of the Circular Economy as possible in the empirical material.

Firstly, in the Circular Economy Action Plan, the European Commission committed to create a simple and effective monitoring framework to effectively track the implementation of the circular economy in the EU. This commitment was fulfilled when the Circular Economy Monitoring Framework was launched (European commission, 2018). The framework is composed of a key set of indicators that have been chosen to capture the main elements of the circular economy. Ten indicators are grouped into four groups representing different parts of the circular economy and the structure of the Circular Economy Action Plan (European Commission, 2018):

1. Production and consumption: Mainly focusing on minimizing generation of waste (Reduce).
2. Waste management: Mainly focusing on increased recycling (Recycle)
3. Secondary raw materials: Mainly focusing on increasing the use of recycled materials, instead of primary raw materials (Reuse).
4. Competitiveness and innovation: Mainly focusing increasing circular investments, added value and patents.

Secondly, the CE was early associated with the 3R framework (reduce, reuse, recycle), which since become a commonly used catchphrase in many sectors. The 3R framework, has continued to expand and the latest iteration is the 9R framework, which can be seen in figure 1 below (Kirchherr et. al., 2017; Neves & Marques, 2022).
The 9R framework covers aspects from smarter use of existing products to the implementation of secondary materials, graded from less to more circular. All of these steps can be related to the built environment. Recycling materials into new furnishings, for example, is closer to a linear economy, whereas refusing, rethinking and reducing the number of construction activities would be the most circular. The figure uses the term refurbishment, according to Hasik et al. (2019) the “terms retrofit, refurbishment, renovation and reuse of buildings are often used interchangeably” and for this essay, the term renovation will be used.

2.2 Circularity in Renovation

The built environment has a significant impact on many sectors of the economy, on local jobs and quality of life. Buildings are currently responsible for 40% of the EU’s total energy consumption and the construction sector in Sweden generates 21% of total greenhouse gas emissions, excluding imports (European Commission, 2020: Boverket, 2023). An often called-upon solution has been to implement more sustainable construction practices and create new green buildings, often verified by labels such as BREEAM (BRE Environmental Assessment Method) and LEED (Leadership in Energy and Environmental Design) (Dobson et. al., 2013).
Strategies for making buildings more sustainable usually rely on life cycle analysis (LCA) approaches covering the three aspects of sustainability: environmental, economic, and social. There has been a drive towards sustainable construction, as the construction industry has come under criticism for its harmful practices, but economic performance has often been given priority, ahead of environmental and social performances (Dobson et. al., 2013).

Scholars mention the lack of guidelines for creating comparative LCA assessments between renovations and newly constructed buildings, making it more difficult to show the benefits of renovations (Pombo et. al. 2016; Hasik et. al. 2019).

New buildings, no matter how sustainable, are not necessarily circular. In figure 2, Hasik et al. 2019 illustrates the differences between renovation and new construction in terms of materials used, in an LCA perspective. The Swedish construction sector alone generates 14 million tons of waste per year, amounting to one third of all waste produced within the country (excluding mining waste) (Miliute-Plepiene et al., 2022). The construction sector is responsible for over 35% of the EU’s total waste generation (European Commission, 2020). But, more importantly, the rate at which new buildings replace or expand the building stock only reaches about 1% per
year. As such, building new, even sustainably so, will not address any issues relating to the 85-95% of existing buildings that will still be standing in 2050 (Artola et. al., 2016; European Commission, 2020).

Most of the existing buildings are not energy-efficient and will need renovations, to meet modern standards and increased energy demands (e.g., from increased needs for cooling and heating as the climate changes) and to replace building components with shorter life spans (Roofs, floors, etc.) Renovation offers the opportunity to upgrade these components, thus increasing the value and attracting new customers, but also to make the building more resource-efficient and environmentally sound. (Juan et. al., 2010; European Commission, 2020). Sweden has a substantial need for renovation of the post-war building stock, which is reaching its service life endpoint (Mjörnell, 2019). Also, as urban needs and behaviors change, buildings can be renovated to fulfill a new purpose. As mentioned above, Covid-19 has opened the door to new ways to think about our housing and working situations, which in some cases are leading to more shared offices and office space being rebuilt or renovated into housing, thereby using spaces and materials effectively to address new needs (Korhonen et. al., 2018).

Renovation is thus an established strategy for reducing the impacts of the building and construction sector (Hasik et. al., 2019). In line with this, the EU launched a communication in 2020 calling for a Renovation Wave in Europe, with the intention to create a greener building stock and more green jobs in the process. According to the European commission (2020), “renovation offers a unique opportunity to rethink, redesign and modernize our buildings to make them fit for a greener and digital society and sustain economic recovery.”. However, renovation for the sake of renovation is not the most circular. As seen in figure 2 above, refusing is the most circular strategy, meaning it might be even more circular to leave something as it is. This problem further highlights importance of assessing all the costs in a building’s or product’s lifecycle to determine whether renovation or new construction is necessary.

2.3. Potential benefits of the Circular Economy and Renovation

The Circular Economy encompasses many potential benefits for various stakeholders on different levels, beyond the purely environmental benefits. The communication on the new Circular Economy Action Plan by the European Commission (2020) estimates that the
application of CE principles in the European economy could increase the total GDP by 0.5% and generate 700,000 new jobs. Environmental regulation can thus act as drivers for the C E (Neves & Marques, 2022). “Every 10,000 tons of waste disposal generates only one job, while in a circular economy, the recycling process generates 20 jobs for every 10,000 tons of recyclable materials.” (Esposito et. al., 2017) On average, 40% of individual firms’ spending goes to materials in the EU. This cost could be lowered with a switch to more circular systems (European commission, 2020). According to Esposito et. al. (2017), the circular economy could provide cost savings on materials to a value of US$1 trillion by 2025.

The European Renovation Wave Communication (European Commission, 2020) identifies building investments as a stimulus for the economy, and renovation specifically is a labor-intensive activity which is argued to create jobs and investments in local supply chains. In a case study, Hasik et. al. (2019) show that the repurposing of existing building structures often decreases the amount of new materials that has to be extracted and used, in fact renovations are found to help avoid between 53 and 75% of impacts compared to a new construction (within in areas such as global warming, acidification and smog formation).

Greater material efficiency could save 80% of greenhouse gas emissions associated with material extraction, construction, and renovation (European Commission, 2020). Miliute-Plepiene et. al. (2022) investigates the climate benefits from material recycling and finds it brings climate benefits in most cases when compared to incineration, especially regarding aluminium, hard plastics, plastic floors, and steel. The incineration of wood and paper has a climate benefit, but to a lesser extent than their recycling. The authors also mention that increase in transportation of recycled materials does matter but in the case of aluminium for example, it can be transported two laps around the planet before the transportation costs outweigh the benefits of recycling.

While the circular economy, and sometimes renovations, addresses the problem of resource-scarcity and low utilization, by focusing on maximizing the use for extracted materials, the concept is not free from barriers and criticisms (Esposito et. al., 2017).
2.4 Barriers and Critiques to the Circular Economy and Renovation

Corvellec et. al. (2022) points out several critiques of the circular economy. First and foremost, the actual feasibility of CE is unclear, whether it is practically possible to implement. Recycling markets can be volatile and unpredictable, and certain materials, such as toxic waste cannot be recycled. Furthermore, the sustainability of the circular economy is questioned, as long-term effects of using recycled products and materials remain unknown and costs in the form of longer transportations might occur as products need to move further. Furthermore, it can be difficult to calculate the use of land and space by circular activities. Land might not return to nature but rather be used for something else, i.e., a factory for recycling or for producing new is still a factory (Korhonen et. al., 2018).

A transition towards a more circular economy will be a lengthy process, potentially facing resistance from many actors. In a survey by Offentliga fastigheter (2022) on using recycled building materials in public organizations, respondents identified several barriers for implementing reuse and recycling practices, including legal barriers, regulations, standards, and warranties as well as questions regarding how to value secondary materials and ensure profitability. Additionally, long-term payoffs are difficult to measure, monetize and explain to end-users. Renovations can be costly and difficult to organize, making financing difficult (European Commission, 2020).

Renovations are also associated with the same negative externalities as all other form of constructions, such as noise, dust, water pollution and waste generation, not to mention the consumption of resources. After the completion of the construction, buildings continue their impact on their local environment and the climate at large, through energy usage, changed biodiversity and continuous renovation, and at the end of a building’s life, the dismantling is associated with energy consumption and waste production. (Zuo & Zhao, 2014). Despite this, building new and using new materials have been easier and cheaper in Sweden, where labor costs often are more burdensome than material costs, as shown by Petrović et. al (2021). Taxation usually targets labor rather than materials, hindering a more circular economy which usually requires more work hours (Esposito et. al., 2017).

Even though information on the costs of building more sustainably has emerged slowly, as the construction industry generally is reluctant to reveal information on costs (Dobson et. al, 2013), it is generally accepted that a reduced dependance on virgin raw materials and increasing efficiencies decrease costs and create resilience against supply shortages and price volatility.
Dobson et. al. (2013) notes that practices once assumed to increase costs, has been proven to be cost neutral or even better. However, maximizing resource efficiencies could increase brittleness and vulnerability by decreasing functional and response diversity, thus, potentially leaving the firm vulnerable to rapid changes in technology or other external factors, even if there are savings in material costs (Kennedy & Linnenluecke, 2022). Many of the respondents to the survey by Offentliga fastigheter (2022) placed emphasis on the importance of financial sustainability and profitability for a transition to circularity.

In general, there is also a lack of experiences and routines from working with recycled materials, which creates uncertainties in a variety of situations. Knowledge of renovation is fragmented and sometimes difficult to access, whereas to produce new buildings, information, education, and innovation is readily available in both practices and techniques as well as materials. Attitudes and processes will not necessarily change on their own but might need intervention or policy guidance (Neves & Marques, 2022; Mjörnell, 2019; Offentliga fastigheter, 2022). Many people still see circular products as old or of a lower standard, and the transition to circularity could easily get caught on attitudes where actors only see risks and barriers. The current consumption practices need to be addressed to make changes towards a more sustainable economic paradigm (Korhonen et. al., 2018). For example, the article by Neves & Marques (2022) shows that higher GDP per capita acts as a barrier for the circular economy. More affluent people are less likely reuse products or buy products made from recycled materials.

2.5 Circular business models and strategies

The transition towards a circular economy can be aided by innovations in business models, i.e. the core logic of how a company creates and delivers value. The concept of circular business models is constructed on the idea that companies can adjust their traditional business model to encompass a circular strategy, shifting their current logic of doing business to a more holistic one (Nussholz & Milios, 2017). Circular business practices usually focus on the efficient use of resources and prolonging the lifetime of those resources (Kennedy & Linnenluecke, 2022). Most circular strategies require cooperation between companies along the value chain, a single company can seldom implement circular practices alone. A system thinking approach would be beneficial when considering circular strategies and business models (Nussholz & Milios, 2017).
In order to create and deliver value from a circular strategy, case companies needed to develop a range of new capabilities, resources, as well as partner networks. (Nussholz & Milios, 2017).

Increased sustainability requires a long-term perspective, considering initial capital costs against running costs. Sustainable construction is often associated with better performance and reduced operation, utility, and maintenance costs. The short-term costs of sustainable practices has long be perceived as too high to be competitive, both from the industry and from clients which affects the demand. However, there seems to be a recognition from the industry that sustainable practices are important and that increased capital costs might be worth it for the potential gains (Dobson et. al., 2013). Zuo & Zhao (2014) point out that the costs of not going green is high as well, referring to what they perceived as high energy prices in 2014, which can be seen in the recent energy crisis as well. “The onus is on the suppliers and contractors within the market to drive the costs of sustainable construction through competition and more economic production.” (Dobson et. al., 2013).

