Municipal Construction Strategies

– The promotion of wooden multi-storey construction

Kommunala byggstrategier – Främjandet av flervåningshus i trä

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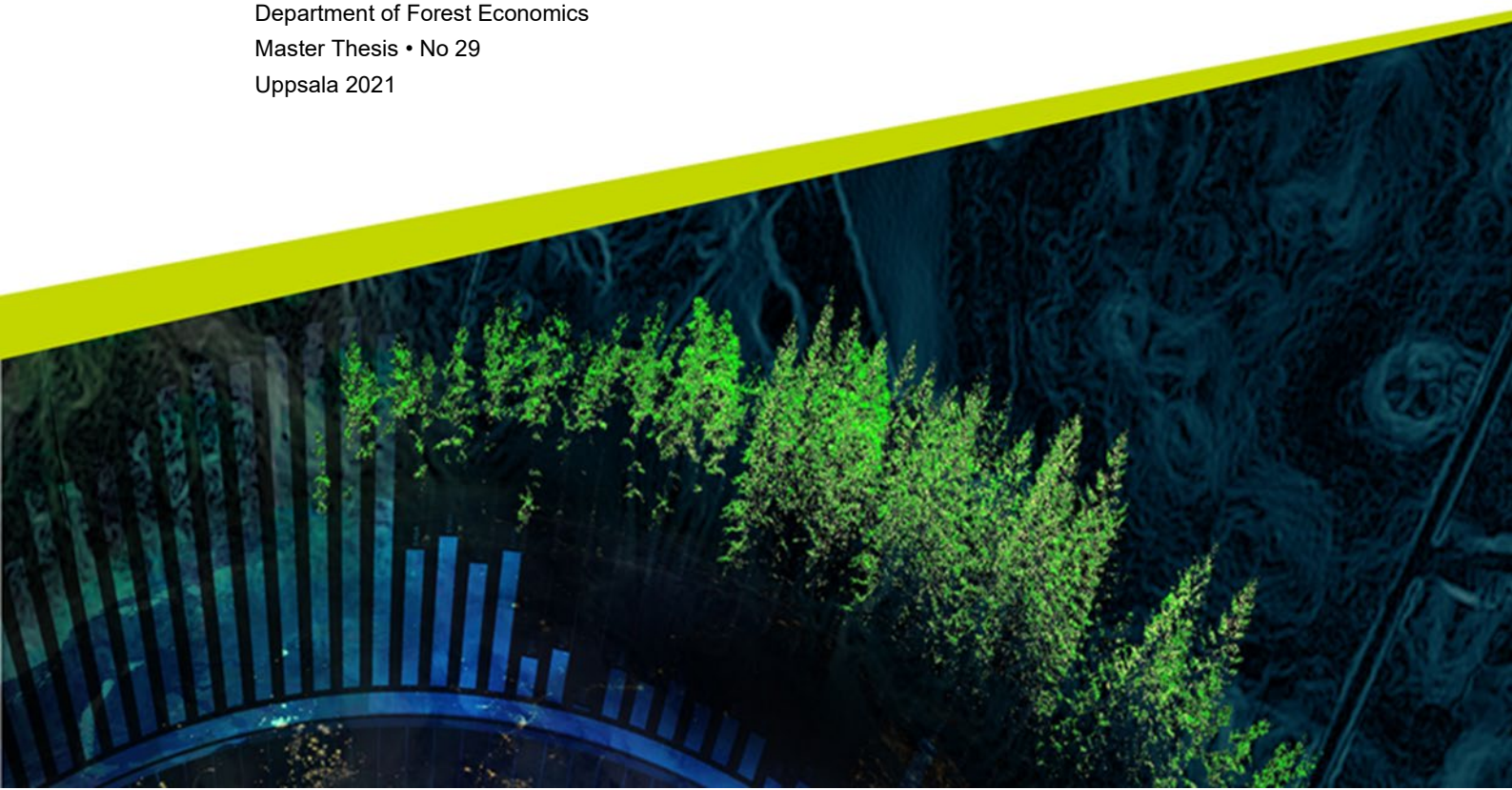

Municipal Construction Strategies – The promotion of wooden multi-storey construction

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Summary

In Sweden, the construction sector accounts for about 21 percent of the total greenhouse gas emissions. One way of reducing these emissions is to increase the amount of wood in multi-storey houses that are being built. About 90 percent of the small houses in Sweden are built in wood, while only 10 percent of multi-storey buildings are built in wood. One reason for this is that wooden multi-storey buildings were until the 1990's not allowed to be built in more than two floors because of the risk of fires. The new Construction Products Directive has made this possible, but the development has not accelerated at the desired pace. Since municipalities have the legal and democratic mandate to regulate the built environment, they have an important role supporting the development toward sustainable construction regulations and processes.

Based on the important role of municipalities in this transition, this study aims to explain how municipalities can enable a positive market development for wooden multi-storey construction. The ambition was to identify activities that could contribute to structural changes within the industry into more sustainable. To do this, the study addressed the research question of how municipalities can enable a positive market development for wooden multi-storey construction. The study has been carried out as a multiple-case study of public documents published by four Swedish municipalities that are seen as entrepreneurs within the industry. The analysis was subsequently carried out as a thematic analysis to identify, analyze, and report patterns within data.

Based on a neo-institutional framework, the study has identified three particular activities that can enable a positive market development, which are; *leveraging of resources, navigating between different interests, and use of municipal instruments.* First, the study shows evidence on how the municipalities as entrepreneurs have created a new institutional setting where different sets of institutions such as the academia and the industry have been tied together. The leverage of available resources in the community have enabled increased efficiency in the field of wooden multi-storey construction. Furthermore, these sets of institutions have created new networks that provide the market with knowledge that challenge existing practices. Second, selective interconnection was seen as successful for enabling a positive market development. The concept includes navigating between different stakeholders and the objectives of those, which in this case includes demonstrating examples of climate friendly and cost-efficient construction. The third identified activity was the use of municipal instruments, where the municipalities used their legal mandate through their responsibility over plans and land guidelines to steer the development towards increased wood construction. Ultimately, it could be seen that all of the municipalities tend to use public procurement as a tool or instrument. However, common to all municipalities is that public procurement is identified as an area for development, which was also highlighted in previous reports.

Keywords: *community logic, institutional entrepreneurship, market logic, neo-institutional theory, sustainability*

Sammanfattning

I Sverige står byggsektorn för cirka 21 procent av de totala växthusgasutsläppen och ett sätt att minska dessa utsläpp är att öka mängden trä i de flervåningshus som byggs. Omkring 90 procent av alla småhus byggs i trä, medan endast 10 procent av alla flervåningshus byggs i trä. En orsak till detta är att flervåningshus i trä fram till 1990-talet inte var tillåtet att byggas i mer än två våningar på grund av brandrisken. Det uppdaterade byggproduktdirektivet innefattar inga begränsningar avseende höjd vilket gör det möjligt för ökade marknadsandelar, men utvecklingen har inte accelererat i önskad takt. I denna utveckling har kommunerna en viktig och stödjande roll, eftersom de besitter det juridiska och demokratiska mandatet att reglera vad som byggs i dess omgivning.

Baserat på kommunernas viktiga roll i denna övergång, är syftet med denna studie att förklara hur kommuner kan möjliggöra en positiv marknadsutveckling för flervåningshus av trä. Ambitionen var att identifiera aktiviteter som skulle kunna bidra till strukturella förändringar inom branschen till mer hållbara. Studien har genomförts som en flerfallsstudie av offentliga dokument publicerade av fyra svenska kommuner som betraktas som entreprenörer inom området. Analysen har därefter genomförts via en tematisk analys för att identifiera, analysera och redogöra för mönster i data.

Med utgångspunkt i ett nyinstitutionellt teoretiskt ramverk har studien identifierat tre aktiviteter av särskild vikt för att möjliggöra en positiv marknadsutveckling av flervåningshus i trä. Dessa är att allokera resurser, navigera mellan olika mål och intressenter samt att utnyttja tillgängliga kommunala styrverktyg. För det första visar studien hur kommunerna som entreprenörer skapat en ny institutionell miljö där olika institutioner såsom universitet och aktörer från industrin har knutits samman. En allokering och samordning av de tillgängliga resurserna i kommunerna har möjliggjort en ökad effektivitet inom området för flervåningshus i trä. Dessa uppsättningar av institutioner har fortsättningsvis skapat nya nätverk som genererat kunskap som utmanar befintliga metoder och arbetssätt. För det andra var det kommunernas förmåga att navigera mellan olika intressenter och mål, vilket i detta fall inkluderade klimatvänligt och kostnadseffektivt byggande. Den tredje identifierade aktiviteten var användningen av kommunala styrverktyg, där en möjliggörare för utvecklingen var att kommunerna använder sitt juridiska mandat genom sitt ansvar för stadsplaneringen för att styra utvecklingen mot ett ökat byggande i trä. Gemensamt för kommunerna är att de använder sig av offentlig upphandling för att styra utvecklingen, vilket lyfts fram av kommunerna såväl som tidigare studier som ett viktigt utvecklingsområde.

Nyckelord: *hållbarhet, institutionellt entreprenörskap, marknadslogik, nyinstitutionell teori, samhällslogik*

Preface

I would like to express my sincere thanks to my supervisor, Cecilia Mark-Herbert, who has supported me throughout the process, provided me with insights, and has always been close at hand. Thank you!

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1 Introduction

In this chapter a background to the climate impacts of the construction sector and wooden construction will be demonstrated, followed by a problematization over the cultural and knowledge related factors affecting the development of wooden multi-storey construction. This leads to the aim of the study and its research question.

1.1 Problem background

In December 2015, 196 parties around the world united around a climate agreement with the goal to limit global warming to two degrees Celsius, compared to pre-industrial levels (United Nations, 2015 p. 3). To achieve these goals, the committed countries urgently intended to reach global peaking of greenhouse gas emissions. In the same year, the Swedish government set up the environmental objectives committee, whose purpose was to develop strategies with milestones, instruments, and measures within prioritized areas of sustainable development. One of the goals of the committee is to have no net greenhouse gas emissions in the atmosphere by 2045, and subsequently achieve negative emissions. Additionally, the greenhouse gas emissions from businesses within the borders of Sweden shall be at least 85 percent lower than the emissions in 1990 (The Government of Sweden, 2015 p. 29). A few years later, the climate law entered into force. The law imposes a responsibility on current and future governments to have policies based on climate objectives and to report regularly on developments. As a consequence, politicians and business leaders have taken climate action on an unprecedented scale. Despite this, the Swedish Environmental Protection Agency (2020 p. 30) states that the global emissions are too high and that we are moving towards a global temperature rise of over three degrees Celsius, with irreversible effects as a result.

In Sweden, the construction sector accounts for about 21 percent of the total greenhouse gas emissions (The National Board of Housing, Building and Planning, 2018, para. 1). In addition, the sector contributes to large emissions abroad through import. Yet, few regulatory efforts have been made to decrease those emissions. One way of reducing the emissions from the construction industry is to increase the amount of wood in the multi-storey houses that are being built (The National Board of Housing, Building and Planning, 2018). In Sweden, 90 percent of the small houses are built in wood, while only about 10 percent of multi-storey buildings are built in wood (Swedish Wood, 2019 para. 5). A reason for this is that wooden multi-storey buildings were until the 1990's not allowed to be built in more than two floors because of the risk of fires (The Swedish Government, 2018 p. 9). The new Construction Products Directive made this possible, but the development has not accelerated at the desired pace.

Building in wood is associated with both the Swedish cultural environment and its handicraft tradition (The Government of Sweden, 2018). According to the Swedish Environmental Protection Agency (2020), the forest is one of the most important natural resources in Sweden, covering nearly two-thirds of its surface it makes wood accessible, locally produced, and affordable. In addition to this, the forest and the products of the forest industry is said to solve several of the challenges the world is facing related to climate changes and resource-management. The Swedish forest grows and takes up more greenhouse gases than it emits and also functions as a carbon sink. In addition, the forests provide us with renewable raw materials that function as substitutes to fossil fuels and building materials. In this way, the use of forest resources offers a significant reduction in greenhouse gas emissions. The trees of the forest can be used as raw materials and replace materials such as concrete, steel, and plastic that have a greater impact on the climate. When wood products replace other building materials, the climate

benefit is twofold because emission-intensive processes can be phased out while carbon is bound into what is being built. As an example, if the use of wood were to increase when multi-storey buildings and bridges are built, it would reduce emissions from the production of metal-reinforced concrete (Swedish Environmental Protection Agency, 2020).

The extraction of products from the forest is not only associated with benefits. One disadvantage of an increased usage of wood in construction is enhanced distresses on the natural environment. In an interview for Radio Sweden the World Wildlife Fund (2020) explains that intensive forestry leads to an increasing number of species in forest environments being red-listed in Sweden. They argue that the lack of protection of forests risks fighting back against the forest industry, partly because the solitary forests have less resistance to storms and pests and partly by giving Sweden an internationally bad reputation. The World Wildlife Fund (2020) means that Sweden has a great export dependence on being able to export its forest products, and if they are not perceived as legitimate from countries as Germany and the Netherlands in terms of sustainability, it could have financial impacts on the industry. Linda Eriksson (2020), the Forest Director at the Trade Association of Forest Industries, addresses this by implying that the forestry policy they have had for the last 30 years has led to a positive development in the forest where they take more and better nature considerations than they did 30 years ago. Additionally, she argues that there are developed target images for how this consideration should be taken. However, Lindahl and Westholm (2011) argues that research is not entirely clear on the role of forests in tackling both climate and biodiversity, since different actors interpret scientific results based on their own understanding and agendas. The forest industry sees intensive forestry with frequent removal of timber as an important contribution to the work of addressing the increasingly warm climate. This is because the growing forest binds carbon dioxide, and forest raw materials can produce both bioenergy and products that do not add any new amounts of carbon dioxide to the atmosphere. Many environmental organizations on the other hand, have long argued that the best thing for the climate is to use the forest carefully so that the carbon stored in it does not leak out. In addition, they want to protect more forest to harness its ability to both bind and store carbon (Lindahl & Westholm, 2011).

As stated above and despite the criticism targeted against the Swedish forestry, wood construction is associated with considerable climate benefits and are proven to support the transition towards sustainability in both the constructing sector and for the society as a whole. Despite its ecological benefits, the properties of wood as a material is proven to promote well-being for individuals by being a natural and living material (Swedish Wood, 2020). Studies have shown that buildings with a high amount of exposed wood surfaces have a positive impact on stress reduction and improves the quality of indoor air, comfort, and acoustics (Lowe, 2020; Swedish Wood, 2020). Additionally, it is seen as cost efficient from the perspective of architects and structural engineers (Roos *et al.* 2010). Wood thereby has implications for both ecological, social, and economic sustainability. This has implications for the design and construction of buildings for both residential and non-residential use such as offices, schools, and hospitals.

1.2 Problem

The construction sector has well established practices for developing residential and commercial structures. According to a study made by Roos *et al.* (2010), there appears to exist a culture within the construction sector where materials other than wood are considered as the norm or given alternative, which in combination with late legislation caused a lack of knowledge within wood construction. An international study of motivations and barriers linked to using wood for multi-storey and non-residential construction (Gosselin *et al.* 2017) stated difficulties related to the building codes as the unquestionable main obstacle. The second most

frequent obstacle stated by Roos *et al.* (2010) was the lack of expertise that was characterized by the ability of architects and engineers to handle the concepts of wood construction. Moreover, the culture of the construction industry was pointed out as another barrier where a conservative attitude and high preference for established practices hampered the development. A report made by IVA (2017) has shown that the use of wooden frames increased over the past years but claims similarly to Roos *et al.* (2010) that there is lack of knowledge and capacity within wood-construction, and underlines the need for education and a development of the construction processes. Gosselin *et al.* (2017) state that some key elements, including those related to the technical aspects, appeared in both the motivations and barriers. This could be explained by the fact that most of the barriers could change and evolve gradually with experience.

What creates hope of an imminent boost to wood construction is the development of **CLT**, cross-laminated timber (Bio Innovation, 2019). With its massive and industry-made joists and walls it makes the qualities of wood as well functioning as steel and concrete (IVA, 2017). Cross laminated timber has a low self-weight, which implies lower transport and assembly costs, as well as lower foundation costs (Swedish Wood, 2019). This technique opens up great opportunities to build multi-storey houses in wood more extensively. In the study made by Roos *et al.* (2010), costs were presented both as a motivation and a barrier, due to increasing costs related to fire protection and maintenance of the wood. Some argue that contractors need to accept that the wooden frame can be more expensive at the tender stage but that they still would choose it because of the positive effects on the working environment, user experience and long-term sustainability (Enokson & Holm, 2018)

Roos *et al.* (2010) mean that the influence of architects and structural engineers on material selection is moderated by stakeholders, such as local or national authorities (Roos *et al.,* 2010). Authorities were found to be of minor importance when deciding which material to use, as long as the functional requirements were fulfilled. However, Jessica Becker (2020), architect and project-coordinator of the association *Trädstaden*, argues that municipalities have a key role to play, both as contractors and through its plane monopoly. She means that there are great opportunities to steer detailed plans in benefit for green construction, without having to express exactly what material to use. Additionally, municipalities can set examples through their own companies. Municipalities serve as the regulative pressure on corporations since the local authorities have the legal and democratic mandate to regulate the built environment. That could imply that municipalities have an important role supporting the development toward sustainable construction regulations and processes.

The Swedish laws and rules regarding building and planning are neutral related to the materials used, instead the legislation puts demands on functionalities such as strength and availability, and performance in terms of energy use, noise, and indoor environment. The Planning and Building Act (2010:900) gives the municipalities the possibility to make local special requirements, but the so called "*Stopplagen*" prohibits municipalities from making special requirements on a general level, only when the municipality is building on its own or grant land for construction project, they are allowed to put special demands on the materials. These requirements are seen by the construction industry as aggravating for industrial construction.

The Royal Swedish Academy of Engineering Sciences (IVA) made a project between 2017-2018 with the purpose to stimulate the development in the Swedish forest-industry and strengthen the growth of the Swedish bioeconomy. In the final report, some key activities were summarized for the public sector to promote. The authors argue that the forest and construction

industry need to be more active than before and jointly shape a national wood building program in conjunction with the academy and the public. Moreover, in public procurement support the implementation of national wood building programs and continue to develop function-oriented regulations. They argue that the public sector can be more active and drive and influence the development, and by taking the lead increase the interest in wood-construction. Similar to the report made by IVA (2017), The Swedish Association of Local Authorities and Regions (2019) mean that it is important for municipalities to provide guidelines and precede as a good example that can inspire an increased building in wood. This discussion culminates in an interesting and topical research question about how municipalities can work to promote this development, and subsequently inspire other municipalities to do the same.

1.3 Aim and delimitations

The aim of this study is to explain how municipalities can enable a positive market development for wooden multi-storey construction (**WMC**), in order to identify activities that can contribute to structural changes within the industry into more sustainable. The objective is to identify municipal control tools and strategies that promote the development of an increased use of wood within the construction sector. The study addresses the following research question:

How can municipalities enable a positive market development for wooden multi-storey construction?

The study is empirically limited to examine municipalities that have an established and outspoken strategy for wood construction. The choice of these municipalities was made because they have acted as pioneers for other municipalities in Sweden, as well as they possess a history and tradition of being innovative within wood construction. This delimitation is made in order to be able to compare the municipalities between each other, and identify factors in the strategies that have a real market impact.

Furthermore, a neo-institutional theoretical framework and the concepts institutional logics-, -change and-entrepreneurship are used to conduct the analysis consisting of a thematic analysis. This theoretical outset means that the study is limited to and adopts an institutional perspective that focuses on organizational structures, norms, practices, and patterns of social relationships. This perspective has been chosen based on the role of municipalities as political and important actors in society, that can have an impact on the conditions on the market.

The study is methodologically limited to a document analysis and consists of secondary sources. The study has conducted a multiple-case analysis of public documents of wooden construction strategies published by the four municipalities that have been chosen. This means that promotional activities carried out by private actors have not been investigated.

2 Theory

This chapter presents the theoretical outset of the study, neo-institutional theory. First, a background is given to the theory and its basic assumptions and concepts. Second, it focuses on institutional logics, how they coexist and are influenced by institutional pressures.

2.1 Neo-institutional theory

In order to identify strategies that promote a positive market development in the construction industry, neo-institutional theory will be used to analyze how actors are influenced by social norms, expectations, and institutional pressures. Meyer and Rowan (1977) began the neo-institutional perspective by proposing that organizing is about adapting to institutionalized rules. The authors describe institutionalized rules as built-in frameworks in society that are often taken for granted or supported by public perception. Greenwood, Johnson and Raynard (2015) explain that individuals beyond being influenced by norms and values, perceive the world in a particular way and then behave accordingly and consequently create a world in line with their perception. Institutionalized rules are seen as a starting point for the creation of the formal structure of organizations that reflects the general perception of social reality. The rules serve as myths that organizations incorporate in order to achieve legitimacy, stability, resources, and increased opportunities for survival. The neo-institutional perspective can also be used to explain why organizations make certain choices, without any obvious financial return (Meyer & Rowan; 1977; DiMaggio & Powell, 1983), as when it comes to addressing sustainability issues (Glover et al., 2013). In addition to this, institutional theory provides a framework for understanding organizational behavior in relation to co-existing logics within an organizational field (Reay, Jaskiewicz & Hinings, 2015), which will be described below.

2.1.1 Institutions and institutional logics

An institution consists of regulative, normative, and culturally dictated elements that together with associated activities and resources, creates meaning and stability into the social world (Scott, 2008). These institutions involve in organizational fields, where the structure of the field is a result of a set of similar activities. Organizational fields as a concept are useful when analyzing a sector such as the construction industry, since the researcher will be able to identify different pressures, actors and dynamics that characterizes the field. Organizations exist in an environment of institutions that exert some degree of pressure on them. DiMaggio and Powell (1983) explain that the institutional environment initially affects the organization by creating expectations and norms that the organization needs to conform to attain legitimacy and resources. Institutional environments are characterized by the elaboration of rules and requirements to which individual organizations must conform if they are to receive support and legitimacy (Scott, 1995). Institutions constrain behaviour as a result of processes associated with three institutional pillars: the *regulative*, which guides action through coercion and threat of formal sanction; the *normative*, which guides action through norms of acceptability, morality and ethics; and the *cognitive*, which guides action through the very categories and frames by which actors know and interpret their world (Scott, 1995).

Organizational fields can be organized by one or more dominant institutional logic that shapes the behavior of the organizations within the field. One example of an institutional logic is the market logic, where commercial interests are centered, and the source of legitimacy and authority is based on monetary values and shareholders influence and participation (Thornton *et al.,* 2012). In today's construction policy, market governance is the overriding principle. It is

the developer's risk and profitability assessment that ultimately determines whether construction gets underway. This, of course, controls what is being built and how much is being built. Market participants strive for high prices and strong demand. This may lead construction companies to see it necessary to keep the rate of expansion back (Swedish Association of Local Authorities and Regions, 2012). The threat of sanctions and the potential loss of legitimacy can promote cooperation between society and market actors (Lee & Lounsbury, 2015). In the case of this study, market actors have shown an increased demand for sustainable constructions. A reason for this could be the need to show the environment that they meet regulatory and normative requirements and, in the extension, to maintain relevant and achieve legitimacy (Lee & Lounsbury, 2015).

Another logic is the community logic, which source of legitimacy is an engagement in society and common will (Thornton, 2004). The strategic focus of the community logic is to promote the status and uprightness of the institution through visible actions. The economic system emphasized in the logic is a form of cooperative capitalism (Thornton *et al*., 2012). Lee and Lounsbury (2015) describe the community logic as a starting point for organizations' interpretation of institutional pressures. Furthermore, the authors discuss the development of environmentally friendly logics that is starting to dominate in some societies and therefore requires organizations to work proactively towards sustainability issues. They suggest that the institutions are either being influenced by the prevailing community logic or fearing normative sanctions if they are not acting in accordance with societal expectations.