Path dependency and lock-in can act as a barrier for new circular business models and strategies. First innovations are usually stronger than later ones, in a survival of the first rather the fittest. The recycling market already has established structures, routines, and cultures, making it more difficult for new CE ventures to penetrate the market. New circular ventures must not only compete with conventional linear models but also with a more conventional recycling ventures, with lower quality material outputs and energy solutions. (Korhonen et. al., 2018). For example, the installed capacity of incineration is a barrier for recycling in Sweden, creating a form of lock-in (Neves & Marques, 2022).
3. Theoretical framework

The chapter will introduce external enablers concept and the subsequently developed framework. The three main components of the framework will be presented, namely the characteristics, mechanisms and roles of the external enablers. Lastly, some delimitations of the framework will be mentioned.

3.1 External enablers

The concept of “External enablers” (EE) was first introduced by Davidsson (2015) as a critique to Shane and Venkataraman’s (2000) article on entrepreneurship as a field of research. Davidsson (2015) explains external enablers as “The aggregate-level circumstances—such as regulatory changes, technological breakthroughs, and demographic shifts—which may affect a variety of new venture creation attempts by several, different actors.”. External enablers are environmental changes that are of relevance to several economic actors, not just to a single venture or actor. One external enabler could thus enable a variety of endeavors by several entrepreneurial actors (Davidsson et. al., 2022).

The article by Shane and Venkataraman’s (2000) falls under what has become widely known as discovery theory, where external factors are portrayed as complete, pre-existing and actor-independent opportunities. Since then, this paradigm has been challenged by the creation theory school of thought, where opportunities are seen as created by the actor, where focus lies on learning, creative agency, and social interaction (Davidsson et. al., 2020). However, according to Davidsson et al. (2020), these two opposing sides fail to encompass the multifaceted process involved in new venture creation and thus attempts to create a strong conceptual framework to address this inadequacy, namely the external enablers framework. It combines the two viewpoints and frames new venture creation as a continuous process as well a distinctly external events that enable different actors to take different actions.

3.2 The External Enablers Framework

The external enablers concept was developed into a framework by Davidsson et. al. (2020), trying to capture the external enablement of new venture creation, expanding on the conventional definition of external impacts, which typically only mentions different types of
20 events (such as technological, regulatory, macro-economic and so on). As seen in figure 3, both the agent and context play an important role within framework. The agency of the entrepreneur and the characteristics of the context are equally taken into consideration, to fully explain the external enablement of entrepreneurial action and the creation of new ventures. In their article, Kimjeon and Davidsson (2022) shows that the EE framework already has been applied to a range of different topics including high-speed rail expansion in China (Chen et. al., 2020), the bioeconomy (Hinderer & Kuckertz, 2022), digital technologies such as 3D printing (von Briel et. al., 2018) and COVID-19 (Davidsson et. al., 2021), but also presents an agenda for future research directions, primarily calling for more research as the amount of literature on the effects of external change on venture creation remains quite small (Kimjeon & Davidsson, 2022).

![Figure 3. The External Enablers Framework (Davidsson et. al., 2020)](image)

External enablers are not well-defined empirical entities, instead the EE framework offers a toolset and language for analysis and theorizing across empirical cases. Davidsson et. al. (2022) exemplifies this with the case of veganism, where veganism itself can be viewed as an EE, e.g., for companies offering meat substitutes, but where trends of more humane treatment of animals serves as the EE for veganism. Ultimately, Davidsson et al (2022) states that the definition of what can be analyzed as EEs is a matter of researcher judgement, so long as it encompasses
distinct and external aggregate-level changes that enables new entrepreneurial ventures. The EE framework accepts environmental changes that are “natural” and “manmade” external enablers, if they occur independently of the focal venture or agent (Kimjeon & Davidsson, 2022).

The framework itself is divided into three parts, each representing the ongoing processes within the external enablers: Characteristics, Mechanisms and Roles (Shaded in grey below). For this thesis the main focus will be on identifying potential enablers and their associated mechanisms, but the other categories will be shortly introduced.

3.2.1 Characteristics

The characteristics of an external enabler describes its intrinsic properties, structure and from, on an aggregate level. Those properties do not vary from agent to agent, even if perceptions of them may vary. Davidsson et al. (2020) identifies two main characteristics, scope (contextual boundaries) and onset (initial emergence). Within scope, there can be variation in sectoral, spatial, temporal and sociodemographic scope, each with its own implications for emerging ventures’ strategic ambitions, timing and scaling choices. Sectoral scope refers to the range of affected industries and spatial scope covers the geographical areas in question whereas the temporal scope denotes the duration and timing of an external enabler. Finally, the sociodemographic scope entails the range of affected individuals and groups. (Davidsson et. al., 2020; Davidsson et. al., 2017). “The implications for timing and scaling decisions of entrepreneurs make scope a theoretically important characteristic of external enablers.” (Davidsson et. al., 2017).

The Onset of external enablers takes its shape in the form of two dimensions, suddenness and predictability, which investigates the perception or recognition of an enabler by agents of new venture creation. Not all changes happen suddenly but can instead develop in a slow and measured fashion. Enablers can thus differ depending on where they fall in the spectrum between sudden events or gradual movements as well as how predictable their presence is. Natural disasters and terrorist attacks tend to be highly unpredictable whereas business cycles, expiration of patents and demographic shifts can be predicted in advance (Davidsson et. al., 2020; Davidsson et. al., 2017).
3.2.2 Mechanisms

“The mechanisms of external enablers explicate how they can facilitate the initiation, ongoing development, and success of new business ventures” (Davidsson et. al., 2020). Where characteristics describe the form of the enabler, mechanisms detail its function and the influence it exerts on entrepreneurial actions, i.e. how an external event could influence new business ventures. Six mechanisms were initially introduced by von Briel et. al. (2018), but more has been developed for the framework in the papers by Davidsson et. al (2020) and Davidsson et. al. (2022). An example of an initial mechanisms could be compression, which reduces the amount of time necessary to perform an activity, such as new technologies that speeds up the production of a good (von Briel et. al., 2018). Davidsson et. al. (2020) goes on to add the mechanisms of legitimation – increasing the sociocultural acceptability of a venture and its offerings - and risk uncertainty reduction as important factors of new venture development. New regulatory changes could provide legitimacy and reduce risks for a venture. Table 1 summarizes all mechanisms that has developed for the framework so far, as adapted from Davidsson et. al. (2022).

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression</td>
<td>Potential for the focal venture to reduce the amount of time it requires</td>
</tr>
<tr>
<td></td>
<td>for an activity</td>
</tr>
<tr>
<td>Conservation</td>
<td>Potential for the focal venture to reduce the quantity of resources it</td>
</tr>
<tr>
<td></td>
<td>requires for an activity</td>
</tr>
<tr>
<td>Resource Access</td>
<td>The focal venture can benefit from improved access to a previously</td>
</tr>
<tr>
<td></td>
<td>existing (type of) resource.</td>
</tr>
<tr>
<td>Resource Creation</td>
<td>The focal venture can benefit from a previously non-existing (type of)</td>
</tr>
<tr>
<td></td>
<td>resource becoming available.</td>
</tr>
<tr>
<td>Resource expansion</td>
<td>The focal venture can benefit from an increase in the quantity of a</td>
</tr>
<tr>
<td></td>
<td>resource that is available in the market</td>
</tr>
<tr>
<td>Resource substitution</td>
<td>The focal venture can benefit from new possibility to replace one</td>
</tr>
<tr>
<td></td>
<td>resource with another</td>
</tr>
<tr>
<td>Supply shifting</td>
<td>The focal venture can benefit from resource providers shifting their</td>
</tr>
<tr>
<td></td>
<td>attention from other domains to theirs</td>
</tr>
<tr>
<td>Combination</td>
<td>Potential for the focal venture to couple its product or service with</td>
</tr>
<tr>
<td></td>
<td>external resources or artifacts to provide functionality</td>
</tr>
<tr>
<td>Mechanism</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Generation</td>
<td>Allowing the focal venture to create new or improved artifacts (products/services; functionality; business models)</td>
</tr>
<tr>
<td>Risk Uncertainty Reduction</td>
<td>Reduction in the perceived uncertainty pertaining to the focal type of venture, or increase in the perceived uncertainty pertaining to competitors</td>
</tr>
<tr>
<td>Legitimation</td>
<td>Increase in the legality or psychological/sociocultural acceptability of the focal type of venture, their offerings or practices, or reduction in such acceptability of competitors</td>
</tr>
<tr>
<td>Market Access</td>
<td>The focal venture can benefit from improved access to a previously existing market</td>
</tr>
<tr>
<td>Demand Creation</td>
<td>Creation of demand for the focal venture’s type of products/services where no demand previously existed</td>
</tr>
<tr>
<td>Demand Expansion</td>
<td>The focal venture can benefit from a general increase in demand at a given price and given functionality</td>
</tr>
<tr>
<td>Demand Substitution</td>
<td>Increase in demand that is due to a focal venture’s type of market offerings becoming more needed/attractive or competitors’ offerings less needed/attractive</td>
</tr>
<tr>
<td>Enclosing</td>
<td>The focal venture can benefit from improved possibility to capture the value it creates or improved loyalty of buyers</td>
</tr>
</tbody>
</table>

Table 1. Mechanisms of external enablers (Davidsson et. al., 2022)

Mechanisms are not mutually exclusive; an EE can offer different mechanisms to different ventures. Some ventures and agents can benefit from certain mechanisms while others cannot. (Davidsson et. al., 2020; 2022). Whether they can, depends on the EE, the venture and the capabilities of its human agents. “For example, even ventures fortuitously benefitting from increasing demand need to ensure they can meet the demand increase.” (Davidsson et. al., 2022).

All mechanisms have a certain level of opacity and agency-intensity. *Opacity* refers to the relative ease or difficulty to foresee the potential benefits to the new venture, sometimes it is obvious and other times it requires specialized knowledge. *Agency-intensity* describes the amount of time and resources needed to turn a potential idea into a new venture. Opaque and high intensity mechanisms are associated with higher risk, as the uncertainty is high, but could lead to high rewards due to absence of competition, and vice versa. Several mechanisms can interact to create secondary effects on venture creation. Mechanisms do not have to be socially beneficial to be beneficial to individual ventures, incumbent ventures might be threatened by a sudden change that instead allows new ventures to emerge (Davidsson et. al., 2020).
Opacity and agency-intensity is context-dependent, e.g., different regulatory frameworks or infrastructure in different countries can affect the enabling potential of certain EE, such as new technologies. They can also differ over time. Pioneers and early adopters often face high levels of opacity and/or agency-intensity in their attempts to extract enablement from an EE mechanism; late entrants can learn from the examples, routines and knowledge generated by the pioneers. As such, the opacity and agency-intensity of the enabling mechanisms tends to be reduced as time passes, as more knowledge is generated. For firms joining in the later stages, there will be stiffer competition for both resources and customers and incumbent firms are often less likely to pay attention to the enablement and more likely to consider the obstacles relating to exploiting the opportunities (von Briel et. al., 2018). As there are both advantages and disadvantages to being an early mover, the matter of optimal timing becomes strategically important (Davidsson et. al, 2022). When enough time has passed, the enabling effects of the mechanism ceases:

“When use of an EE mechanism has become industry standard, it is no longer disequilibrating and offers no competitive advantage over incumbents and rival entrants. If so, it is reasonable to say that the EE has reached the end of its temporal scope and is no longer an EE.” (Davidsson et. al., 2022)

3.2.3 Roles

The roles of external enablers show when in the venture process the influence from the enabler is applied. If mechanisms can be seen as the causes, roles can be seen as the effects of an EE (Davidsson et. al, 2022). Davidsson et. al. (2020) identifies three roles that the functions of external enablers can take in the different stages of venture development. (1) The triggering role encompasses the role external enablers play in motivating entrepreneurs to create a new venture, often by agents predicting or recognizing the potential benefits from one of the mechanisms or because of a dramatic event, such as a financial crisis, the outbreak of war or change in political leadership (Davidsson et. al., 2017).

(2) The outcome-enhancing role allows research into which mechanisms lead to a successful outcome for a venture and how they enabled that success, not focusing as much on the anticipated mechanisms as the role above. Triggering roles are always driven by anticipated mechanism effects, as an entrepreneur must be aware of a mechanism to base a venture on it, but unanticipated mechanisms can drive outcome-enhancing roles, which the entrepreneur
might become aware of later in the process or not at all (Davidsson et. al, 2022). (3) The *shaping role* takes its place somewhere between the two previous roles. It concerns the influence external enablers can have during the venture creation process (Davidsson et. al., 2020).

3.2.4 Delimitations

The EE framework’s application focuses primarily on the creation of new ventures, rather than existing ones. However, Davidsson et. al. (2022) clarifies that it can also be applied to new ventures beyond independent new venture creations, such as new ventures within existing businesses. The enablers should be distinct external changes that enable new economic ventures and start-ups, following the assumption that the disequilibrating force from the environmental change creates space for new economic activities (von Briel et. al., 2018) But in the same way as researchers seldom pay attention to “non-opportunities”, the external enablers framework studies enablement without paying attention to disablers. New ventures only come into being if they are enabled, it is difficult to study new ventures that are disabled as they do not exist (Davidsson et. al., 2022).

EEs only enable certain ventures, not all. What is perceived by certain actors as negative changes, might by associated with positive effects, such as business opportunities, for others. No environmental change is only a disabler, even if it might appear as a crisis or negatively charged event (Davidsson et. al., 2022). For example, Davidsson et al. (2021) looks at the positive and enabling effects of the COVID-19 pandemic, countering the typical research which would often look at the failure and crisis management of existing businesses.
4. Methods

This chapter will discuss the chosen data collection methods, i.e., interviews and documents, along with method of analysis and coding process. The selection of respondents will be considered along with the selection of documents. Finally, some limitations of the research method will be examined.

This thesis employs a qualitative research design to study how real estate companies implement the circular economy concept in their business models and strategies. Furthermore, it attempts to investigate how the implementation of circular business models and strategies is affected by external forces and what those external forces are, by applying the External Enablers framework (Davidsson, et. al. 2020). This methods chapter will explain and justify the research design choices and its limitations.

This is a deductive study following the interpretivist research philosophy, which means that it uses a theoretical framework to draw conclusions from the empirical data rather than vice versa (Bryman, 2016). It is an exploratory study using multiple cases to investigate the new research field of circular economy and to discover the circumstances driving the differences and similarities between these cases, with a focus on external enablers.

4.1 Data Collection

Six semi-structured interviews have been conducted with representatives for real estate actors, primally focusing on companies with a commercial property portfolio. To complement this data and provide a richer empirical base, a text analysis was conducted on relevant policies and annual reports from those same actors. This provided additional knowledge on the goals and strategies implemented by each company and strengthens the findings through triangulation (Bryman, 2016). The companies will be kept anonymous for this thesis through the process of pseudonymization.

4.1.1 Interviews

Respondents were sourced with purposive sampling, i.e., a non-probability form of sampling where participants are sampled in reference to the research topic and questions. The respondents are thus chosen for their relevance to the topic, and not out of convenience or to be generalizable.
(Bryman, 2016). This was complemented with some snowball sampling to reach more companies engaged in circular activities, based on the knowledge of the initial respondents. Companies within the real estate sector often receive a lot of student requests, thus sometimes proving difficult to reach, widening the scope and finding interested persons thus increased the likelihood of securing respondents.

Initially, respondents were sourced from two platforms on circular construction: Lokal Färdplan Malmö 2030 (LFM30), which is based in the Skåne region and focuses on applying Agenda 2030 to the construction and real estate sector, as well as the Centre for Circular Construction (CCbuild), which is a national platform for circular initiatives. The secretariat of each platform was consulted on which real estate companies would be suitable to interview regarding circular economy initiatives. Simultaneously the largest real estate companies in Malmö with a substantial commercial real estate portfolio were mapped out and contacted. These attempts yielded a few initial interviews, in which some additional recommendations for potential interviewees were given. In total, six real estate actors were interviewed.

A summary of the interviewees can be seen in Table 2. It is relevant to note that all are in some way responsible for or work with sustainability and therefore have more knowledge on the topic of circular economy, compared to an average person at the company. This was an active choice for the scope of this thesis, as they would have the best knowledge of ongoing sustainable and circular activities and external trends.

<table>
<thead>
<tr>
<th>Pseudonymized company name</th>
<th>Respondent</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha</td>
<td>Respondent 1</td>
<td>Group Sustainability Manager</td>
</tr>
<tr>
<td>Beta</td>
<td>Respondent 2</td>
<td>Project Development Manager</td>
</tr>
<tr>
<td>Gamma</td>
<td>Respondent 3</td>
<td>Sustainability Manager</td>
</tr>
<tr>
<td>Delta</td>
<td>Respondent 4</td>
<td>Sustainability Specialist</td>
</tr>
<tr>
<td>Epsilon</td>
<td>Respondent 5</td>
<td>Sustainability Manager</td>
</tr>
<tr>
<td>Zeta</td>
<td>Respondent 6</td>
<td>Sustainability Specialist</td>
</tr>
</tbody>
</table>

*Table 2. Interviewee data*

The interviews were completed via the videoconference tool Zoom and lasted between 30 minutes and an hour. They covered (1) the background of the interviewees and their role at the company, (2) the company’s knowledge, attitude, and experience with the circular economy (3)
as well as questions attempting to understand the external forces affecting the circular activities, business models and/or strategies (the complete interview guidelines in Swedish can be found in Appendix A).

4.1.2 Official documents

Annual reports, sustainability policies and other relevant sources were used to complement the interviews and provide a fuller picture. The documents were sourced from the websites of each company and therefore available in the public domain, see a summary in table 3. Table 3 also provides a key for the anonymized references made in the results chapter. Bryman (2016) suggests the application of Scotts four criteria to assess the quality of the documents: (1) Authenticity, (2) Credibility, (3) Representativeness, and (4) Meaning. The documents in this study are authentic, as they are what each company presents on their own website. Many of the documents are also mentioned by the interviewees, thus verifying their existence. The credibility is often acceptable, especially in annual reports as much both the financial and sustainability reporting is required by law. Despite this, goals, strategies, and other text can be angled to show the company in a certain light, even if it is not outright manipulated or wrong. However, for this thesis, the presented material will be taken at face value, to emphasize the perceptions of the six real estate actors. The material is representative, seeing as the companies themselves have published the documents. However, the material only represents that individual company and cannot be assumed to be true for other companies. Lastly, the meaning of the documents is clear and comprehensible to the best of the author’s ability and knowledge.

<table>
<thead>
<tr>
<th>Pseudonymized company name</th>
<th>Reviewed sources (year of publication/access)</th>
<th>Reference in text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha</td>
<td>Sustainability targets (2022)</td>
<td>Alpha 1</td>
</tr>
<tr>
<td></td>
<td>Sustainability policy (2022)</td>
<td>Alpha 2</td>
</tr>
<tr>
<td></td>
<td>Sustainability strategy (2023)</td>
<td>Alpha 3</td>
</tr>
<tr>
<td></td>
<td>About the company (2023)</td>
<td>Alpha 4</td>
</tr>
<tr>
<td></td>
<td>Annual and sustainability report 2022 (2023)</td>
<td>Alpha 5</td>
</tr>
<tr>
<td>Beta</td>
<td>Climate and environmental policy (2022)</td>
<td>Beta 1</td>
</tr>
<tr>
<td></td>
<td>About the company (2023)</td>
<td>Beta 2</td>
</tr>
<tr>
<td></td>
<td>Sustainability vision (2023)</td>
<td>Beta 3</td>
</tr>
<tr>
<td></td>
<td>Annual and sustainability report 2022 (2023)</td>
<td>Beta 4</td>
</tr>
<tr>
<td>Gamma</td>
<td>About the company 1 (2023)</td>
<td>Gamma 1</td>
</tr>
</tbody>
</table>
4.2 Data Analysis

After some initial tests using different approaches, qualitative content analysis with a deductive approach was used to analyze the data. Content analysis can be used to look for themes and meanings in the analyzed material based on a theoretical framework (Bryman, 2016). The coding of the data used a deductive approach, with a codebook developed from the literature on the circular economy as well as the theoretical framework on external enablers. Table 4 summarizes the codes used for the content analysis of the interviews and the documents. The first three categories in CE section are based on the 9R Framework (Kirchherr, 2017) and the following are based on themes emerging from the literature review. The external enablers
section was based on the External Enablers framework (Davidsson et. al., 2020), the categories were chosen according to their ability to potentially answer the research questions.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Circular economy</strong></td>
<td></td>
</tr>
<tr>
<td>Smarter product use and manufacturing</td>
<td>Refuse, rethink, reduce</td>
</tr>
<tr>
<td>Extending lifespan of product and its parts</td>
<td>Reuse, repair, refurbish, remanufacture, repurpose</td>
</tr>
<tr>
<td>Useful application of materials</td>
<td>Recycle, recover</td>
</tr>
<tr>
<td>Circular business models and strategies</td>
<td>Adjustments of traditional business models to encompass a circular strategy</td>
</tr>
<tr>
<td>Competitiveness and innovation</td>
<td>Activities relating to competitiveness and innovation</td>
</tr>
<tr>
<td>Capabilities and knowledge-building</td>
<td>Activities relating to capabilities and knowledge-building</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External enablers</strong></td>
<td></td>
</tr>
<tr>
<td>Enabler</td>
<td>Potential enabler of renovation as part of the CE.</td>
</tr>
<tr>
<td>New ventures</td>
<td>Potential new economic ventures resulting from the enabler.</td>
</tr>
<tr>
<td>Onset</td>
<td>Sudden or gradual</td>
</tr>
<tr>
<td>Scope</td>
<td>Sectoral, spatial, temporal and sociodemographic scope</td>
</tr>
<tr>
<td>Agency-intensity</td>
<td>Time and resources needed to turn a potential idea to a venture</td>
</tr>
<tr>
<td>Opacity</td>
<td>the relative ease or difficulty to foresee the potential benefits to the new venture</td>
</tr>
</tbody>
</table>

Table 4. Codebook

The coding software NVivo was used for the coding process. The process was iterative and during it, certain codes proved more significant than others. After the initial coding, the material was organized and synthesized according to the themes that emerged, the result of which is presented below.

4.3 Limitations

This master thesis faces the inherent limitations to time and scope, but the chosen research strategy has caused additional limitations. As this is a qualitative thesis, issues of representativeness and generalizability apply. However, much of the research on this topic has either been theoretical or quantitative, and by taking a qualitative approach, this thesis could produce some complementary insights on the dynamics and micro-level experiences of companies attempting more circular practices and how external events can affect those attempts.
Additionally, the sourcing of interviewees proved difficult, many did not respond to the request. This was addressed by shifting the focus to a deeper level of analysis on each participant and adding the analysis. It could also be important to note that the Circular Economy concept itself has also received some criticism from several authors (Korhonen et. al., 2018; Corvellec et. al., 2022; Skene, 2018). However, the quality of concept is outside the scope of this thesis, as it only investigates if signs of CE exist in real estate actors.

4.4 Summary

This thesis takes a qualitative approach and generates empirical material by conducting semi-structured interviews and text analysis of documents, such as annual reports and sustainability policies, to investigate the integration of the circular economy concepts in real estate actors and the effects of external events on new and existing ventures within those actors.
5. Empirical context

This chapter will provide some additional context before the results. A short description of each actor and a note on the regulatory circumstances will be given to improve the understanding of the empirical material presented in the chapter below.