Organizational fields are characterized by complexity because organizations are neither inactive recipients nor effective opponents of environmental pressures (DiMaggio & Powell, 1983; Oliver, 1991). Between these two aspects, there are several possible positions that organizations can take. Greenwood *et al.* (2011) explain that the organizational environment consists of several different institutional logics and emphasize that it is rare that only one logic predominates an organization. The authors argue that most organizations operate within a complex network of different institutional logics, which is the meaning of institutional complexity. Alford and Friedland (1985) argue that several logics can coexist even though several assumptions in each logic conflict with each other. By coinciding with the objectives of different logics in a given situation, they can harmonize and work together (Smets & Jarzabkowski, 2013). Usually, the appearance of separate logics within an organization poses some form of goal-conflict, which means that the organization constantly needs to work on trying to accommodate conflicting goals (Larsson von Garaguly, 2016).

Berger and Luckmann (1967) describes a logic as a part of the socially available stock of knowledge. Within institutional orders, individuals are constrained in explaining both what is functioning or malfunctioning, since their perception of reality is based on knowledge that is limited but also considered to be ideal. This means that to achieve institutional change, logics needs to be questioned and challenged with additional knowledge to be justified. The established methods for construction need to be disrupted by other actors in the field, such as associations and authorities, by raising awareness and spreading knowledge about the benefits of wood construction. First when the assumptions dominating these institutions are undermined or challenged, there is opportunity for institutional change.

2.1.2 Institutional change and entrepreneurship

What is governing within an organization depends on the kind of institutional logic that permeates the organization (Thornton *et al*., 2012). As institutional changes occur, the institutional logic that exists within an organization also gets influenced. Key concepts within

an organization such as efficiency, rationality and values have different meanings and are shaped by the prevailing logic within the particular organization (Thornton & Ocasio, 2008). Thornton *et al*. (2012) claim that there are significant differences within organizations depending on the logic that dominates. This also means that the meaning of the various key concepts within an organization changes as institutional logic changes character (Thornton & Ocasio, 2008). The importance of logics is further reinforced by institutional changes since a change in the organization's dominant logic is fundamental to the conceptualization of institutional change. Reay and Hinings (2009) describe institutional change as the movement from one dominant logic to another. To exemplify this, it can be that an organization based on a specific institutional logic acts on the basis of financial interests, but in the context of a change process it shifts logic and acts in accordance with public interests.

To understand how new practices or organizational forms come into existence and become established over time, institutional and entrepreneurial forces can be composed into a single concept that focuses on both continuity and change. The definition of institutional change in this study is based on DiMaggio and Powell's (1983) characterization of organizational change that refers to changes in the formal structure, organizational culture, and goals. Within the neo-institutional perspective, change is often based on isomorphic mechanisms. Isomorphism describes the process of development and change that causes an organization to imitate other organizations with similar conditions for survival. Institutional isomorphism means that organizations develop a common vocabulary that helps explain what is happening in the organization. The three mechanisms of isomorphism stated by DiMaggio and Powell (1983) are: 1) *coercive* isomorphism that stems from political influence and the problem of legitimacy; 2) *mimetic* isomorphism resulting from standard responses to uncertainty; and 3) *normative* isomorphism, associated with professionalization.

Actors that are embedded in fields are argued within neo-institutional theory to be subject to regulative normative and cognitive pressures (Scott, 1995). However, based on that assumption Maguire, Hardy and Lawrence (2004) question how actors are able to envision new practices and subsequently get others to follow if they are continually a product of their environment. Actors can respond to institutional pressures and eventually change by either acting isomorphic, or they can individually affect their environment to act according to these normative or regulative mechanisms. The term institutional entrepreneurship refers to the "activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones" (Maguire, Hardy & Lawrence, 2004 p. 657). DiMaggio (1988) argues that new institutions arise when organized actors with sufficient resources see them as an opportunity to realize interest that they highly value. That is for instance when municipalities allocate their resources and take advantage of their position in the organizational field to achieve sustainability goals.

Garud, Jain and Kumaraswamy (2002) suggest that these actors, the institutional entrepreneurs, create new systems of meaning that ties the functioning of disparate sets of institutions together. To qualify as institutional entrepreneurs, actors must break with existing rules and practices associated with the dominant institutional logics and institutionalize the alternative rules, practices, or logics they are championing. Consequently, strategies must be developed to embed change in fields populated by various organizations that are interested and committed to those existing structural arrangements. Institutional entrepreneurship therefore can be seen as an intensely political process (Garud *et al*. 2007).

In contrast to Meyer and Rowans (1977) assumption about the environment as an exogenous force, DiMaggio (1988) suggests that the institutional environment is influenced by motivated actors and that their power in relation to other actors in the field has a major effect on its form. The author further implies that actors with adequate resources can act as institutional entrepreneurs and therefore shape the environment through their own interests. Oliver (1991) supports this suggestion and proposes that organizations are not necessarily passive participants who simply accept institutional pressures, instead they respond strategically trying to change the underlying structure by negotiating with key stakeholders. Zapata and Zapata Campos (2018) argue in their study that cities as institutional entrepreneurs in emerging environmental policy fields, have the opportunity to shape and frame the field through their practices when resources, motivations, and relations are articulated.

Garud *et al.* (2007) propose that institutional entrepreneurs use framing strategically, articulating their transition project in certain ways to define the interests of aggrieved constituencies, provide solutions and enable collective attribution process to operate. Through framing the issue, new practices can be justified as appropriate and help mobilize the varying coalitions of different groups and generate the collective action necessary to secure support for institutional change (Garud *et al.,* 2007 p. 962). This form of design thinking enables strategic innovators, by involving others, to form the surrounding environment (Brow & Martin, 2015 p. 58).

2.2 A conceptual framework

To summarize this theoretical view, institutions are continuously shaped by normative and regulative pressures of the environment that creates frameworks for their behavior. Institutions are expected to act within these frameworks to achieve legitimacy and increased opportunities for survival. These institutions are involved in fields, such as industries, that are organized by one or more dominant institutional logic that shapes the behavior of the actors in the field (Figure 1). These logics can pose goal-conflicts where the institution is forced to navigate between for instance, economical and sustainable aims to achieve legitimacy from the environment. Additionally, to achieve institutional change, these established logics need to be challenged and undermined to enable development within the field.

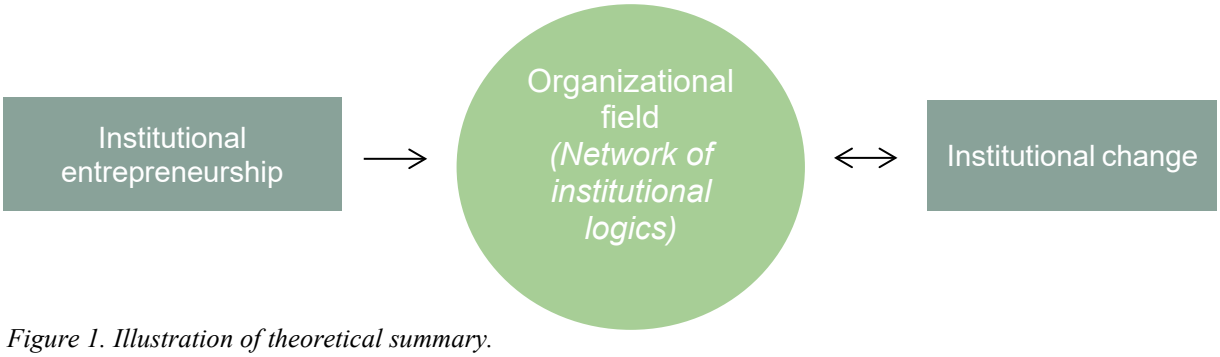

Figure 1. Illustration of theoretical summary.

This study takes an outset in that single actors, such as municipalities, can act as institutional entrepreneurs that take the lead within the industry by framing wood-construction as a solution to the societal challenges of the climate crisis (Figure 1). As institutional entrepreneurs, they can allocate resources and break existing rules and practices associated with the dominant institutional logics and institutionalize the alternative rules, practices, or logics they are championing. Consequently, other actors in the field will be favored for acting in accordance with the new institutionalized rules framed by the municipalities, which will enable a widespread positive market development.

3 Method

This section presents the methodological choices that have been made in the study to collect and analyze data. This is followed by an ethical and a critical reflection with regard to these choices.

3.1 The qualitative approach

The qualitative approach is described by Jacobsen (2017) as appropriate when the study seeks a deeper understanding of a phenomenon, which is consistent with the purpose of the study. The qualitative approach is the most appropriate method of data collection for studying people and social systems, which the neo-institutional theory deals with to a large extent. Reay and Jones (2016) argue that the qualitative method is suitable for examining institutional logics because of its definition as socially constructed patterns. Logics can be deduced by language, activities, and symbols that can be analyzed through the more in-depth analysis advocated by the qualitative method. Additionally, Greenwood *et al.* (2011) provides examples of studies using the qualitative approach and case studies to analyze institutional complexity and the existence of competing logics.

Since the purpose of the study is to answer the question of *how* municipalities can promote a positive market development of multi-storey construction, it can be characterized as having a descriptive purpose (Christensen *et al*., 2010). The descriptive purpose is characterized by the researcher already having good knowledge of the phenomenon to be investigated which also aligns with the study's deductive approach. Bryman and Bell (2011) explain that the qualitative method is suitable for a descriptive purpose since it includes describing a particular phenomenon more comprehensively. Having a deductive approach means that the described problem and research question partially stains from a neo-institutional perspective. Therefore, the chosen empirical phenomenon is chosen and balanced to give the author the ability to explain the phenomenon with the help of concepts from the theory.

3.2 Research design

Christensen *et al*. (2010) argue that almost any type of data collection methods is possible when conducting a study of descriptive nature. This study has conducted a multiple-case study approach in order to get various sources of evidence and increase the possibility for theoretical generalization (Robson & McCartan, 2016). The case study is a strategy for doing research that involves an empirical investigation of a particular contemporary phenomenon within its real-life context (Yin, 2009). Since the study aims to investigate strategies that promote a positive market development in wood construction, organizations that are seen as pioneers within the industry have been selected for a multiple-case study. The multiple-case study means that the units have been sampled within a chosen context and have been purposely selected in line with the research focus of this study. This is according to Robson and McCartan (2016) a common approach when doing a multiple-case study, where the researcher is sampling for both heterogeneity and homogeneity. Although the purpose of the study is not to compare the four municipalities, each municipality has been analyzed together and separately, where activities that distinguish or stand out have been observed and compared. Sampling for heterogeneity is therefore to create a deeper understanding in the context of municipal construction strategies, making this study partially comparative. By doing a comparative analysis, the researcher is better situated to establish the circumstances in which a theory will or will not hold (Yin, 2009).

Sampling for homogeneity is to gather a broader view of the case, based on the assumption that the municipal wood construction strategies have a common or similar purpose.

3.2.1 Case selection

The municipalities that have been chosen for this study are based on the criteria that they have an outspoken strategy for wooden multi-storey construction (Table 1). These municipalities can be seen as so-called extreme cases, characterized by throwing a particularly strong light on the phenomenon (Robson & McCartan, 2016).

Table 1. Criteria for selecting cases

Chosen cases	***Criterion***
Skellefteå municipality	Skellefteå municipality is one of the leading municipalities in wooden construction driving the technical development. Their wooden building strategy was implemented in 2014.
Växjö municipality	The first municipality to adopt a wood building strategy, the first in 2005 and the second in 2013. One of the leading municipalities when procuring multi-story housing.
Falu municipality	The municipality has the ambition to be a pioneer when it comes to wood-construction. They promote a number of demonstration projects, most notably an innovative procurement project together with EU and Norwegian municipally. Their first wooden building strategy was implemented in 2011.
Mönsterås municipality	The municipality insists that wood is the best building material for the region is natural as 75% of Sweden's wood-related industry is located in Småland. Their wooden construction strategy was implemented in 2016.

In the initial familiarization phase of this study, these municipalities were frequently mentioned as role models by several associations and between the municipalities which made them suitable for the aim of this study and the theoretical focus on institutional entrepreneurship. As well as being outspoken pioneers within the industry, they have different conditions in terms of geographical location, size and population which increases the representativeness of the cases. This aligns with the deductive approach of the study, meaning that there is an understanding of the subject on beforehand (Bryman & Bell, 2011) and that the research design is adjusted to the expectation of finding specific features in the strategies that support existing theory.

3.2.2 Secondary data

Secondary data is defined by Hakim (2000 p. 24) as “any reanalysis of data collected by another researcher or organization”. Secondary data analysis can be an attractive strategy as it permits the author to take advantage of the efforts of others in collecting the data. Furthermore, it has the advantage of allowing the author to concentrate on analysis and interpretation (Robson & McCartan, 2018). The empirical data of the study solely includes public documents and legislation that regulates the municipal room for maneuver. The public documents that have been examined are mainly control documents communicating the wooden construction strategies of the municipalities. Furthermore, annual reports and decisions from the municipal board of each municipality have been used to look more into the process of deciding on the municipal construction strategies. These documents published by the municipalities on their websites have been used for identifying comprehensive strategies, local R&D efforts and key

decisions and events. The documents analyzed amounted to approximately 70 pages and can be found in the reference list.

3.2.3 Quality of the data

The literature that is used as a foundation of this study has been carefully selected in order to generate an understanding and description of the chosen topic. The books and articles have been chosen based on the criterion that they are peer reviewed, frequently cited, and well-known works within the institutional perspective and WMC-studies. Regarding the secondary sources, the public documents which will form the basis of the analysis are published by the municipalities themselves, and can be regarded as trustworthy and of high quality since it has been reviewed by several instances since it has undergone political processes to be adopted. However, even though the data consists of municipal market strategies, it is important to have in mind that they operate in political contexts which could make the data ideologically influenced.

3.3 Method for analysis

A common approach to carry out a documentary analysis is to do a qualitative content analysis (Robson & McCartan, 2018). In order to effectively analyze the data this study has conducted a thematic analysis. Thematic analysis is a qualitative descriptive approach that is described as a method for identifying, analysing and reporting patterns within data (Braun & Clarke, 2006). The analysis is explained as a flexible and useful research tool that provides a rich detailed and complex account of the data which involves the search for patterns and common threads (Braun & Clarke, 2006). According to Braun and Clarke (2006) this method aligns with the constructionist paradigm, which is the methodological outset of neo-institutional theory and therefore suitable for conducting an analysis with the themes developed from the neo-institutional framework. The constructionist approach includes examining events, realities, meanings and experiences operating within society.

As a first step to avoid missing potential important themes, the initial ideas have been developed throughout the process of investigating the data to see patterns in the material. This is suggested by Robson and McCartan (2016) as a way to avoid biases when coding. The authors also emphasize the importance of having an initial set of ideas about what is in the data, and a sense of what is interesting and may be important. This has been addressed due to prior engagement in the literature and previous research that has generated an understanding and simplified the process of categorization and ability to detect patterns.

The second step of the analysis was generating initial codes systematically through the whole data set, meaning that similar empirics have been given the same code. After coding the data, it has been divided into themes based on theoretical concepts. When necessary, the codes and themes have been revised to work in relation to each other and the data set. Consequently, a thematic map has been developed, and each theme has been defined and named with the support of the theoretical framework of the study. Lastly, the analysis has with the supporting structure of the thematic map been conducted through comparisons, summaries and descriptions. The table below is a summary of the thematic analysis from Braun and Clarke (2006).

Table 2. Thematic analysis in accordance with Braun and Clarke (2006, p. 87)

Phase and examples of procedure for each step
Familiarising with data- Transcribing data, reading and rereading the data, noting down initial ideas.
Generating initial codes - Coding interesting features of the data systematically across the entire data set, collecting data relevant to each code.
Searching for themes - Collating codes into potential themes, gathering all data relevant to each potential theme.
Reviewing themes - Checking if the themes work in relation to the coded extracts and the entire data set, generating a thematic map.
Defining and naming themes - Ongoing analysis for refining the specifics of each theme and the overall story that the analysis tells, generating clear definitions and names for each theme.
Producing the report - The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a report of the analysis.

Table 2 shows the stages and structure of the thematic analysis in chronological order that the study followed to conduct the analysis.

3.4 Method criticism

Critique that has been targeted against the qualitative approach includes it being too subjective since the authors determine what is significant and of importance. It has also been argued that qualitative methods are difficult to replicate and that there is a problem of generalization, which mostly stems from the criterions of reliability and validity stated in the quantitative approach (Bryman & Bell, 2011; Robson & McCartan, 2018). To fulfil the aim of this study, a qualitative approach conducted through document analysis has been suitable for getting a deep and contextual understanding of the phenomenon. The study could have been complemented with interviews to achieve an even deeper contextual understanding of the topic, but the use of public documents was judged to be sufficient and the limitation necessary to obtain a higher amount of empirical data. This also entails that all municipalities' strategies are analyzed on the same foundation, which facilitates the comparisons between the cases compared to conducting interviews from only a few participants. One weakness of this kind of approach is the risk of biased selectivity (Yin, 1994). This means that in an organizational context, the available and selected documents are likely to be aligned with corporate policies and procedures and with the agenda of the organization's principles. However, this kind of bias would not have been able to completely avoid complementing with interviews either. What the researcher could have done is to ask respondents more questions about the weaknesses or challenges of the strategies, as these do not appear very clearly in the analyzed documents.

3.4.1 Trustworthiness

A central requirement in qualitative analysis is the relevance and usefulness of the data that is being analyzed, which of course is influenced by the author as an analyst that has deficiencies and biases corresponding to the problem observed (Robson & McCartan, 2018). Bryman and Bell (2011) also point out the risks of qualitative research involving subjective assessments. This is because the researcher in qualitative studies is considered to possess unsystematic

perceptions of what is of a significant nature for the study. Bryman and Bell (2011) propose that qualitative research can be evaluated according to different criteria from those used in relation to quantitative research. For example, they propose trustworthiness as a criterion of how good a qualitative study is. Each aspect of trustworthiness has a parallel with the quantitative research criteria. The first criterion is *Credibility* which parallels internal validity and how realistic the findings are. The second is *Transferability*, which parallels external validity and if the findings apply to other contexts. The third is *Dependability*, which parallels reliability, that is, if the findings are likely to be relevant at other times. The last criterion for conducting a trustworthy study is *Confirmability*, which parallels objectivity and evaluates if the investigator allowed personal values to intrude to a high degree.

The thematic analysis has provided the study with a more systematic and documented approach that helped reduce the effects of these human biases and also to increase the transferability by handling a greater amount of data through QDA-software. Additionally, the use of QDA-software has provided an organized location storage system for all the material, which will enable a quick and easy access to the coded material if necessary. This has helped increase the credibility and dependability of the study since all the phases of the analysis have been documented and saved in the software. Robson and McCartan (2018) still emphasize that the interpretation of the data collected has an effect on the trustworthiness, which is handled in this study by citing and demonstrating the empirical evidence in its categories. However, it is still the author's interpretation of the empirical data that decides the categories, but the reader is able to follow the steps of the analysis to make the interpretation as transparent as possible which helps achieving the criteria of both credibility and confirmability. Additionally, Bryman and Bell (2011) mean the deductive approach reduces the risk of the researcher affecting the results of the study with its own opinions and thoughts since the researcher derived a question based on the theory, which is further examined through an empirical review.

4 Background for the empirical study

The following chapter gives a brief introduction of the discussions by different actors such as associations, authorities, and previous research regarding the development of wooden multi-storey construction. These are aimed to put the municipal strategies in a broader context, as well as symbolize the pressures pointed to them.

4.1 Reports

A group within the Royal Academy of Engineering Sciences (IVA, 2017) had the mission to study two specific areas of the forest industry: wood in the construction sector and energy in the form of biofuels. The name of the report is *Community building, fuel and energy* and is a part of the project *Innovation within the forest industry*. The opportunities they describe in the report, as well as the proposals and recommendations made, will presumably stimulate development in the Swedish forest industry and strengthen growth in the Swedish bioeconomy. The authors believe that community construction today is a central part of the forest industry and contributes to increased value added and profitability while responding to two important societal challenges, partly through housing construction and by creating employment in sparsely populated areas. They argue that wood construction is competitive and also a cost-effective climate measure because wood-based construction has a lower climate impact than steel and concrete construction.

Construction of wooden frames in apartment buildings has been increasing for a few years and they estimate a treble realistically to around 12,000 apartments per year by 2025 (IVA, 2017 p. 24) and in the long run significantly more. The authors explain that knowledge exists, but one bottleneck is a lack of competence in wood construction and design capacity in the construction business. Therefore, measures in the field of education as well as the development of construction processes and wood building elements are needed to realize these market and development potentials. The authors furthermore argue that the authorities need to reward sustainable solutions in procurements, and continue to draw up building regulations based on functional requirements, such as technology and sustainability. Also, they need to strengthen the education system and support pilot projects to reward new building technology solutions. Ultimately, they believe that public contractors can stimulate inspirational construction projects through architectural and procurement competitions and ensure that wood within technical education is given the same space as other building materials.

The Government of Sweden (2018) explain in their report *Targeting Wood Construction* that Several municipalities, such as Växjö and Skellefteå, have been the driving force in increasing demand by, for example, developing municipal wood building strategies. In major public procurements, such as the Swedish Association of Local Authorities and Regions' procurement of residential buildings, industrial wood building solutions have proven to be competitive alternatives. They further argue that technological developments have created conditions for increased use of wood, especially in residential construction. The Government of Sweden (2018) believes that there is potential for development and growth of industrial wood construction. In 2016, the Government Offices initiated a meeting regarding the potential of wood construction and the obstacles and bottlenecks that exist for the continued development of industrial wood construction. Actors from the construction industry, the forest and wood industry, authorities, municipalities, and the academia participated in the discussion to identify main obstacles and bottlenecks. Based on this discussion, The Government of Sweden (2018) could identify that one reason for the slow development in the market is that major developers

have invested heavily in more traditional building systems. These investments are capital intensive with a long lifespan where risk levels and uncertainties weigh heavily on new investment. Larger investments in additional systems, such as industrial wood building systems, are therefore perceived as expensive and at high risk, while it is costly and time-consuming to change existing production.

The Government of Sweden (2018) highlights municipalities, public utilities, and public clients as key actors in the forthcoming development of industrial housing construction in wood. They mean that the public as a contractor have great opportunities to influence construction systems, material selection and implementation by setting criteria in connection to public procurement. The Government (2018) argues that several actors have identified public procurement as an area that needs to be developed in order to steer towards more sustainable construction. For example, it is pointed out that there is great potential to set increased climate and sustainability requirements in public procurement of construction projects in order to drive the development towards more sustainable construction.

4.2 Previous studies

In the gathering of background data several similar studies were found within the topic of wooden multi-storey construction and market development. These studies are summarized below in Table 3 for an overview and facilitated comparison, followed by a more detailed presentation of each study.