5.1 Real Estate Actors

5.1.1 Alpha

Alpha is a publicly listed real estate company with one of the largest commercial property portfolios in the Nordic region, primarily based in Sweden, but with properties in Denmark and Finland as well. As of December 2022, the portfolio included 749 properties with a property value of SEK 181 billion (Alpha 2). The company values sustainability and is already the most sustainable real estate actor in the Nordics, with a goal of becoming the most sustainable real estate company in Europe. Alpha attempts to reach this goal by setting a target of reaching climate neutrality by 2030 and 23 measurable sub-targets, that are subject to yearly revisions and quarterly reporting (Alpha 3).

5.1.2 Beta

Beta is a large development and construction company, primarily focusing on developing and selling housing and commercial properties in the Nordic countries, but also in Europe and USA. However, one of their operational branches includes real estate management. Beta engages in sustainability and acknowledges the climate impact of construction but commits to the work on creating a fossil free construction sector until 2045 and aims to reach climate neutrality in the whole value chain until 2045 (Beta 2).

5.1.3 Gamma

Gamma is a family-owned real estate company, one of the largest privately owned real estate companies in Sweden (Gamma 1). The company is a part of a larger group with several other companies engaging in everything from freight to recycling and more (Gamma 3). The Gamma
company owns and manage 26,000 housings and 2,000 commercial spaces, primarily in Sweden but also in other countries (Gamma 1, 4). Social sustainability is a key focus area, and Gamma has a target of being a leader within the area. Climate change is another key area, and Gamma aim to reach climate neutrality by 2045 (Gamma 5).

5.1.4 Delta

Delta is a state-owned real estate company with a main purpose on providing the premises for many of the Swedish universities and colleges, thus ensuring spaces that are suitable for educational and research activities while generating market returns. Their market share makes them the leading landlord for higher education and one of the largest real estate companies in Sweden with a total property value of SEK 115 billion (Delta 3). The company highlights resource-efficiency and value-creating educational environments as key areas for their vision for sustainability, with a main target of reaching climate neutrality in 2035 (Delta 4).

5.1.5 Epsilon

Epsilon is one of the largest commercial real estate companies in Sweden. The company is owned by 4 of the Swedish general pension funds, which are governmental agencies. Part of their mission as such includes to ensure long-term and stable returns for these pension funds. A total of 166 office and retail properties reaching a property value of SEK 184 billion. (Epsilon 2). Epsilon highlights their role as one of the most sustainable real estate companies in the world and has a goal of reaching climate neutrality in 2030 with subgoals divided into the sustainability categories of economic, environmental, and social (Epsilon 3).

5.1.6 Zeta

Zeta is a municipal department responsible for managing properties for school, childcare, elderly care, culture, and leisure. In total, Zeta manages around 1.8 million square meters of buildings and additional 4.9 million square meters of land (Zeta 1). The department is also responsible for accelerating the transition towards renewable energy, by acquiring and building facilities for energy generation. By 2030, Zeta aims to reach climate neutrality (Zeta 2).
5.2 Regulatory Frameworks

Real estate actors are governed by several laws, rules, regulations, and guidelines, on local, national and international levels. This context affects how their businesses are managed. A recent and relevant change affecting this sphere, which will be discussed by the respondents below is the adoption of the EU Taxonomy.

5.2.1 EU Taxonomy

The EU Taxonomy (European Commission, 2023a) was introduced in 2020 as a tool for reaching the objectives of the European Green Deal and the climate and energy targets. The purpose of the taxonomy is to create a frame of reference for investors and companies in their efforts to transition their business towards more sustainable practices while protecting customers and investors from potential greenwashing. As of January 2022, technical screening criteria has been set for economic activities that make a substantial contribution to climate change mitigation and climate change adaptation. Going forward, criteria will be developed for four additional environmental objectives:

1. The sustainable use and protection of water and marine resources
2. The transition to a circular economy
3. Pollution prevention and control
4. The protection and restoration of biodiversity.

The taxonomy is a common classification system for sustainable financing and sustainable economic activities which sets out four overarching conditions that must be reached to qualify as environmentally sustainable, including making a substantial contribution to at least one environmental objective and doing no significant harm (DNSH) to any of the other five environmental objectives.
6. Results and analysis

This chapter will introduce the result of the interviews and the reviews of the annual reports, sustainability policies and other corresponding documents. The presentation of the result will be organized according to the same framework used to create the codebook, based on the research questions, previous literature on the Circular Economy and the External Enablers framework by Davidsson et. al. (2020). The first section of the chapter will present the signs of circularity and the second section will present the potential external enablers based on the empirical evidence. There, the External Enablers framework will also be applied.

6.1 Signs of Circular Economy and Renovation in the Real Estate Industry

All the companies show an understanding of the circular economy, most often mentioned in the context of sustainability as a tool for reaching goals of lower emissions. All actors have zero emission targets set somewhere between 2030 and 2045, but specific goals falling explicitly within the circular economy varied. Examples of goals and strategies mentioned in the annual reports of each actor (non-exhaustive) can be seen table 5, these examples of how circularity is implemented will be discussed in the sections below.

<table>
<thead>
<tr>
<th>Actor</th>
<th>Examples of Circularity</th>
</tr>
</thead>
</table>
| Alpha (Alpha 5)  | “Goal 2030: Reuse and renewable materials must be significant elements in all projects.”  
|                  | “During 2022, Alpha has started working in a more structured manner with circular material flows. Framework agreements have been signed with recycling consultants and targets to recycle in all projects were implemented at the end of 2022 and the follow-up shows that 22 percent of Alpha’s projects in 2022 have worked with reuse.”  
| Beta (Beta 4)    | “Reuse of building materials takes place to a varying extent, from the recycling of window frames in the interior atrium facade of a building in Malmö, to a reused frame in an upcoming project in Oslo starting in 2023.”  
|                  | “Increasing circularity is a step-by-step process that requires new ways of working and testing new solutions.”  
| Gamma (Gamma 6)  | “Goal 2026: 25% share of circular materials in all projects.”  
|                  | “Create 1,000 new sustainable homes and refurbish an equal number of existing homes per year until 2026.”  

Delta (Delta 5) | “Promote circularity and resource-efficient use of our premises.”
| “We work with CCBuild as a reuse platform and plan to introduce reuse in all our projects.”
| “Goals and specific policies are missing but shall be evaluated in 2023.”

Epsilon (Epsilon 4) | “Goal 2023: Increase the proportion of reused, renewable and recycled materials in construction projects by at least 10 percent.”
| “Goal 2030: 100% circular material use.”
| “Goal 2030: 100% circular waste management.”

Zeta (Zeta 3) | “Since 2019, the municipality has had a framework agreement for reused furniture and related services such as refurbishing and fixing furniture. The proportion of recycled furniture was for the year 2021 19 percent, which was an increase from the year before when it was 15 percent.”

Table 5. Examples of Circularity

The actors potentially circular activities primarily included energy efficiency, waste management and the reuse and recycling of existing materials and products. More alternative or disruptive policies that fundamentally challenged the business models were rarer. Respondent 4 highlights that the need for energy efficiency is well understood but that data on emissions related to materials and constructions is still lacking. On the other hand, highlighting the different perceptions of the actors, respondent 5 notes: "A lot is connected to our material use and trying to make it more circular, the long-term goal is 100 percent circularity.”

Respondent 1 and 2 emphasizes the vagueness of the circular economy concept, that no clear established definition exists within the industry. Respondent 2 from Beta explains that examples of circularity exist, but that many projects still depend on personal commitment of employees rather than organized strategies. Respondent 6 agrees that the industry still is finding ways to transition to more circular business models. Where targets for circularity do exist, vagueness persists. From Alpha for example: “Reuse and renewable materials shall be significant elements in all projects” (Alpha 1). Respondent 1 from Alpha confirms this by noting: "It is a bit non-specific, but we have started to measure it in our construction projects so that we may be able to target it then when we know more how it turns out.”. Respondent 5 concurs and notes: “We haven't decided that it has to be 25%, but now the goal is still that all projects should work with recycling in some way.”. Despite this, both respondents still claim to be ahead of the industry,
in terms of integrating the circular economy in their operations, supporting the perception that circularity is not yet integrated in the industry.

6.1.1 Useful application of materials

According to the 9R framework, this category includes activities that recycle or recover materials. This category is closest to linearity, since recycled materials often are used to create new products, such as new buildings, or for generating energy through incineration, emitting pollutants, and failing to make full use of the value of the existing material or product. Waste reduction and recycling are well implemented strategies for all actors, to address the generally low recycling rate and increase resource efficiency, especially in relation to new construction. Companies who engage in construction work, such as Beta, identify that this type of resource efficiency could be financially beneficial, as resources can generate economic value more than once. In 2022, Beta recorded that 72 percent of their waste was recycled, 8 percent was reused, 13 percent went to other forms of waste treatment and 6.8 percent to landfill, failing to reach their target set of a maximum of 5 percent (Beta 4).

Respondent 2, from Beta, notes that the company uses waste and materials from their own production lines to create new materials and furnishings, but also mentions the safety problems associated with saving materials from demolitions. The material is torn down from the buildings by machine and kept wet to avoid dust, all to ensure the safety of the workers, but destroying the material in the process. The group in which Gamma and its sister companies takes part also focuses on recycling and waste management. The group has subsidiaries who specifically target such areas (Gamma 3, 5).

The other real estate actors, who have less control over the processes that generate the most waste, i.e., the construction, instead focus on trying to minimize the waste produced by tenants or influence behaviors of contractors in their supply chains, through codes of conduct, blanket orders, and framework agreements. For example, Epsilon acknowledges that their influence over the amount of waste is limited, but that the type of waste generated, and its sorting can be controlled (Epsilon 4). Respondent 6 adds: “…the waste receivers also have a responsibility; they could have much higher costs for things that could be reused or recycled.”.
6.1.2 Extending the lifespan of a product and its parts.

Most of the strategies commonly associated with circularity, and indeed the aspects of circularity most mentioned by the respondents, fall under this category from the 9R Framework. It encompasses the reuse and repurpose of materials and products as well as the renovations and reparations of existing buildings and products. Most of the companies mention the reusage of existing materials in their strategies and documents, as an important tool to reach climate targets and to reduce waste in the real estate and construction sector. Alpha includes a definition of reusage in their annual report, “when materials or components are used in the same way as they are made to be used” (Alpha 5). This can be compared to recycling, when the used material is processed into something new. Both Gamma and Alpha identifies several potential benefits associated with the practice, both economically and ecologically, as the production and consumption of new goods and materials can be avoided (Gamma 6; Alpha 5).

6.1.2.1 Benefits and challenges of reusing products and materials

Respondent 1 reflects on the renovations for new tenants utilizing reused materials and notes its cost-effectiveness in some cases. For example, when offices and spaces can be updated using existing furniture, door frames etc., the process is simple and often cheaper than buying new. However, if more extensive work is needed, perhaps to the walls or the exterior, or a specific product is required, then reusing materials could be more expensive. Respondent 6 states that one of the challenges of circularity is that new materials are very cheap while working hours are expensive, meaning reuse, which is labor-intensive, often is more expensive currently. However, Respondent 1 conjectures that reuse will become cheaper over time.

There are examples of ambitious goals for reusage in the documents, such as Epsilon’s target of having 100% circular material use by 2030 (Epsilon 4). Beta mentions successful examples such as reused window frames in an existing building and a reused building frame in an upcoming project (Beta 4). Respondent 3 from Gamma also mentions the reusage of steel frames and beams and highlights the collaboration with their sister companies working with steel and recycling, for advice on the location and implementation of reused materials. Zeta (Zeta 4) highlight their role as public procurers and their potential to affect the market, e.g., most recently by procuring repurposed signs for the whole city, promoting a circular company over buying new. Respondents 2 and 4 also mention their roles as clients, ordering goods and
services for millions every year, and the opportunity to demand circularity and sustainable solutions from their suppliers.