Table 3. Summary of previous studies in reverse chronological order

Author	***Aim***	***Conclusions***
Holfve (2020)	To identify factors that affected the market development of residential multi-storey construction from a municipal perspective.	An in-depth cooperation between the municipality, industry, and research institutes is an important tool for the development of wooden apartment buildings.
Lazarevic *et al*. (2020)	To analyze the emergence and evolution of the Finnish WMC by applying a technological innovation system perspective	The innovation of WMC were stimulated by government interventions looking to encourage value-added activity for the forestry sector in light of external pressures.
Sjöström (2018)	Explain the importance of cooperation between private and public actors in major wood construction projects in Sweden.	Cooperation was very important within the municipality to be able to carry out larger and more complex construction projects.
Hurmekoski *et al. (*2015)	Explore the WMC market potential in Europe by combining two complementary approaches: Top-down scenario analysis and bottom-up innovation diffusion analysis.	The WMC diffusion was strongly dependent on the regulatory framework and the structure of the construction industry.
Ingmar (2015)	Investigate how timber-based buildings can become more mainstream.	Public actors have developed timber building markets by articulating visions and expectations in order to attract and guide niche producers of timber solutions.
Mahapatra *et al.* (2012*)*	Analyze the influence of regulations, perceptions, and promotions on the emergence of an innovation system for wood-framed multi-storey buildings.	The initial focus of the promotional activities in Sweden was to create a niche market for wood construction, while the focus in Germany and UK was to improve the image of wood in the mass market.

Table 3 provides an overview of previous studies used as a basis for discussion in Chapter 7.

A previous study similar to this was made by Holfve (2020) with the title '*Building in a sustainable way – Municipalities' work for wooden multi-storey constructions'*. The study aimed to identify factors that affected the market development of residential multi-storey construction from a municipal perspective. The theoretical framework that was used was the Ellen MacArthur Foundations Toolkit for policymakers (2013) and the results showed that the strategies and tools that municipalities can work with to be successful in the construction of wooden apartment buildings are primarily to spread knowledge and to enter into collaborations. Holfve (2020) concluded that by spreading knowledge, the conservative construction sector can be affected. The two municipalities that participated in the study both described in-depth cooperation between the municipality, industry, and research institutes as an important tool for developing their construction of wooden apartment buildings.

In the study '*Finland's wood-frame multi-storey construction innovation system: Analysing motors of creative destruction'*, Lazarevic *et al.* (2020) analyzed the emergence and evolution of the Finnish WMC by applying a technological innovation system perspective. The authors argued that this perspective could improve insights regarding the system level obstacles facing WMC and the innovation system functions required to support its development. This was done by analyzing two periods of activity in WMC innovation, and the results showed that they both were stimulated by government interventions seeking to encourage value-added activity for the forestry sector in the light of external pressures.

In the first period, the lack of interest from large building companies, low price performance compared to traditional technologies and challenges to WMC legitimacy resulted in a failure of the technological information system to move beyond its developmental phase. Furthermore, the second period built upon the base established in the first period. This together with the development of cross laminated timber and laminated veneer lumber production capabilities improved price performances, and the growth of favourable public procurement criteria has improved the interest in WMC. In addition to this, recent changes in the building code now allow WMC buildings up to 16 stories which the authors believe may provide greater commercial interest in WMC experimentation among forestry and building sector actors. Conclusively, the authors recommend and call for a need of a continuing development of control policies, such as low carbon public procurement criteria and a change of organizational practices of municipalities by developing guidelines of WMC-best practices to promote market development.

A study made by Sjöström (2018) '*Sustainable urban development through increased construction in wood: a study of municipalities cooperation in major construction projects in Sweden'* focused on perceived advantages and disadvantages with Public-Private Partnership as a collaborative form, but also how this interaction through increased wood construction could lead to more developed and sustainable urban development. The results showed that there was an overall positive image of wood as a building material and that the main advantages of wood as a construction material were described as the possibilities of prefabrication, climate-friendliness and an increased competition on the market. Perceived difficulties with wood as a building material were described as lack of knowledge and experience, a prevailing conservativeness in the construction industry and too few producers of building elements in wood. Furthermore, the results showed that cooperation between public and private actors is commonly taking place in the municipalities. Public-Private Partnership was mainly used through project competitions and land display through open procedures. A majority of the respondents in the study argued that cooperation was very important within the municipality to be able to carry out larger and more complex construction projects. These collaborations were

described to increase the spread of knowledge between market actors, provide opportunities for municipalities to influence the market and that risks associated with the projects can be spread between involved actors. Respondents described that there are few disadvantages associated with public-private partnership. The disadvantages identified in the study are described as lack of skilled labour and that there is a difficulty in meeting the various interests of the cooperation.

In the study '*Context, drivers, and future potential for wood-frame multi-story construction in Europe' (*Hurmekoski *et al.* 2015*)* the authors aim to explore the WMC market potential in Europe by combining two complementary approaches: Top-down scenario analysis and bottom-up innovation diffusion analysis. The results of the study showed that the WMC diffusion was strongly dependent on the regulatory framework and the structure of the construction industry. The risk-averse nature of the construction value chain opposing the uptake of new practices appeared to be a more significant hindrance for the future market potential of WMC, compared to the possible competition from alternative construction practices. The authors proposed that it would require both increased competition within the WMC sector and increased cooperation between wood product suppliers and the construction sector to attract investments, reduce costs, and make the WMC practices more credible throughout the construction value chain.

Hurmekoski *et al.* (2015) further emphasize that the WMC concept challenges the conventional building practices mainly in regions where there have been economic and cultural pressure from the government to promote the use of abundant domestic wood resources in construction, most notably in the Nordic countries and some Alpine regions. Yet the WMC has started growing on a significant scale also in the UK, driven by environmental policies, imposing architecture, and the rising interest in WMC among the developers, owing to, for instance, the lightness and modifiability of the material. They mean that in general, the established construction practices, value networks, and product suppliers based on concrete and masonry have been able to institutionalize their position in Europe during the 20th century. In order for WMC to gain market share in the construction sector, it needs to overcome these dominant construction practices and what they call institutional lock-in. They end by arguing that it is still very uncertain how WMC manages this, and that it may be that the growth will occur only in some regions and in some construction market segments. Similarly, they believe that it is unlikely that any single WMC technique would completely dominate the others, due to the technical solutions being related to the business concepts which vary from one region to another according to the prevailing industry structure (Hurmekoski *et al*. 2015).

Ingmar (2015) investigated in the study *'An assessment of public procurement of timber buildings: a multi-level perspective of change dynamics within the Swedish construction sector'* how timber-based buildings can become more mainstream and studied three cases, the municipalities of Växjö, Skellefteå and Falun. The author used MPL, national multi-level interactions and mainstream practices to illustrate how public actors developed timber buildings at a local scale. The study showed that public actors have developed timber building markets by articulating visions and expectations in order to attract and guide niche producers of timber solutions. Examples of such articulation processes include formulation and implementing timber building strategies and articulation of functional needs in public procurement processes. The public actors are also engaged in social networks involving research institutions and the local industry. Conclusively, all of the studied municipalities had an active participation in national timber networks. A study made by Mahapatra *et al.* (2012*)* with the title *'Multi-storey wood-frame buildings in Germany, Sweden and the UK'* aimed to analyze the influence of regulations, perceptions, and promotions on the emergence of an innovation system for wood-

framed multi-storey buildings in Germany, Sweden and the United Kingdom. The authors applied a theoretical framework of technological change processes and collected information mainly from secondary sources to understand the emergence of a multi-storey wood construction system. The study showed that the conditions for market growth seemed most favourable in Sweden followed by the UK and Germany. The regulations are most stringent in Germany, followed by the UK and Sweden. In all countries, construction professionals seemed to have negative perceptions regarding engineering properties of wood. Similar negative perceptions existed among the general public in Germany and the UK, but not in Sweden. The activities to promote use of wood frames in Germany and the UK were directed to all types of houses, while in Sweden only multi-storey buildings were targeted. Especially in Sweden, the initial focus of the promotional activities was to create a niche market for wood construction, while the focus in Germany and UK was to improve the image of wood in the mass market. The relative delay in the supply-side market formation delayed the growth of wood construction in the UK and Germany.

The previous studies presented above show how cooperation between different actors within municipalities were essential for the development of wooden multi-storey construction (Holfve, 2020; Sjöström, 2018), as well as creating a niche market by articulating visions and expectations (Ingmar, 2015). Similar to this, the results from Mahapatra *et al.* (2012) showed that the conditions for market growth were most favorable in Sweden because of the promotional activities targeted against this niche market. Lazarevic *et al.* (2019) pointed out the importance of governmental interventions to stimulate the development, which could be drawn to municipal incentives. Hurmekoski *et al.* (2015) claimed that the market for WMC was strongly dependent on the structure of the construction industry, and particularly pointed out the risk-averse nature of the construction value chain. In relation to this study, these previous works suggest that governments and municipalities have an important role in the development of WMC but do not provide any explanations of the activities and behaviours that can contribute to a change in the industry, which makes the purpose of this study justified to fill this theoretical gap.

5 Results

This chapter presents the results of the data collection that has been conducted through thematic analysis. A short demonstration of the coding procedure is presented in tables for each theme to provide an overview of the thematic analysis. Each theme with its categories will present the empirical evidence collected through different documents published by the municipalities.

5.1 Institutional pressures

This theme aims to capture how the municipal strategies are influenced by regulative pressures and normative pressures such as social norms and expectations. The categorization of empirical examples of this is illustrated in Table 4.

Table 4. Exemplification of the results of the coding with empirical examples

Category	***Empirical example***	***Theme***
Regulative pressures	"As the demands for resource management and recycling become increasingly mandatory, wood construction is becoming an increasingly important opportunity."	Institutional pressures
Normative pressures	"The new climate agreement states that the global temperature increase should be kept below 2 degrees, and that an effort should be made to limit it to 1.5 degrees. Emissions from construction represent a significant part of the world's carbon dioxide emissions."	
	"If wood is to be competitive as a building material, it is a necessity. Wood should win the match based on good practice and freedom of choice, not with regulation and coercion."	

Empirical examples derived from the categories in Table 4 are further developed in the following sections (5.1.1- 5.1.2).

5.1.1 Regulative pressures

Representatives of Växjö municipality (2018) describe in the strategy that as the demands for resource management and recycling become increasingly mandatory, wood construction is becoming an increasingly important opportunity.

5.1.2 Normative pressures

Representatives of Falu municipality (2017) explains that the world and Sweden face crucial challenges, in terms of climate and resource management. The strategy refers to the climate agreement that states that the global temperature increase should be kept below 2 degrees, and that an effort should be made to limit it to 1.5 degrees. They further emphasize that emissions from construction represent a significant part of the world's carbon dioxide emissions.

In an interview published in Skellefteå municipality's wooden construction strategy, a representative from the construction industry (Nilsson, 2017) believes that the sustainability aspect will be at least as important in the future and that wood building is an obvious part of the development. To answer the question what it takes to make wood the leading construction

material, the respondent argues that wood should win the match based on good practice and freedom of choice, not with regulation and coercion.

In a writing from the executive committee § 411/2018, it appears that life cycle perspectives on the entire construction process containing everything from raw material extraction to dismantling and waste are becoming increasingly important. Representatives of Växjö municipality (2018) explained that the Swedish National Board of Housing, Building, and Planning has a clear mission to reduce emissions from the construction sector. The strategy further communicates that the developments in the area of wood construction have been rapid in recent years, including changed production, new producers, streamlined construction processes and new innovative materials. Based on this, representatives suggested in 2018 a renewal of the strategy and emphasized its importance from a technological and production perspective. Representatives of Växjö municipality (2018) argue that a renewal of the strategy is required in the light of the fact that wood as a building material is becoming more and more common. Additionally, they mean that there are fewer and fewer reasons to promote special building materials (Växjö, 2018).

When developing the new strategy jointly in the municipal group, the above three factors have been important to highlight in the new strategy *Växjö – Europe's first modern wooden city*. Representatives of Växjö municipality (2018) describe that from the comments received through the consultation procedure, some demands are wishes to see more considerations from a life cycle perspective, that no special material should be promoted, that climate impact throughout the construction process should be decisive. They argue that since developments in the construction sector are currently progressing rapidly, it is difficult to put in detail definitions and measurement methods. Intentionally, therefore, they explain that the strategy has been kept flexible and transparent, but with the possibility of being further specified in both the sustainability program and the energy plan, as well as in subsequent revisions to the strategy.

5.2 Institutional logics

This theme aims to identify prevailing logics in the municipalities, and to capture how the municipalities navigate between the market and community logic (Table 5).

Table 5. Exemplification of the results of the coding with empirical examples

Category	***Empirical example***	***Theme***
Market logic	"It is difficult to compare production costs for buildings with different types of materials as the construction process differs. However, industrial wood construction is a model with increasing market elements and with the potential to reduce construction costs."	Institutional logics
	"More wooden constructions also lead to more actors in the building sector and increased competition. This results in lower costs and price development for planning, building and housing."	
	"I believe that the economic aspect will continue to play a crucial role. There is an uptoe that it is expensive to build in wood, but I think that our many different actors have shown that it is actually possible to build both climate smart and with good overall economy."	

Community logic	“Through good cooperation, we increase the possibilities for wood building where economic, ecological and social aspects together make wood take home the match on all levels.” "By working strategically for the wood construction industry, the goal is for the municipality to be able to increase the number of jobs in the industry. "	Institutional logics
Navigation between different logics	"In the choice of building materials and construction solutions, there are of course several aspects that come into play - in addition to the climate factor, we need to consider whether it is both technically and economically sustainable to build in wood." "By stimulating new, creative concepts for the construction of wood, we have created the opportunity for living environments where economic, social and ecological factors together contribute to sustainable development." “Sometimes the economy can still come first, while in other cases there may be factors that make the environment valued more highly.”	

Empirical examples derived from the categories in Table 5 are further explained in the following text (5.2.1 – 5.2. 3).

5.2.1 Market logic

Representatives of Falu municipality (2017) writes in their wooden construction strategy that wood-related products are a very important sector for Sweden's economy and employment, but that there is still great potential to increase the value added of products. They describe that Sweden is a country that exports much of the wood from forest to other countries. A large part of the exports consists of low-value-added sawn timber and the export value of Swedish wood products could be increased by producing processed materials for wooden houses. Representatives of Falu municipality (2017) further explained that their sustainability strategy also could be seen as a letter of intent to the business community. Additionally, they explain that they are a municipality with a high proportion of woodland in a county with a lot of forest. In both the municipality and the region of Dalarna there are many companies active in the forestry and wood industry. There is thus a great supply of wood raw materials and opportunities to refine it locally, and an increased wood construction can increase employment and skills in companies active in Falun. As a constructor, representatives of Falu municipality (2017) means that they of course are interested in low construction costs, as well as low operating costs throughout the building’s life cycle. They argue that it is difficult to compare production costs for buildings with different types of materials as the construction process differs. However, they add that industrial wood construction is a model with increasing market elements and with the potential to reduce construction costs.

Representatives of Växjö municipality (2018) argue that more wooden constructions will lead to more actors in the building sector and increased competition, which in a longer perspective results in lower costs and price development for planning, building and housing. The wooden construction strategy further describes this as a particularly welcoming element since they for a long period of time faced weak productivity and construction prices rising substantially more than other industrial sectors. In addition, this development also pushed other construction methods and construction material systems to become more environmentally friendly. The strategy of Växjö municipality (2018) believes that wood construction contributes to many factors related to efficiency, such as easier extensions to already existing buildings, more

efficient logistical and building processes, increased resource efficiency and fewer construction errors. They argue that wood construction is contributing to a combination of function, usability, economic use of natural resources, good design, purpose-adapted technology and cost effectiveness results in good architecture. Furthermore, the strategy of Växjö municipality (2018) explains that their experience from wood construction has so far shown that the cost of building with a wooden frame can be slightly higher. It is not normally the wood itself, but usually a habit in procurement, few architects, few manufacturers, unfamiliar developers, and construction contractors. However, they explain that the development is fast and the demand for wood construction in Sweden is constantly increasing. Additionally, they believe that the knowledge of wood construction is increasing at the same rate. The increased price effect noted in Växjö so far can therefore be transitory, which makes the situation around the economy difficult to assess for the future.

The industry representative Nilsson (2017) who is interviewed in the wooden construction strategy of Skellefteå municipality believes that the economic aspect of wood construction will continue to play a crucial role. The respondent argues that there is a perception that it is expensive to build in wood, but believes that many different actors have shown that it is actually possible to build both climate smart and with a good overall economy. He argues that if wood is going to be competitive as a building material, considering the economic aspects is a necessity. In addition to this, the chairman of Skellefteå's board of Building and Environment explains as a sequence in the strategy that as far as the financial aspects are concerned, she believes that the municipality needs to work on how procurements are done. She explains that in some cases the economic aspect is the most prioritized, while in other cases there are factors that make the environmental aspects valued higher. She further emphasizes that it is good that the development is moving towards it being as sustainable ecologically as economically to build in wood.

5.2.2 Community logic

Representatives of Mönsterås municipality (2016) explain in their strategy that they chose to promote wood-construction because of some social factors. One of them is the high pace of development of the modern society, which makes them want to cherish the surrounding built environment by giving the citizens a sense of security, familiarity, and a homely feeling. They want to protect the area's cultural heritage by strengthening the wooden building architecture that already exists today. They also want to reinforce important attributes associated with their region, large forests, carpenter's joy, and an expanded procurement of wood in all its forms. Additionally, they want to see an expansion of the wood industry, which has the potential to generate more jobs. Environmental factors that make them want to promote wood construction is to work to reduce emissions at all stages of the construction and management process to contribute to the stated goal; to reduce energy use in the municipality by 25% between 2013-2020 (Mönsterås municipality, 2016 p.11)

Representatives of Växjö municipality (2018) believe that wood construction could serve as a path towards engagement in the society. They describe that for good architecture to be realised, engagement, consensus and a good cooperation between architects, construction companies, contractors and civil society are required. Engagement in wood constructions creates common platforms, consensus and good cooperation (Växjö, 2013). Växjö municipality (2013) explains in the strategy that their environmental and climate work is well known and that the focus of strategic environmental work is mainly to reduce fossil carbon dioxide emissions. They further explain that their environmental and sustainability work is about seeing every effort in the environmental field as part of a larger whole, and that wood construction is part of this whole.

The group-wide strategy for Växjö municipality's wood construction is mainly aimed at reducing the environmental impact, as well as forming the basis for continued development in business and research. They explain that the strategy will contribute to achieving the environmental goals in their environmental program and to Växjö remaining at the forefront when it comes to wood construction (Växjö, 2018).

Nilsson (2017) describes in Skellefteå municipality's strategy that through good cooperation, he believes that they will increase the possibilities for wood building where economic, ecological, and social aspects together make wood take home the match on all levels. The aim with their strategy is to continue to develop and test different concepts in urban renewal and construction that contribute to economic, social and ecological development as part of the work of the work with Agenda 2030.

5.2.3 Navigation between logics

Representatives of Skellefteå municipality describe that they always chose wood in those cases when it is possible. In the choice of building materials and construction solutions, they mean that there are of course several aspects that come into play. In addition to the climate factor, they argue that they need to consider whether it is both technically and economically sustainable to build in wood. They state that by stimulating new, creative concepts for the construction of wood, it created the opportunity for living environments where economic, social, and ecological factors together contribute to sustainable development. They conclude that sometimes the economy still comes first, while in other cases there may be factors that make the environment valued more highly (Skellefteå, 2017).

In the annual report of 2019, Skellefteå municipality describes that they have started work on developing an action plan to minimize the deficit of the construction project Skellefteå culture center, but it is not possible to guarantee the final cost forecast at this point. The main reason for the deficit is the complexity of the construction where their risk assumptions linked to technology and construction have not been sufficient and therefore entailed increased costs. They motivate the deficit by explaining that the building is unique with its construction entirely in wood combined with high heights, since no one else has done this before, which means that we together with the contractor and consultants are paving the way for this type of wooden building (Skellefteå, 2019).

5.3 Institutional entrepreneurship

This theme aims to capture the different dimensions of the concept institutional entrepreneurship (Maguire, Hardy & Lawrence, 2004) in order to identify market approaches that lead to institutional change (Table 6).

Table 6. Exemplification of the results of the coding with empirical examples

Category	***Empirical examples***	***Theme***
Framing	"Wood is a renewable raw material that forms part of a natural cycle. By 2040, Sweden will have zero in net carbon dioxide emissions, and construction is an important part of achieving this goal." "We promote sustainable development and therefore promote the proportion of wood in our construction – both wood you see and in the frame. The municipal administrations and companies shall in their activities follow the following and the above strategies for climate, business and society."	Institutional entrepreneurship
Allocating and leveraging resources	"There are companies with high competence in everything from procurement to the processing of the raw material, broad training in and advanced research on wood and its qualities. "That's why we've decided to do everything we can to both take advantage of and further-develop the creative solutions that make wood the obvious choice of materials. And of course, we are positive about all kinds of collaborations with those who share our ambitions." "Wood industries and research institutes change gears. Skellefteå has industry-leading wood institutes for research and development, which together with the business community are working to find new, innovative ways to use wood as a building material."	
Questioning existing practices	"Wooden buildings generally have lower carbon dioxide emissions and lower primary energy use than steel and concrete buildings." "Wooden buildings may have cheaper production costs than other building materials."	
Taking advantage of market position and municipal instruments	"Plans, land guidelines and development agreements will be used as an opportunity for dialogue with developers who want to develop the actual wood construction." " When the municipality and the municipally owned companies build, wood should always be tested as the first choice for both frame, exterior and interior parts. The municipality shall draw up a checklist of which aspects should be examined in the municipal construction processes. Low-energy construction should be chosen before traditional construction. "	

Empirical examples derived from the categories in Table 6 are further explained in the following text (5.3.1- 5.3.4).

5.3.1 Allocating and leveraging resources

Representatives of Skellefteå municipality (2017) describe that the aim of their wooden construction strategy is to promote increased wood construction in Skellefteå, Sweden and the world. They mean that the strategy demonstrates opportunities and synergies between the municipality, academia and industry for an increased growth and sustainable development from an economic, social, and ecological perspective. Based on the buildings in wood already built

in Skellefteå over the past decade, the wooden construction strategy will give Skellefteå as a city and municipality the conditions to push boundaries. This is by highlighting qualities and development opportunities with building in wood for increased and sustainable urban construction.

The purpose of Trästad Skellefteå is to stimulate economic growth through increased construction so that new companies can start, and existing companies can hire more. As a part of their strategy, they want to collaborate to strengthen the region of Skellefteå's place on the wooden map (Skellefteå, 2017). The strategy of Skellefteå municipality (2017) explains that they have decided to do everything they can to both take advantage of and further-develop the creative solutions that make wood the obvious choice of materials. In addition, they are positive about all kinds of collaborations with those who share their ambitions. Skellefteå describes that wood industries and research institutes change gears. Additionally, Skellefteå municipality's strategy (2017) communicates that they have industry-leading wood institutes for research and development, which together with the business community are working to find new, innovative ways to use wood as a building material. In addition, Skellefteå Municipality's involvement in the National Wood Building Strategy and Trästad has taken another step forward.

Mönsterås municipality's strategy (2016) demonstrates that they highlight wood as the best construction material since there are companies with high competence in the region in everything from procurement to the processing of the raw material, broad training in and advanced research on wood and its qualities.

In the strategy of Växjö municipality (2018), they argue that they will stimulate, support, and develop the business sector related to buildings made of wood. Additionally, they aim to strengthen Linnaeus University as a centre of wood research and develop the expertise related to climate calculations and declarations in order to be better able to compare buildings from a life cycle perspective and form a special working group for this. Furthermore, they describe that they will support cooperation with academic institutions and the business sector in the areas in which the municipal group sees its biggest challenges. Another example of how they allocate and leverage resources, they will be active in relevant networks, activities, conferences and events relating to wood construction as well as in study visits. The latter is in close cooperation with the tourist industry.

5.3.2 Questioning existing practices

In the strategy of Falu municipality (2017), it is said that they significantly can reduce their climate impact from construction by building in renewable materials and with new construction technology. At the same time, they believe they can contribute to the development of Swedish cutting-edge technology in environmentally friendly construction. They explain that when considering the overall environmental impact of a building based on a life cycle analysis, construction in wood appears to be increasingly beneficial.