However, several of the respondents identify obstacles and challenges in relation to reusage of materials and products, for example: identifying the right materials at the right time or, alternatively, finding warehousing solutions; meeting technical demands for tenants with specific operations; and ensuring cost and climate efficiency. Respondent 3 also mentions the issue of determining rents when products are reused, as nothing new is added, which normally determines new rents. Zeta has an agreement to reuse and repair furniture. However, they face difficulties adopting this in some of their operations, such as schools, due to chemical regulations and supply issues (Zeta 4). Beta highlights that the transition is an incremental process which requires a lot of trial and error (Beta 4).

6.1.2.2 Renovation as a tool for extending a building’s lifespan.

The renovation of buildings also falls under the category of expending the lifespan of products. Most of the documents mentions some sort of renovation practices, although often together with new construction, viewing them as complimentary operations. For example, Gamma mentions the target of creating 1,000 sustainable new homes and renovating an equal number of homes per year until 2026 (Gamma 6). Furthermore, Delta is repurposing an existing office building into student homes and Gamma is creating offices in an existing building. The focus in both projects have been to maximize reused materials and maintain as much existing materials as possible. (Delta 5; Gamma 6). Respondent 1 mentions the renovation of an older office building with reused furnishings, allowing rents to stay low as almost no new materials were used, noting that “Tenant adaptations in particular have the greatest potential for reuse”. However, Respondent 5 from Epsilon goes even further, in terms of circularity, and observes “we try to reduce the need to always rebuild as soon as a tenant moves”. Additionally, Respondent 5 mentions that many tenants view offices as a blank slate for repeated renovations, illustrating again that renovation is not inherently circular. Respondent 3 builds on this by commenting on attitudes within the industry “There is also a sense of pride in the fact that you have done a lot of renovations, as everything is new and done properly”. The internal and external understanding and acceptance of reusage and circularity in general is mentioned as an important aspect. Several respondents mention the communication with both employees and
customers, to increase awareness of the benefits and clarify that responsibilities towards tenants are not shirked by avoiding new products.

6.1.3 Smarter product use and manufacturing

This category contains the more substantial and potentially controversial activities associated with the circular economy: refusing, reducing, and rethinking. It can be inherently difficult for an established construction or real estate company to confront the linearity of their business model and openly adopt a strategy without growth or generation of new buildings and materials. Consequently, some actors omit such speculation and focus instead on trying to decarbonize the construction process, through the previously mentioned methods. In line with this, Respondent 6 from Zeta notes on the attitude towards CE, “There is a will, of course, but there are quite a few steps between that will and reducing one's margins, perhaps even not making a profit in a project.” However, there are some examples. Delta (Delta 5), a public company, actively promotes less new construction, instead calling for the efficient use of existing resources through their strategy called “Fyrstegsprincipen”. The strategy identifies four steps each new project or venture should follow:

1. Use existing buildings and resources.
2. Optimize existing buildings and resources (for example, by using digital tools and re-organization).
3. Small-scale renovations and upgrades of existing buildings.
4. Building new or large-scale renovations, only if the previous step cannot address the needs of the customer.

Epsilon (Epsilon 4) has a similar practice, although more tightly connected to waste. They follow the EU waste hierarchy and identifies the following steps to minimize waste:

1. Prevent waste (no unnecessary construction).
2. Increase the reuse of products and materials.
3. Recycle as much as possible.

Another example is from Gamma (Gamma 7), who emphasizes the sharing economy and encourage their customers to share resources through “sharing shelfs” and other initiatives. Some mention strategies that serve the goal of avoiding unnecessary construction, even if not explicitly identified as such. Such strategies include the optimizing and future-proofing of
buildings, to avoid or simplify future renovations, as well as promoting maintenance and new technologies for resource-efficiency. Delta (Delta 5) emphasizes an optimized design process and digital solutions for efficient use of their premises. Beta highlights early decision making, allowing for more circularity in projects in terms of improved resource efficiencies, better material choices and, in the long-term, better preparation for the dismantling of materials, which then could be reused in other projects (Beta 4).

However, even if documents often fail to mention the need to question the current linear process and the construction of new buildings, many respondents mention it. For example, Respondent 5 mentions that high inflation and interest rates can impact construction rates, which could be seen as both positive and negative for circular activities. Respondent 5 notes: “If we don't do anything, we won't develop, but the most circular thing, is perhaps not to build new buildings. It might be the case that, at least in our market, there is not a physical, actual need for new offices.” In the documents, the decline of ongoing construction projects is noted, but not as an active strategy, rather due to instabilities in the capital market and increased costs. For example, Alpha (Alpha 5) pauses new projects and certain ongoing projects, awaiting more stability.

6.1.4 Circular business models and strategies

The overarching themes to how these actors view their businesses and business models include: the ownership, provision and development of real estate in some form, with individual differences in terms of scope, ambitions, and targets. Key words from both documents and interviews seem to include longevity, stability, profitability, and sustainability, in all its three forms.

Zeta, Delta and Epsilon all have some ties to public sector whereas Gamma and Beta’s real estate branches are subsidiaries to larger groups This affects how each business is run (Gamma 5; Beta 4). Regarding the business model itself both Respondents 3 and 5 highlight the inherently circular nature of real estate management since it concerns the managing of buildings in a long-term perspective rather than the creation of short-lived product. Servicification is also noted as a viable alternative for the actors, where products can be maintained as a service rather than replaced by something new.
Each company incorporates sustainability and by extension circularity into the organization in their own way, but there is an overarching trend of making central decisions on policies (by management, CEOs, board of directors etc.), which then are carried out in each area of operation with the support of some type of sustainability-related personnel (coordinators, heads of, strategists etc.). However, Epsilon places emphasis on the integration of sustainability in all areas of operations, rather than as a separate one (Epsilon 4).

6.1.4.1 Strategies and policies

The companies’ environmental and sustainability strategies are often brief, many of the companies do not to address circularity directly, instead focusing on general visions. Most tend to describe sustainability in broad strokes, saving specific details for annual reports. Examples of such broad statements include Gamma (Gamma 7) “Our environmental goals must be at the forefront and drive development.” and Beta (Beta 1) “We develop, build and offer projects, products and services with high environmental and climate ambitions.”

Alpha is an exception to this trend as they have a separate document for their sustainability targets, thus communicating them in a clear and detailed manner (Alpha 1). Some have other additional policies, such as Delta’s energy and climate strategy, which identifies specific goals and strategies for climate and energy (Delta 2). However, none of the companies have a separate policy for circularity or its related activities.

To develop sustainability goals and targets within the annual reports seems to be common practice and circularity often is included in some way. Some actors base these goals and targets on visions created from the three facets of sustainability (ecological, social and economic). Others create their own versions, Gamma (Gamma 6) uses four categories based on the customer experiences: “The own home/workplace, the House, the Neighborhood and the City” focusing more on social sustainability than other companies. This is exemplified through their concept called “Relationsförvaltning”, which roughly translates to management through relationships. Alpha has their strategy called ”The Sustainable City 2030” including four different focus areas, “The planet, future assurance, well-being and conduct”, where circularity goals falls in under the future assurance category (Alpha 5).

Circularity is often part of these visionary strategies, but specific targets are often vague or missing. For example, Zeta and Beta do not mention any specific goals (Beta 4; Zeta 3). Delta (Delta 5) states that there are no specific goals and targets for circularity, but that is subject to
investigation under 2023. Alpha (Alpha 5), Epsilon (Epsilon 4), and Gamma (Gamma 6) all have specific targets leading up to each of their respective target year for climate neutrality (as seen in table 5). Alpha (Alpha 5) states that the circular goal in the form of reuse has been implemented during 2022, and that both goals and monitoring methods will be developed further during the upcoming years.

6.1.5 Competitiveness and innovation

In terms of innovation, most companies mention new technologies and digitalization as innovative features being explored in their businesses. Often these new technologies concern energy solutions, such as solar panels, charging infrastructure, battery technology, AI, etc., leaning more towards lower climate impacts than improved circularity. However, Delta monitors the use of their buildings with digital solutions to promote resource efficiency and Alpha uses data to improve their waste management, two clear examples of innovative technologies relating to circularity (Delta 5; Alpha 5). Furthermore, Beta also mentions digitalization in relation to construction, as an important part of the effort to increase quality and decrease emissions, focusing on the identification and scaling up of innovative solutions within energy, resource efficiency and materials (Beta 4). Further stating that decreasing their environmental impact is both a responsibility and a business opportunity. Most of the respondents also mention warehousing as a potential area for new digital solutions to pop up, as many are struggling to solve the storing issue of material to be reused.

Innovation does not only refer to technical innovation and many of the companies identify new and more circular business operations. Respondent 1 notes the importance of switching to more sustainable business models in time, giving a company head start on competitors. The companies identify different innovative activities promoting circularity within areas such as financing, collaboration, servicification, and agreements. Respondents 2 and 3 mention servification as an important next step, where property owners can buy the functions of products rather than the products themselves, thus incentivizing the suppliers to maintain the function of their products. Epsilon mentions their work as pioneers within green corporate bonds, which could be a tool for circularity, and Gamma highlights the circularity-based collaboration started between real estate companies in Gothenburg to foster innovative solutions (Epsilon 4; Gamma 6).
Alpha also mentions newly created agreements with suppliers and rental attachments that steer behaviors towards circularity and sustainability (Alpha 5). Respondent 5 from Epsilon also mentions their work with blanket orders and how to find compensation models benefitting circular rather than new materials, although stating “We have noticed that over the years with all these new conditions that we put into tenders, we do have to test the limits, but we cannot be too tough because then there is a risk that no one submits a tender”. Respondents 6 highlights the need for sharing responsibility among all actors in the real estate and construction industry through new organizational structures and business models.

6.1.6 Capabilities and knowledge-building

All actors highlight the importance of generating new knowledge and capabilities within the area of circularity, since the industry at large lacks routines and examples of best practices to guide individual companies. The respondents note several areas where competences and the level of knowledge need to be lifted: making demands for tenders; relevant laws and regulations; choosing the right material for reuse; potential warranties and standards; logistics and warehousing; using existing resources efficiently; making unused materials available to others; and reaching profitability.

Respondent 2 underlines that the investigative work currently associated with circularity is substantial but points out the easy-to-grasp nature “Making use of existing goods and materials is something that many people can easily relate to, there is something very sound to that reasoning, that you should use materials that already exist.”. Respondents 4 and 6 identify unique challenges as public entities in terms of regulations and how to make demands for tenders. Respondents 1 and 2 both highlight that new professions and routines will be essential to get everyone in the organization onboard and overcome associated challenges, but also to communicate to customers why certain choices are made and why circularity is important.

The respondents differed in their approach to overcome the challenges, some called for more knowledge whereas others claimed that the level of knowledge is sufficient, and that focus should be on getting started. Respondents 3, 4 and 5 all claim that awareness about circularity is high, and that the challenge is the mental and behavioral transition from linearity to circularity in everyday operations. As Respondent 3 states “It is very clear with the sustainability work in a large organization, that it is much more about behaviors and willingness to change and process management, rather than specific expertise in environmental topics.”
The companies identify several different ways to generate knowledge, increase capabilities and encourage behavioral changes. For example, through internal communication and trainings on important topics, Gamma (Gamma 6) mentions holding specific courses on how to repair more and Respondent 1 from Alpha mentions webinars on reusage as examples of internal knowledge dissemination. Respondent 5 places importance on the internal dissemination of strategies and collective learning. Furthermore, test projects and collaboration with others in the industry are identified as important sources of knowledge, either through platforms and networks or as the clients to suppliers and contractors. Respondent 6 notes: “Competence and collaboration with other actors, we see that as extremely important. Because if there are more of us who interpret laws and regulations in a way that enables reuse, recycling, and reduced demolition, etc., then we can feel safer in that, compared to being completely alone in making that type of interpretation.”

6.2 External enablers of the circular economy

The section above illustrates changes within the actors and the industry that indicate movement towards more circular businesses. Several of the companies mention new goals and policies that fall under the umbrella of circularity, many as new as last year or under development this year, in 2023. For example, according to respondent 2, Beta launched its real estate management branch in 2022, signaling a diversification from exclusively building new and selling, which arguably is more circular.
These mentioned examples, whether they qualify as new ventures or not, can be seen as signs of the movement towards a circular economy. The next question then becomes: what is enabling this movement? This section will discuss potential external enablers, as identified in the empirical material, and apply the External Enablers Framework (Davidsson et.al, 2020). Table 6 gives a summary, which will be further explained in the following subheadings. Three potential mechanisms will be discussed for each identified enabler, even if more that could be suitable. The characteristics and types of each enabler has been briefly identified below for context but will not be discussed further as the mechanisms are the focus of this thesis.

<table>
<thead>
<tr>
<th>Potential enablers</th>
<th>Types</th>
<th>Scope</th>
<th>Onset</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration networks and platforms</td>
<td>Socio-cultural, Technological</td>
<td>Within the industry, national level, recent</td>
<td>Slow, predictable</td>
<td>Resource substitution, Compression, Supply shifting</td>
</tr>
<tr>
<td>Climate change movement</td>
<td>Socio-cultural</td>
<td>Global, long-term</td>
<td>Slow, predictable</td>
<td>Legitimation, Demand Expansion</td>
</tr>
<tr>
<td>Recent crises</td>
<td>Macroeconomic</td>
<td>Global and regional (EU) levels, recent</td>
<td>Sudden, somewhat unpredictable</td>
<td>Demand Substitution, Conservation, Supply Shifting</td>
</tr>
<tr>
<td>External financing</td>
<td>Macroeconomic</td>
<td>Regional and national (EU) level, long-term</td>
<td>Slow, predictable</td>
<td>Resource Access, Generation, Risk Uncertainty Reduction</td>
</tr>
<tr>
<td>Regulations and policies</td>
<td>Regulatory</td>
<td>Regional and national (EU) level, both recent and long-term</td>
<td>Slow, somewhat unpredictable</td>
<td>Legitimation, Risk Uncertainty Reduction, Demand Expansion</td>
</tr>
<tr>
<td>Digitalization</td>
<td>Technological</td>
<td>Global, long-term</td>
<td>Both sudden and slow, somewhat unpredictable</td>
<td>Conservation, Demand Expansion, Compression</td>
</tr>
<tr>
<td>Urbanization</td>
<td>Demographic</td>
<td>Global, long-term</td>
<td>Slow, mostly predictable</td>
<td>Conservation, Demand Expansion, Supply shifting</td>
</tr>
</tbody>
</table>

Table 6. Application of External Enablers Framework.

6.2.1 Collaboration networks and platforms

All actors mention collaboration as an important driver for implementing circular activities such as reuse and recycling of materials. Gamma (Gamma 6) highlights the declaration of intent from real estate actors in the Gothenburg area, Delta (Delta 5) notes the climate framework for the Swedish universities, others mention LFM30 (a Malmö initiative for sustainable
construction). Beyond these local initiatives, the actors also all mention and participate in CCBuild, which is a national platform for circular construction. The respondents all mention that the main purpose of the platform is knowledge and inspiration exchange, research and pilot project coordination, and as a marketplace for reused products and materials. The platform is trying to create a unified national market and attempting to boost the supply of circular products and in turn, the demand, until a natural market can exist.

Respondent 5 reflects on the outcomes of the platform:

“So far, the best thing about CCBuild, the biggest success, is that by creating it and by all the publicity around it, we've actually made the material suppliers realize that they have to work on these issues themselves. A large-scale reuse between the real estate companies themselves, it is, after all, a direct competition against their own business idea.”

Respondent 3 agrees that the platform is a useful tool for creating an initial market, noting, however, along with respondent 4 that it requires much time and labor from each individual participant, time and labor that might not be available. As von Briel et al. (2018) notes above, early adopters often face higher opacity and agency-intensity, as they must generate new knowledge and routines. However, they could also gain high reward due to absence of competition (Davidsson et al., 2020)

6.2.1.1 Collaboration networks and platforms as enablers

These platforms can act as an enabler for the circular economy, in terms of building knowledge and spreading awareness as well as increasing the availability of reused goods and materials, simplifying the process of implementation for the whole industry. Additionally, collaborations put pressure on other actors to join in, especially suppliers, as their business models are threatened. The platforms could act as a catalyst for new ventures and intermediary companies and in turn, assist the creation a functioning market for the circular economy.

Several mechanisms could be involved in this potential enabler. For example, the marketplace could lead to compression, as it potentially minimizes the time necessary to find secondary materials suited for a project, something that otherwise takes time to scout for. Supply shifting is another relevant factor. As mentioned above, a success mentioned in relation to CCBuild is
the outreach to suppliers, encouraging them to investigate the possibilities to offer more circular materials and services, causing a shift in their supply

*Resource substitution* is another relevant mechanism. The real estate companies can substitute one resource, the new one, for another, the reused or recycled one. These identified mechanisms are examples of how the enabler could be enacting its influence, and by no means the definite or only ones. The levels of agency-intensity and opacity for collaboration platforms as enablers, they are still both quite high. Utilizing the marketplace is labor-intensive and the methods are not always obvious. Many of respondents requested increased usage of the platform, but noted that some issues, such as warehousing, is a hinderance for the participation of many actors.

### 6.2.2. Climate change awareness as a movement

Climate change is an overarching challenge facing every actor in society, including real estate actors. As awareness of the possible risks and challenges has become more mainstream, the pressure on companies and actors increases, motivating actions for more sustainability. Respondents note that a climate crisis is coming and that a critical mass of people interested in the topic is gathering within the companies, resulting in a recognition of responsibility as well as initiatives for climate neutrality. All companies mention risks relating to climate change in their annual reports, noting the potential negative consequences often in terms of physical, operational, and economic damages, and all have clear targets and goals which are reported on each year, according to existing regulations.

However, beyond obligatory reporting, companies want to meet the increasing demands from their customers. For example, both Delta and Beta notes that their clients have increasingly high demands on the delivery of flexible and sustainable offices and premises (Delta 5; Beta 4). Epsilon and Respondent 1 highlights that more of their customers are demanding more sustainable buildings and green rental agreements, as they realize the climate impact of their offices (Epsilon 4). As such there could be a competitive advantage to the companies who position themselves as sustainable. Respondent 2 agrees to this, noting that for newer generations of workers, sustainability is becoming a hygiene factor. Epsilon goes so far as to say that questions of sustainability are critical for business and a driver of investments(Epsilon 4). However, they also note that their new modern and sustainable offices are more attractive
on the market compared to older buildings, which could be interpreted as disincentivizing for small-scale renovations of older buildings.

6.2.2.1 Climate change awareness as an enabler

As the awareness of climate change spreads and demands from customers, employees and competitors increase, companies could be more likely to introduce circular activities in their attempt to reach climate neutrality. This leads us to the first possible mechanism, legitimization. In this case, actors engage in circular economy activities to gain legitimacy in the eyes of their stakeholders.

The interest in sustainability could also lead to demand expansion, where the demand for circularity and its related activities increases as more companies and people want to decrease their emissions and waste generation. If more actors engage in circular activities, due to popular demand, the perceived risks and uncertainties around the circular economy decreases, as more methods are tested, and problems are solved. Many of the respondents mention that there is a perception that circular activities could be difficult or risky to achieve. If the capabilities and knowledge within the industry is developed, this perception might decrease.

Regarding agency-intensity and opacity, levels will remain similar for most potential enablers, as the implementation of new circular activities still are faced with the challenges of labor-intensity, lack of routines and lack of knowledge. However, some of the respondents do mention that not building or renovating at all is the most circular, which is technically very simple and does not require any time or resources. On the other hand, it does still require behavioral and business model shifts, which can be equally difficult, and unrealistic in a short-term perspective, but not impossible in the long-term.

6.2.3. Recent crises and uncertainties

No annual reports failed to mention the recent unstable period and the many crises that has characterized the last few years. Zeta and Epsilon highlight the impacts on both Swedish households and construction and real estate sector, causing strained financial situations and
diminished purchasing power (Zeta 3; Epsilon 4). Prices on materials had already risen during the pandemic, when long delivery times also became an issue, disturbing global supply chains and causing pervasive uncertainties in the construction and real estate sector. These uncertainties were then exacerbated by high energy prices. Beta (Beta 4), Alpha (Alpha 5) and Epsilon (Epsilon 4) note that the construction and real estate sector is energy intensive and that results dependent on the prices of energy.

The respondents identify both positive and negative consequences of the unstable circumstances, in relation to the implementation of circular activities. The pandemic itself left daily operations of most actors unscathed, with exception for Beta as a contractor, to which, according to Respondent 2, the pandemic caused substantial absences in construction projects, causing both delays and increased costs. The energy prices also did not affect the actors’ work with circularity, as energy efficiency measures was already well implemented. If anything, the higher energy prices highlight the benefits further, through the savings made. However, both two crises, in combination with the high inflation and interest rates, has affected the prices and delivery times of materials, which seems to be the main topic of interest for the actors, as it affects how they build and plan.

Almost all respondents agree that the high prices and long delivery times has acted as an eye opener, and as such, a driver for the circular economy. The high prices level out the cost differences between secondary materials and new materials, previously much cheaper than the labor-intensive reused and recycled materials. High prices also encourage creativity and new strategies focusing more on existing properties and materials, i.e., a more resource-effective mindset. Moreover, the situation has illustrated dependencies within the supply chains on international material deliveries, that can get interrupted and cause delays in projects.

However, the respondents also acknowledged potential negative consequences for circularity. With less projects and operations, there are less opportunities for testing new ways of working and generating new knowledge. A recession lowers margins for additional costs in relation to circular activities and might force priorities towards financial stability and high occupancy rates at the expense of circularity. Respondent 6 points out the importance of not romanticizing crises and that a well-functioning economy is necessary for meeting the needs of society. Respondent 1 also reflects that these crises are mainly negative or have little effect at all on their business.

Alpha notes the instabilities and high prices have decreased the amount of existing and new projects until both the capital market and costs are more stable (Alpha 5). However, they also
clarify that demand for renting commercial properties and offices has remained stable despite the circumstances. Delta also evaluates the situation as increasingly risk-filled, but notes that a circular transition and efficient use of resources can protect against sudden increases in material costs (Delta 5). Respondent 2 notes that the construction and real estate sector have a long-term perspective and are well practiced in keeping their heading during short-term crises, and that as such, the aim for sustainability remains untouched even in this situation.

But despite this, the annual reports mention the crises mostly in negative terms, not focusing on any potential possibilities. Davidsson et. al. (2020) highlights that incumbent ventures tend feel threatened by sudden shocks. However, one exception is Epsilon, who notes that an unstable market can offer possibilities for long-term investors with stable financial prerequisites, as they can start projects and acquire properties when others cannot (Epsilon 4). Respondents 2 and 6 adds to this by noting that actors such as architects, contractors and sub-contractors might specialize more towards circularity in a recession to gain a competitive advantage.

6.2.3.1 Recent crises as enablers

This topic could be both seen as an enabler and disabler, as identified by the respondents above. However, for the purpose of this essay, the focus will be placed on the possible enabling forces associated with the recent turbulences. Strategies for circularity, which might previously have been overlooked or not been economically viable, suddenly appear as logical alternatives. Thus, as the prices for new materials rise, the secondary materials become more attractive, which could be argued as the demand substitution mechanism. Demand for virgin materials is substituted with demand for reused materials. Further relevant mechanisms could be conservation and supply shifting. As prices increase, due to external shocks and economic instabilities, frugality and fewer extravagant projects benefits circularity, and the focus naturally shifts to the conservation of existing resources and to suppliers of secondary materials. These crises and instabilities are often hard to predict and prepare for, thus the opacity is high, but on the other hand, less labor from the individual companies is needed to benefit from this enabler, which means that the agency-intensity is lower.
6.2.4 External financing and pilot projects

Another aspect mentioned as an enabler of the actor’s work with circularity is external financing, in the form green bonds, project financing, pilot projects, research projects and so on. Epsilon (Epsilon 4) notes: “The real estate industry is a capital-intensive industry, and it is important to secure access to borrowed capital.”. Respondents from both Zeta, a public entity, and private companies such as Epsilon and Beta, highlight the importance of green bonds for the development of sustainable projects. However, as mentioned above, the financial markets are affected by the current instabilities and high interest rates. A recession is predicted for 2023 and investments, capital liquidity and bonds are all affected. Both Alpha (Alpha 5) and Epsilon (Epsilon 4) notes the risks of more expensive or unavailable financing through bonds or loans. Beyond that, however, respondents 1, 2, and 6 mention project financing for pilot projects as an enabler for circularity, whether through internal funds, national grants or EU funding.