Representatives of Mönsterås municipality (2016) explains that wooden buildings may have cheaper production costs than other building materials. Additionally, they explain that the processing of the material is less costly than for instance, concrete buildings. In a similar way the strategy of Skellefteå municipality (2017) proposes that wooden buildings in general have lower carbon dioxide emissions and lower primary energy use than steel and concrete buildings. They also argue that wooden houses in the production phase consume less energy and have lower carbon dioxide emissions than traditionally built houses. Other benefits of wood stated in the strategy of Skellefteå municipality is that they meet the high requirements in terms of

sound and fire safety. Related to sound, they believe that repairs in wooden houses cause less noise disturbance for users. Considering the life cycle costs of wood constructions, they argue that in the utilisation phase, the energy needs of wooden houses are equivalent to those that use traditional building materials. In the demolition phase however, they mean that wood has the advantage over traditional building materials.

5.3.3 Taking advantage of market position and municipal instruments

Falu municipality (2017) writes in their wooden-construction strategy that wood will always be tested in new construction projects within the municipality group. Plans, land guidelines and development agreements will be used as an opportunity for dialogue with developers that want to develop wood construction. Additionally, wood, or other renewable materials shall preferably be chosen when technically and economically justifiable. However, they explain that the choice of materials and methods shall always consider the local characteristics of the site.
Mönsterås municipality (2016) explains in their strategy that in order to increase the use of wood in new buildings, the municipality must show good examples and strengthen knowledge of the material. Mönsterås municipality (2016) writes in their strategy that when the municipality and the municipally owned companies build, wood should always be tested as the first choice for both frame, exterior, and interior parts. In addition to this, the municipality shall draw up a checklist of which aspects that should be examined in the municipal construction processes. When the municipality and the municipally owned companies build, the checklist, as mentioned above, should be used and choices are justified, and reasoning is reported based on the same. Lastly, they explain that low-energy construction should be chosen before traditional construction.

Växjö municipality's strategy (2018) states a number of guidelines within their strategy that exemplifies how they are taking advantage of their market position. First, they will test wood as a building material for all new municipal buildings. Second, they will use the selling municipal land as an instrument for increasing wood as a construction material and in the long-term monitor wood construction projects for increased quality and to learn from one another within the group's companies (Växjö, 2018). In the autumn of 2015, the Planning Office and Linnaeus University started a dialogue on how the intentions of the wood building strategy could be integrated into the implementation of the urban development project Torparängen. In February 2016 Växjö Municipality and Linnaeus University signed an agreement for the cooperation until the summer of 2019, which the municipal board then approved KS §2016/107. Through the agreement, Växjö Municipality granted funding to Linnaeus University totaling SEK 3.5 million, of which SEK 2.1 million was financed by the urban development project *Torparängen* and SEK 1.4 million from the municipality's research and development funds.
Skellefteå municipality writes in their strategy "The safest way to predict the future is to create it" (Skellefteå municipality, 2017 p. 2). The industry representative Nilsson and Fahlesson, the chairman of Skellefteå's board of Building and Environment both explain that Skellefteå municipality takes advantage of their favorable conditions (Skellefteå municipality, 2019). Fahlesson (2019) explains that with the forest and technological knowledge close at hand, they have pursued many projects that have created interest and fascination both in Sweden and internationally. Skellefteå municipality today have a well-established cluster of successful companies that have both the knowledge and the courage to advance the boundaries of what is possible in modern wood construction. Additionally, since sustainable construction creates the ambition to choose building materials that give rise to as low a carbon footprint as possible, they argue that wood should be considered as a material in all projects. In the context of municipal governance of land use, they describe that the benefits of wood from a sustainability

and especially life cycle perspective shall be ensured and clarified for developers and contractors (Skellefteå municipality, 2017).

5.3.4 Framing

Representatives of Falu municipality (2017) describes that building in wood ties in with the city's history while the opportunity is given to the municipality becoming a driving force in sustainable social transition. They explain that up to 50 percent of the carbon dioxide emissions during the life cycle of a traditional building stains from production of the material (Falu municipality, 2017 p. 2). From a climate point of view, representatives of the municipality argue for several advantages of wood, whereas one of the advantages is that the use of energy to produce building materials in wood is relatively low. They add that they also choose interior materials based on new knowledge about the impact of materials on people and the environment. They explain that wood is a renewable raw material that forms part of a natural cycle. Additionally, they argue that Sweden by 2040 will have zero net carbon dioxide emissions, and construction is an important part of achieving this goal. As they promote sustainable development, they explain that they therefore promote the proportion of wood in construction, both wood that is visible and in the frame. They emphasize that the municipality's management and companies shall in their activities follow the strategies for climate, business, and society.

Skellefteå municipality describes in their strategy that they promote sustainable construction by continuing to develop and test different concepts in urban renewal and construction that contribute to economic, social, and ecological development as part of the Agenda 2030 work. Equivalent to Skellefteå, Mönsterås municipality’s strategy frames wood as a material that is climate smart since it is both renewable, stores carbon dioxide during usage and has an efficient processing of energy. The municipality argues that it is important that they actively pursue the issue of a developed circular approach and life cycle analysis in order to stimulate the industry and to live up to being an eco-municipality with a clear environmental profile. In addition, they state the fact that the municipality insists that wood is the best building material for the region is quite natural as 75% of Sweden's wood-related industry is located in Småland.

6 Analysis

This chapter opens with an analysis of perceived pressures, followed by an understanding of inter-connected logics. The perceived pressures and logics set the scene for understanding conditions for transformation in terms of entrepreneurship.

6.1 Communication of perceived pressures

Municipalities can be seen as involved in organizational fields as described by DiMaggio and Powell (1983) where the structure of the field is a result of a set of similar activities. As seen in the thematic analysis, the municipalities have adopted similar strategies and use a similar vocabulary for communicating this necessary transition within the construction industry. The analysis of the construction strategies show that the regulative pressures pointed at the municipalities is not communicated in a high extent. This could imply that the municipalities have conformed to the requirements of regulative actors such as the state, and thereby expect to receive support and legitimacy to avoid formal sanctions as described by Scott (1995). However, the municipalities communicate a higher occurrence of normative pressures, that according to Scott (1995) aims to guide action through norms of acceptability, morality, and ethics. In the strategies of the municipalities Skellefteå (2017) and Falun (2017) they render for international climate agreements and argue that Sweden faces crucial challenges which these strategies aim to address. By demonstrating that overarching climate aims are taken seriously, the municipalities increase their chances of attaining legitimacy from the environment, and thereby the chances of a successful implementation of the strategy.

6.2 Competing or complementary logics

The municipalities can be seen as involved in organizational fields, that according to Thornton *et al.* (2012) are organized by one or more dominant institutional logic that will form the behavior of the organizations within the field. The market logic that focuses on commercial interests was present in each of the municipal strategies. Falu municipality (2017) clearly expressed that they are interested in low construction costs, as well as low operating costs throughout the building's life cycle. This could be a factor for a successful implementation of the strategy, since the Swedish Association of Local Authorities and Regions (2012) argued that it is the developer's risk and profitability assessments that determine the realization of construction projects. Falu municipality (2017) writes that more wooden construction could lead to an increased number of actors in the building sector and increased competition, which could lower the costs and price development. The Swedish Association of Local Authorities and Regions (2012) argued that market participants strive for high prices and strong demand, which could lead to construction companies keeping the rate of expansion back. Municipal initiatives to lower the costs in the construction sector by facilitating the process and encouraging market actors could be seen as promotional for a positive market development. Skellefteå municipality (2017) similar to Växjö municipality (2018) argue that the economic aspect will play a crucial role, partially to show that it is possible to build both climate friendly and with good economy.

The community logic is of natural causes very present in these strategies since the municipalities are aimed to serve the public interests. Thornton (2004) describes that this logic stains from engagement in society and common will. As described earlier in the analysis, the municipalities frequently communicate the prevalence of less coercive pressures. According to

the community logic, the strategic focus is to promote the uprightness of the institutions through visible actions. The regulative pressures might not contribute to the status of the municipality as the more voluntary efforts, which might explain the lacking demonstration of rules and regulations the municipal strategies respond to. Lee and Lounsbury (2015) describe the community logic as a starting point for organizations' interpretation of institutional pressures and something that is starting to dominate in some societies. Both Falun, Skellefteå and Mönsterås use increased employment as an argument for increased building in wood. Demonstrating the benefits of the strategy like this could also be a way to avoid normative sanctions, since the citizens might expect to benefit from municipal initiatives.

Regarding the navigation between these logics, since the municipalities choose to agree to changing societal norms, it can be seen that market logic and community logic harmonize with each other. The municipalities active work for more sustainable design standards is consistent with Hayes and Rajão's (2011) definition of the more sustainable community logic as promoting a reduced impact on the climate. Smets and Jarzabkowski (2013) argue that by coinciding with the objectives of different logics in a given situation, they can harmonize and work together. Larsson von Garaguly (2016) on the other hand means that the appearance of separate logics within an organization could result in some form of goal-conflict and that organizations constantly need to work on trying to accommodate conflicting goals. There were not many goal-conflicts presented in the public documents that were examined. One kind of goal conflict is presented by Skellefteå municipality who wrote in their annual report when demonstrating a deficit from one of their wooden construction projects that the economy sometimes still come first, while in some cases there may be factors that make the environment valued more highly (Skellefteå, 2017).

The municipalities continuously throughout their strategies emphasize the cost efficiency of wooden construction, as well as demonstrating the consequences of the strategy such as increased employment and attractiveness of the municipality. This is an example of what Pache and Santos (2013) describe as selective interconnection. Selective interconnection is signified by organizations combining different elements from separate logics, such as the market and community logic. Pache and Santos (2013) further explain that organizations need to learn how to navigate between different objectives, and argue that selective interconnection reduces the risk that the organization’s response to expectations in the different logics is called into question. By navigating between the market and community logic, and using selective interconnection, the municipalities can strengthen the ability to secure support from all stakeholders such as the citizens and the market. By continuously taking several perspectives into consideration, the possibility of a successful implementation of the strategy will increase.

Although the logics can be considered competing because several of its assumptions conflict with each other, Lee and Lounsbury (2015) describe that the market logic's focus on economic factors and the community logic's focus on environmental promotion does not necessarily need to involve conflicts. In this case, the market logic can promote the environmental work of the municipalities as it can lead to economic advantages which provides the organization with increased abilities to act sustainable. Pache and Santos (2013) describe that organizations can strategically introduce elements of other more trusted logics to achieve legitimacy from the environment. The community logic can therefore be seen as a complement to the market logic used to strengthen the municipality’s position and legitimacy in the market. The complexity that is prevailing in the municipalities is as mentioned earlier, that the room for maneuver differs from private actors concerning financial aspects since the operations of the municipality is tax-financed. For some citizens, the market logic can be seen as the more trusted logic since

an effective resource management is requested by the taxpayers. One other thing that might contribute to this complexity is the specification of wood, that could be seen as controversial for those favoring other materials and have different perceptions about the advantages of those.

6.3 Municipal entrepreneurship

Institutional entrepreneurs are defined as actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones (Maguire, Hardy & Lawrence, 2004). DiMaggio (1988) explain that new institutions arise when organized actors with sufficient resources see those as opportunities to realize interest that they value highly. Both Skellefteå and Mönsterås communicate their geographic location as an opportunity to increase employment and to strengthen their role as pioneers within this industry. The leveraging of resources is seen in all of the municipalities, but Växjö municipality in particular has several key strategies for cooperation with the academia and private market actors. Växjö municipality's strategy has several features that fit under the characterization of an institutional entrepreneur. Garud *et al.* (2002) for instance, argued that entrepreneurs tie the functioning of different institutions together. The strategy of Växjö communicates that they will support the cooperation with academic institutions, the business sector and involve themselves in different networks by arranging study visits in collaboration with the tourist industry. Additionally, Garud *et al.* (2002) explain that the strategies of the institutional entrepreneur must be developed to embed change in fields of various organizations interested in the existing structural arrangements. The strategy of Växjö demonstrates that the municipality is willing to have a broad collaboration not only within the particular field of construction, but also engages in mobilizing all groups who could have an interest in the creation of a new institutional setting.