External financing, through bonds or different forms of project funding, allow companies to test things with greater flexibility and less risks involved. In some cases, external funding might be the difference maker for the involvement of any type of sustainability. Actors need access to capital to be able to test new things, especially in the case of circular activities. Circular materials could be more costly, due to labor intensity and the current relative scarceness of compared to new ones. However, as mentioned above, a more frugal situation could also lead to less construction overall, which might benefit circularity more. But if external funding is the difference between some recycled or reused material or none at all in a new project, then it can be argued as an enabler for a more circular economy.

6.2.4.1 External financing as an enabler

Through increased financing from external sources, companies can access more circular materials and generate new solutions by testing and developing them in projects, and as such both resource access and generation could arguably be seen as potential mechanisms for this enabler. Moreover, increased financing could also enable through risk uncertainty reduction, as less financial responsibility is put solely on the immediate success of the circular activities and on the company’s own economic resources, thus decreasing the risk perceived by the company. Both the opacity and the energy-intensity could be argued to be on higher side, as such external financing often is associated with heavy administrative burdens.
6.2.5 Regulations and policies

For better or for worse, real estate actors are governed by rules, guidelines, regulations and policies, at local, national and international levels. Some of these are voluntary, to indicate an interest and dedication to certain topics, and others are not, established to ensure a minimum level of quality and safety. Epsilon highlights that the whole area of sustainability lacks definitions and that related rules and regulations often change, demanding constant attention from companies (Epsilon 4). Most of the actors mention the EU Taxonomy as an example of such changes, as it has been implemented recently (during 2022). As Delta notes, the purpose of the regulation is to define and regulate investments for sustainability (Delta 4).

Both Epsilon and Zeta mention that the taxonomy does not cover them, the first for having less than 500 employees and the second for being a public entity, but that they will follow it closely since many of their stakeholders are affected (Epsilon 4; Respondent 6). Some of the respondents identify regulations, such as the taxonomy, as positive guidelines for sustainable investments and in turn a possible driver for circularity. Although, Respondent 3 notes that the Taxonomy is not the primary one driver. Respondent 5 approves of the six focus areas, especially the upcoming one on circularity and even calls for more EU regulation, to mitigate greenwashing and encourage real change. However, most of the respondents agree that the Taxonomy regulation in its current form is somewhat confusing and vague, lacking guidance on interpretation in the Swedish context.

The taxonomy is far from the only initiative to govern and monitor sustainability for real estate companies. Each annual report covers a plethora of different ones, the most commonly appearing have been summarized in table 6 to give an overview of the complexity of current sustainability regulations. Respondent 4 notes that this multitude of rules, regulations, and initiatives, could increase the complexity and make it difficult for actors to do the right thing.

Several respondents call for changes in both Swedish and international laws and regulations, as many of them are not adapted to the circular economy and instead actively hinder it. For example, mentioning that building permits requiring specific details in advance make it difficult to account for the spontaneous nature of the circular economy and new building regulations that complicate a cost-effective renovation of office into homes.
<table>
<thead>
<tr>
<th><strong>The Work Environment Act</strong></th>
<th><strong>UN Sustainable Development Goals</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boverket’s Building Regulations</strong></td>
<td><strong>UN Convention on the Rights of the Child</strong></td>
</tr>
<tr>
<td><strong>The Annual Accounts Act</strong></td>
<td><strong>Global Reporting Initiative (GRI) Standards</strong></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th><strong>The Swedish Companies Act</strong></th>
<th><strong>Taskforce on climate related risk disclosures (TCFD)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OECD Guidelines for Multinational Companies</strong></td>
<td><strong>Sustainability certifications - Miljöbyggnad, BREEAM, LEED, Noll CO2, etc.</strong></td>
</tr>
<tr>
<td><strong>ISO 14001 and ISO 45001</strong></td>
<td><strong>UN Global Compact</strong></td>
</tr>
<tr>
<td><strong>EU Taxonomy Regulation</strong></td>
<td><strong>Fossilfritt Sverige – Roadmap for climate neutrality</strong></td>
</tr>
<tr>
<td><strong>Science Based Target initiative (SBTi)</strong></td>
<td><strong>Greenhouse gas protocol (Scope 1, 2 and 3)</strong></td>
</tr>
</tbody>
</table>

*Table 7. Summary of regulatory, legislative, and guiding frameworks*

### 6.2.5.1 Regulations as enablers

Promoting the EU Taxonomy and similar regulations, while removing obstacles in existing laws, could potentially be a significant enabler for future circular ventures (its current disabling forces will not be discussed). The EU Taxonomy, while somewhat confusing, is already causing large companies to pay attention and prepare for the upcoming areas of interest, of which the circular economy is one. Legal and regulatory frameworks could enable the circular economy through *legitimation* and *risk uncertainty reduction*, by clarifying the definition of and activities expected within a circular economy, while imposing minimum standards. Actors must comply to preserve their legitimacy in the eyes of their customers and the industry at large. Minimum standards could serve to minimize the risks associated with circularity and clarify expectations within a supply chain. When more companies must implement circular activities, risks are also potentially further lowered as more knowledge is generated. As the supply increase, so could the demand, when awareness is generated through the legal and regulatory frameworks for the circular economy. Therefore, the *demand expansion* mechanism could also be relevant. The opacity and agency-intensity appears high, as respondents mention confusion and increased labor in relation to regulations and frameworks, even potentially beneficial ones.
6.2.6 Digitalization

Digitalization is an ongoing trend fundamentally changing people’s behavioral patterns, affecting labor practices, communication methods and the life at home. Respondent 2 highlights that leaps in technology happen all the time and companies must seek them out. Gamma (Gamma 6) and Epsilon (Epsilon 4) notes the importance of how technology is affecting our daily lives and therefore our needs, thus offering up opportunities for new techniques and business models to take the stage. Technological improvements encompass everything from AI, data management and servicification to online shopping and hybrid workplaces. The latter two both affecting the rental markets for offices and stores, not necessarily decreasing demand for space, but potentially shifting it. From physical stores to increased warehouse spaces, or less offices to more housing. However, Alpha (Alpha 5) argues that the importance of the office and its services is more important than ever, but that offices must adapt to a need for flexibility and alternative solutions such as co-working.

6.2.5.1 Digitalization as an enabler

This trend could lead to more renovations, which are not necessarily circular when carried out without need, but it could also lessen the demand for new buildings, as supply is created through other means, for example by optimizing the use of what already exists. As such, the digitalization trend could act as enabler through conservation, by assisting the use of resources as efficiently as possible. Digitalization could also encompass the aforementioned digital collaboration platforms and both spread knowledge and potential resources, thus acting as the previously mentioned mechanisms of demand expansion and compression, by lowering the amount of labor needed for circular activities and spreading awareness to potential participants. The opacity and agency-intensity are potentially lower, as technology and digitalization often simplifies operations and increases access to data and knowledge.

6.2.7 Urbanization

Beta (Beta 4) identifies the urbanization trend and reformation of cities as a possible driver for investment in affordable housing. The changing work patterns and increasing online shopping could be altering the way people interact with the urban context and might in turn necessitate the
transformation of offices and other commercial spaces, perhaps into housing, warehouses, or co-working spaces. For example, Respondent 5 notes that the actual need for new offices is very low. Regardless of how spaces could transform, such a transformation would be associated with the renovation and the repurpose of existing structures, which could be considered as a part of the circular economy. However, this is highly conditional, as the urbanization trend could just as easily be used as a motivation to build more new buildings instead of renovating old buildings in a circular way.

6.2.5.1 Urbanization as an enabler

If we presume a best-case scenario where increased urban populations are coupled with climate change awareness and high material prices, this could lead to an increased demand for minimally renovated buildings with reused materials. In this case, urbanization could be argued as a driver for circularity. A potentially relevant mechanism could then be conservation, as there in an increased need for using existing buildings and spaces effectively. A similar argument can be made for both supply shifting and demand expansion, where both customers and companies in the supply chain could start to ask for better use of buildings in the cities, as demand for affordable housing grows.
7. Discussion

This section will review the results and analysis chapters within the context of the four research questions, attempting to answer them and draw some final conclusions. The discussion will not be generalizable to all other companies and industries, but it gives insight into the status of these real estate actors and their sector, in terms of circularity. In order to investigate the possible enablers of the circular economy, the presence of circular initiatives within the chosen companies had to be established. Therefore, the first research question was chosen to set the stage for the following questions.

7.1 To what extent are there signs of circularity, focusing especially on renovation, within commercial real estate companies?

Based on the perceptions of the companies, as represented by the documents and interviews, there are many signs of circularity, there were examples mentioned that fit in to all categories of circularity identified from the literature: Goals and targets of increasing reused materials and decreasing waste both within the daily operations and during construction; overarching strategies for circularity such as Delta’s “Fyrgstegsprincip” where avoidance of new construction is the first course of action in all projects; new models for incentives, rental agreements, and codes of conduct to impact the whole supply chain; and more. However, some goals and policies were vague, unspecified or missing. The vagueness could be a result of novelty of the concept itself and the recent implementation of the observed circular activities. The respondents also associate the circular economy with several obstacles, meaning the lack of precision possibly also relates to a lack of knowledge and habits.

While there are clear examples falling under the chosen definition of circularity for this thesis, an incongruity has emerged throughout the essay, which can be exemplified both by looking at renovation and reusing materials for construction. Both can be claimed as circular and are being so by the companies. Even if promises are made to only renovate, which is arguably a circular activity, it immediately becomes less circular if renovations are implemented every year and with new materials. Even if recycled and reused materials are used, doing nothing is more circular. As such, it becomes clear that circularity is a spectrum and a matter of judgement. When is something necessary to build or renovate and when is it not? Depending on how the
concept defined and used, it can mean different things for different actors. If one company uses some recycled materials and another company says no to an upcoming project, both could technically be circular. Already, the respondents focus on a few different areas under the scope of the circular economy, and even if they do not claim to be circular yet, they are trying to become more so, in some ways at least. Some actors were more willing than others to discuss the option of doing nothing, potentially depending on their overall strategy and business model. There seems to be a difference in the public versus private actors, they operate in different ways and have slightly different end results in mind, especially regarding profit. Moreover, some companies prioritize growth and some longevity.

Some have other branches, such as Beta’s construction branch, it would be difficult for them to immediately stop building. The establishment of a real estate management branch could however indicate that they are preparing for different trends in the future. But in general, the real estate and construction industry has been viewed as conservative, where changes happen slowly, and innovations take time to permeate. Most of the respondents still mention some new projects, even if they are aware of the climate benefits of refusing new construction. New construction might be argued for in terms of responding to a need, especially for housing, as populations grow, but as mentioned above, that need might simply be due to a misdistribution of tenants and types of spaces. Also, as needs for offices and physical stores change, so must the real estate supply, which could lead to an increase in renovations. Renovations as an alternative to building new is more circular, but renovation without careful consideration is still linear as it consumes new materials, especially if those materials are not reused.

Many of the companies mentioned the challenges associated with switching more circular building materials, or, in External enablers terms, the opacity and agency intensity of engaging in more circular modes of operation is high. It is seen as both difficult and labor intense. But that again sidesteps the most circular thing to do, which is nothing. Technically, doing nothing is very simple and requires very little new knowledge or information. It does, however, require a big change in behavior and priorities which can be equally difficult to achieve for a company in a linear system. Therefore, the reality probably lies somewhere in between linearity and true circularity. One can see the steps of identified in the 9R Framework, from recycle to refuse, as a ladder to achieve true circularity. Even one step towards a slightly less linear business model, is a step in the right direction, both to achieve the goals identified and to address climate change
The circular economy can thus be an important tool for the actors to start the journey towards sustainability, no matter how they choose to apply it.

7.2 What are the potential external enablers of new and existing circular business ventures within the real estate industry?

As identified in the chapter above, several potential external enablers exist for the steps taken towards circularity by the companies, some are more likely to affect than others, and they can enact their influence through several mechanisms. Reality is complex, and it is likely that both the author and the respondents have failed to account for every possible event affecting a transition towards the circular economy. The actors identify certain familiar areas but might not see everything from their perspectives within the industry. However, as mentioned above, the scope of this thesis is what the actors themselves identify, and as such, the actors have identified potential enablers in the form of collaboration platforms and networks, regulations and policies, recent crises and instabilities, et cetera. Many of these enablers were potential disablers as well, both for the transformation of existing ventures and for the creation of new ones, such as regulations obstructing the use of secondary materials or recent crises reducing the opportunities to test new things. The removal of these obstacles could potentially act as future enablers.

Nussholtz and Milios (2017) recommends as systems thinking approach when considering circular business models and strategies, as such, it is also possible that the actors, in their work towards being more circular, also act as enablers for circularity. Companies place demands on their supply chains, educate customers and both collaborate and compete with their fellow real estate companies in the market. They do this to gain legitimacy and a competitive advantage, as more as more customers ask for more sustainability. By renovating more, using more reused and recycled goods, creating a visible demand, and increasing awareness through collaboration networks and so on, the actors are also a part of creating a potential market, which will only grow as more companies and customers start to join in. This market could in turn both enable established companies to rethink their business models, such as the material suppliers, or completely new ventures and solutions with already circular business models from the start. This will in turn allow the real estate actors to become even more circular, as they have more and better offers and suppliers to choose from. Many of the respondents stated that such start-ups were already cropping up. In consequence, the enablement is happening from many
directions at once, in a sort of eco system. Figure 4 attempts to visualize these potential relationships.

![Figure 4. Enabling influences on the real estate and construction industry.](image)

The outer circle encapsulates the identified external enablers and illustrates their influence on the real estate and construction industry, represented by the large rectangle. The position of each potential enabler is not definitive, but rather an attempt to encompass the top-down or bottom-up origin of the enabler. The ones on the side are decisions made intentionally in some capacity and the top and bottom ones are more uncontrollable trends, where the top ones have more of a macro perspective and the bottom ones a micro perspective, within this essay. However, these enablers are most likely enacting forces in many ways, on all the actors as well as each other, such as climate change awareness leading to new regulations and so on, but this is a way to present the results of this thesis illustratively. The modelled supply chain and different actors identified are also simplified to give an overlook of how influence between actors in the industry, in terms of enablement for the circular economy, could look.
7.3 How do crises impact new and existing circular business ventures within existing real estate companies?

Regarding the influence of the recent crises and external shocks, the respondents covered a broad range of answers. Some claimed not to be particularly impacted, because of their size, as national or even international business, and preparedness, either by already working with the impacted areas (e.g., energy efficiency and thus being prepared for the energy crisis) or by having an inherent long-term business model and perspective as real estate owners. Because of this long-term planning, the industry is used to crises and knows how to navigate them.

Others acknowledged there had been a large or moderate impact, for example by high absences during the pandemic or by the high material prices due to the macro-economic instabilities. All companies acknowledged how the crises had caused high prices and less access to liquidity but listed both potential positive and negative effects. On the one hand, the crises and following high prices has increased attention on the benefits of using secondary materials, as they become more competitive, and shifted focus towards managing existing resources rather than starting new projects.

On the other hand, without financing and active projects, no new projects and development for sustainability and circularity can be implemented. While doing nothing is good in terms of circularity, companies might just continue with business-as-usual once the economy is stable and out of the recession again. Just because nothing is happening right now does not necessarily mean an active choice towards less construction has been made. As such, it might be better that companies and actors are able to develop and test new solutions suitable for them and their circular transition.

In general, the respondents did not mention seeing many opportunities in relation to the crises. As Davidsson et. al., 2020 explains, opaque and high agency-intensity situations, such as trying to use as sudden crises for the transition towards circularity, is associated with high risks. Incumbent ventures, such as the respondents, might feel threatened and fail to act which allows new ventures to emerge.
7.4 Which resources and capabilities are needed to implement circular business models in existing firms?

The last question encompasses the agent characteristics side of the External Enablers’ Framework, i.e., which skills and knowledge the actors must develop to exploit the opportunities offered by the potential enablers. The actors identified several resources and capabilities necessary for the continual implementation and future scaling up of their circular activities. In general, as identified above, the respondents noted quite high levels of agency-intensity and some opacity, seeing as the implementation of circularity is not yet mainstream or well explored. Resources, in form of work hours and funding, are still needed to establish the necessary routines and standard procedures. Actors also need to know when to apply which strategy, find the right suppliers, or the right materials within their own company. This demands the right knowledge and skills from the employees to be able to make such judgement calls.

Some of the respondents identified a need to raise the general level of knowledge and awareness about circularity throughout the whole organization. Others claimed that the knowledge is in place, and that it is a matter of not letting the obstacles impede the process and instead simply starting, in a learning-by-doing approach. They also called for more companies to get engaged to enable collective learning. Early adopters gain an advantage over later entrants since they already have the right resources and capabilities in place when demand increases.

Several respondents mentioned that the real estate management business model is suitable for circularity, as it in its most simple form concerns the maintenance and leasing of existing buildings, not in itself calling for any new construction. However, as demands for different spaces fluctuate and different parts of buildings reaches their end-of-life, property owners might feel the need to update or renovate. Either way, the possibility of reaching some form of circularity is available and might depend more on motivation and prevailing attitudes rather than technical difficulties. The creation of incentives, motivation, and willingness to act both for internal and external stakeholders, from employees to everyone in the supply chain, is identified by the actors as an important task and skill to be developed. This might be easier to do if you have greater control over more parts of your supply chain. Some of the companies are part of larger groups and have possibilities for in-house production, such as Beta and Gamma. Having in-house knowledge and capabilities could also simplify the process of engaging in
more circular operations. Gamma, for example, have their sister company, which already possesses knowledge on how to work with recycling.

Larger companies also potentially have more products in-house that could be reused with zero costs, even if larger geographic distribution could affect this opportunity. Smaller actors who lack these types of capabilities within their organizations, must develop new collaborations, operations or professional roles that can enable their transition to more circular material use. However, the same is probably true for larger companies and groups, as they still face many of the same challenges as small actors, even if they might be somewhat better equipped to handle it, with more resources and capabilities in general. However, smaller companies might be more agile and face less internal resistance, as the operations are more small-scale, and employees are closer knit. Taking the most circular path, i.e., doing nothing new at all, might be likelier for them. Smaller actors might not be in invested into a path dependency or have investors to answer to in the same way as larger, multinational companies often do.
9. Conclusion

This thesis has explored the Circular Economy and how it has been implemented in the real estate industry, focusing especially on the role of renovation as part of circularity. Due to climate change and its related challenges, the circular economy has emerged as a tool for addressing the linearity of the current economic system, which produces enormous quantities of waste and emissions. However, the concept of the circular economy remains undefined, and little is known of its implementation in practice. Furthermore, how recent crises and instabilities affect that implementation. This thesis adds to this topic by interviewing and investigating the documents of six Swedish real estate actors to find out if there are signs of the circular economy and how they have emerged, by using the External Enablers Framework.

The results indicate that there are signs of circularity within the actors. In their goals, strategies and overall activities. Due to the recent nature of both the concept and their integration of it, the circular targets and activities still are somewhat vague and on a smaller scale, however most of the actors predict that circularity only will increase as the idea matures within the industry and their organizations. The overall knowledge level still needs to be lifted and new professional roles, agreements, incentives, and supply chains of secondary materials are needed.

Several different external forces potentially impact the process of implementing circular activities in existing ventures. The respondents identify potential enablers in the form of collaboration networks such as CCBuild, climate change awareness, the recent crises and instabilities, and more. However, during the analysis of the empirical material, it became clear that the respondents also applied forces of enablement on the industry around them, by communicating with customers, competing and collaborating with other real estate companies, by putting demands on their suppliers and contractors, and by testing new solutions for circularity. All this could enable both new and existing actors to shift towards more circular business model, which in turn expands the market and enables more circularity.

There are many potentials for future research within this area, as it is still novel and unexplored. For example, more research in general of how the circular economy is developing in practice or investigating start-ups within the real estate industry to get closer to the true process of enablement. Also, as the current crises are further behind us, more can be said on their effect.
on the circular economy. A more data-driven investigation of their effect on circular ventures would be interesting.

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Appendix I – Interview guide

**Titel:** External enablers in the circular economy: A study of commercial real estate companies engaging in renovation.

**Namn:** Cajsa Andersson

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**Bakgrund:**

cirkulära verksamheter? Jag ämnar genomföra ett antal intervjuer med representanter för företag som verkar inom den cirkulära ekonomin för att ta reda på detta.

**Intervjufrågor:**

1. Beskriv dig själv och vad du arbetar med.
   a. Titel?
   b. Vad ingår i dina arbetsuppgifter?
   c. Tidigare erfarenhet?

2. Hur arbetar ni med den cirkulära ekonomin (CE)?
   a. Vad innebär cirkularitet och CE för er?
   b. Varför är den cirkulära ekonomin viktig för er?
   c. Vilket är ert bästa exempel på cirkulära aktiviteter?
   d. Är ni marknadsledande på något område av den cirkulära ekonomin?
   e. Hur ser det strategiska respektive det praktiska arbetet med CE ut?

3. Hur arbetar ni specifikt med renoveringar?
   a. Finns det strategier eller mål?

4. Vad upplever ni är de största utmaningarna och riskerna associerade med CE?
   a. I stort?
   b. I specifika projekt?
   c. I renoveringar?

5. Vad ställer arbetet med CE för krav på er som organisation?
   a. Gällande kompetens och kunskap?
   b. Gällande styrning och organisation?
   c. Kräver det en annan form av styrning?
   d. Är cirkularitet en integrerad del av er nuvarande affärsmodell?

6. Utifrån externa händelser de senaste åren, t.ex. energikrisen, hur påverkas arbetet med cirkularitet för er del?
   a. Motor eller hinder?
b. Hur påverkar ert arbete med CE företagets resiliens/motståndskraft – förmåga att klara av förändringar/kriser och sedan fortsätta utvecklas?
c. Vad ser ni för potentiella möjligheter?
   i. Internt?
   ii. Industrin i stort?
   iii. För den cirkulära ekonomin?

7. Vad behöver ni för att lyckas med era cirkulära aktiviteter?
   a. Internt?
   b. Av andra företag?
   c. Gällande regelverk och myndigheter?
   d. Certifieringar och standarder? Motor eller hinder?
   e. Från kunder?

8. Hur påverkar lagar och regleringar, t.ex. EU:s taxonomi, ert arbete med cirkularitet?

9. Vad innefattar ert arbete med cirkulära nätverk/plattformar såsom LFM 30/CCBuild?
   a. Varför har ni valt att delta i ett sådant samarbete?
   b. Vilka möjligheter och risker ser ni med ert deltagande?

10. Vet du någon annan jag kan intervjua som arbetar med cirkularitet och/eller renovering?
    a. Hos er?
    b. Någon annanstans?