The municipalities can as institutional entrepreneurs strategically respond to the normative and regulative pressures by negotiating with key stakeholders through the use of framing (Garud *et al*. 2007). Framing includes articulating the transition project in a certain way that provides solutions and enables collective attribution processes. Through framing the transition, new practices such as wooden construction can be entitled as appropriate to help mobilize the coalitions of different groups, such as contractors, tenderers, architects and so on. The strategy of Mönsterås municipality describes wood construction as a way for the municipality to have a circular approach and living up to being an eco-municipality with a clear environmental profile. Outlining the strategy like this is a clear example of both articulating and providing solutions to what the representatives of the municipality perceives as an issue. The strategy of Falu municipality is communicated in a similar way, where they point out certain benefits of wood as a construction material and tie the concept of wooden construction to the city's history. All of the municipalities are continuously framing wood as a solution to the climate crisis and to achieve goals such as Agenda 2030 and reduced emissions in Sweden by 2040. Articulating wood as a solution to the climate crisis could consequently lead to the collective action necessary to secure the support for institutional change. This aligns with the argument of Zapata and Zapata Campos (2018) who explains that cities as institutional entrepreneurs in emerging environmental policy fields, have the opportunity to shape and frame the field through their practices when resources, motivations, and relations are articulated.

The municipalities are with their strategies influencing and steering the local market and industry based on their own organizational aims. DiMaggio (1988) argued that new institutions arise when actors with sufficient resources see possibilities to realize interests they value highly. As stated in the analysis earlier, it could be seen that the municipalities took more objectives into consideration than just the ones related to sustainability, based on the assumption that the

municipalities are influenced by both the market and community logic. Hence, municipalities have a vested interest in promoting a development of wooden construction both to increase employment in the region, stimulate economic growth and enhance their environmental profile.

As Maguire, Hardy and Lawrence (2004) explain characterizes the institutional entrepreneur, the municipalities are mobilizing resources such as private market actors, universities and local authorities. The strategy of Skellefteå municipality symbolizes this entrepreneurship, they implemented their strategy by using experience and knowledge about wooden construction and interacted with actors that could provide efficiency to the field; the industry with technique and knowledge, the academy with research and development, and the municipality that enabled this in the role as an active contractor. This allocation of resources and actors together enables the municipality to contribute to a change of the terms of their institutional environment. The cooperation between different actors in the market creates new institutional settings, where the prevailing culture and norms can take new forms.

Besides mobilizing and allocating resources, the municipalities are using their legal mandate through their responsibility over plans and land guidelines to steer the development towards increased wood construction. For instance, In the strategy of Växjö municipality representatives explain that they open up for dialogues with developers interested particularly in wood-constructions. Växjö municipality stands out with their strategy by stating several tools they will use to monitor and control the development of WMC. As all the other municipalities, they have a principle implying that wood always will be tested as a building material for all new municipal buildings. Additionally, they state that they will use municipal land as an instrument for increased wooden constructions. This indicates that they are not just allocating resources from different actors but taking advantage of their own available resources to steer the expansion in this area in the desired direction.

Regarding the municipalities position on the market and the instruments available to them, it could be seen that all of the municipalities tend to use public procurement as a tool or instrument. However, common to all municipalities is that procurement is identified as a development area. The strategy of Mönsterås municipality emphasizes that there is a good availability of competence regarding procurement but reinforces that there is a need for an expanded procurement of wood in all forms. The strategy of Växjö municipality instead describes procurements as an economic obstacle and a factor that increases the costs of wood construction. They explained that it is not the wood itself as a material, but the habit in procurement processes. In a similar way, representatives in Skellefteå municipality's strategy also point out procurements as an area for development to handle the financial aspects of wood construction.

To qualify as institutional entrepreneurs, actors must break with existing rules and practices associated with the dominant institutional logics and institutionalize the alternative rules, practices, or logics they are championing (Garud *et al.* 2002). In the strategies of both Mönsterås municipality and Skellefteå municipality several benefits over other construction materials are stated. The strategy of Skellefteå municipality explains that wood meets the terms of sound, fire safety and proposes that wooden buildings have lower carbon dioxide emissions than traditionally built houses. The strategy of Mönsterås municipality simply states that wooden buildings have cheaper production and processing costs than other materials. Related to these processes to institutionalize alternative practices, Garud *et al.* (2007) explained this as an intensely political process. It would be possible to discern a strong impact process in these strategies, however, not many practical solutions are addressed in the strategies of the

municipalities. This even when it is explicitly described that there is a lack of relevant knowledge in the sector in order to speed up development. Still, the municipalities are not focusing on providing any new knowledge besides the climate benefits. In order to challenge and in the long run change the practices in the field of construction, the municipalities could address more of the perceived obstacles in the market, such as the elements of the material and current legal requirements.

7 Discussion

This chapter discusses how the result of this study aligns with previous studies presented in the background of the empirical study. This chapter covers the importance of cooperation and promotional activities on the market, and points out similarities as well as differences from previous findings.

7.1 The importance of cooperation

The results obtained in this study aligns with previous studies and the findings that have been made regarding promotion of wooden construction. Both Holfve (2020) and Sjöström (2018) concluded that cooperation within each municipality was crucial for the development of wooden construction and the ability for them to carry out larger, complex projects. This study who asked how municipalities could enable a positive market development for WMC could also identify cooperation and collaboration as a key driver for the development, where the network between different institutions such as the academia and construction companies were of particular importance for promoting wooden construction. It could be seen that the municipalities have investigated the various actors in the field, both existing and potential, who could contribute in some way to this development. This study, in similarity to the findings made by Holfve (2020) and Sjöström (2018), show how cooperation between different actors creates new institutional settings, which subsequently can contribute to change the prevailing norms, culture, and practices of the current industry. What distinguishes this study from the previous ones is that it puts a greater emphasis on the underlying structures of the field, for example the prevailing logics who influence the behavior of the municipality, rather than explaining obstacles and opportunities. This is mainly because the neo-institutional perspective focuses on changes within organizational structures, norms, and practices.

Related to cooperation between different actors, Ingmar (2015) explained that public actors by articulating visions and expectations developed a market for timber-based solutions that attracted niche producers. That aligned with this study's theoretical outset where municipalities function as entrepreneurs who communicate their visions and frame wooden construction as a solution to achieve goals such as reduced climate impacts. This study has shown that through framing the transition, new practices such as wooden construction can be entitled as appropriate to help mobilize the coalitions of different groups, such as contractors, tenderers, architects and so forth. Ingmar (2015) aimed in similarity to this study, to clarify the dynamics of the profound structural changes needed in the industry. All of the municipal strategies that were investigated had a clear wooden construction strategy that contained both visions and expectations of what the strategy eventually will lead to or result in, something that served as a contributor to solving the current climate crisis. This confirms Ingmar's (2015) results, which showed that conveying a vision is an important part of developing a market for wood construction.

7.2 Promotional activities

Similar to the study by Ingmar (2015), Mahapatra *et al.* (2012) concluded in their study that Sweden in particular had a high emphasis on promotional activities to create a niche market for wood construction. In this context, this study shows that municipal instruments of more coercive character are important tools for creating a so-called niche market. Related to these promotional activities, this study also shows that public procurement has been used to create a completely new market where different actors can compete on similar terms, by deciding in advance which material to use in specific construction projects. In a Finnish context, Lazarevic

et al. (2020) argued that the development of favourable public procurement criteria has improved the interest in WMC. This aligns with the report by IVA (2017) that underlined the role of public contractors and how they can stimulate inspirational construction projects through architectural and procurement competitions. However, several municipalities reflect in their strategies that there is a high potential for development regarding public procurement and that it is an essential tool for stimulating the market. Correspondingly, the Government of Sweden (2018) stated that public procurement is an area that needs to be developed in order to steer towards more sustainable housing construction. The Government (2018) emphasizes the potential to set climate and sustainability requirements in public procurement of construction projects, which is recognized by the representatives of the chosen municipalities in this study.

The study by Hurmekoski *et al.* (2015) had a focus on the aggregated market of WMC and argued that the diffusion of wooden multi-storey construction was highly dependent on the regulatory framework and the structure of the construction industry. Similar to this, the results of Lazarevic *et al.* (2020) showed that the WMC market were stimulated by government interventions that looked for encouraging value-added activities. Hurmekoski *et al.* (2015) among other things mentioned the risk-averse nature of the construction value chain, which made actors less willing to establish new practices. Sjöström (2018) explained that spreading the risks associated with wooden construction projects between the actors involved were an important factor for the continuous development. The Government of Sweden (2018) also discussed risk in relation to capital intensive investments and that it is costly and time-consuming to change existing production and practices. Larger investments in additional systems were therefore perceived as expensive. This study could not find any explicit risk mitigating strategies besides the efforts made to reduce costs and facilitate the construction process, which indirectly could be seen as a risk reducer. Hurmekoski *et al.* (2015) explained that the dominant construction practices have served as institutional lock-ins, but that in regions where there have been economic and cultural pressures from the government these practices have been challenged. Furthermore, environmental policies were identified as drivers for the development. The results obtained in this study indicates that municipalities can serve as the regulative pressure directed towards actors in the market. This can be done by for instance setting requirements with the help of public procurement and land guidelines. Additionally, as an established institution, they can set an example with their promotional activities and challenge the institutional lock-ins described by Hurmekoski *et al.* (2015).

The lack of knowledge is a recurring theme and a perceived bottleneck in all of the previous studies, which has also been reviewed in the background in chapter one. IVA (2017) explained among other things, that one factor to increase the development of wood construction is to ensure that wood within technical education is given the same space as other building materials. Based on this, increased investments in secondary education, which the municipalities are responsible for, could be one way to reduce the knowledge gap within wood construction. Yet, none of the municipalities have addressed this in their strategies. A potential reason for this is that the strategies adopted and developed by the municipalities are in the department for Building and Planning. There are possibly more promotional and cooperative activities that can be made internally between the departments, to enhance knowledge of wooden construction and overcome obstacles in the transition.

8 Conclusions

The last chapter of this study addresses the research question in chapter one and provides practical implications along with suggestions for further research.

8.1 Contributions

The aim of this study was to explain how municipalities can enable a positive market development for wooden multi-storey construction. The ambition was to identify activities that could contribute to structural changes within the industry towards more sustainable. To do this, the study addressed the research question of how municipalities can enable a positive market development for wooden multi-storey construction. First and foremost, one conclusion is that municipalities have a crucial role in steering the development of wooden multi-storey construction and wooden construction in general. This is largely because of the municipalities' responsibility for urban development and planning. More recently, this has shifted from a legal responsibility to a more normative responsibility due to the climate crisis, which could explain the emergence of wooden construction strategies in several municipalities. This study has identified three particular activities that can enable a positive market development, which are; *leveraging of resources, navigating between different interests, and use of municipal instruments.*

As previous studies have shown, close cooperation and collaboration have been essential to create a new market in favor of WMC. This study with its theoretical outset in neo-institutional theory, shows evidence on how the municipalities as entrepreneurs have created a new institutional setting where different sets of institutions such as the academia and the industry have been tied together. The leveraging of the available resources in the community have enabled increased efficiency in the field of WMC, where these sets of institutions have created new networks that provide the market with knowledge that challenge existing practices.

One of the theoretical concepts, selective interconnection, was seen as successful for enabling a positive market development. The concept includes navigating between different stakeholders and the objectives of those, which in this case includes climate friendly and cost-efficient construction. Municipal initiatives to lower the costs in the construction sector by facilitating the process and encouraging market actors through increased demand could be seen as enablers for a positive market development. Two of the studied strategies expressed that the economic aspect has a crucial role, and that it is important to show that it is possible to build both climate friendly and with good economy. It could be seen that the municipalities took more objectives into consideration than just the ones related to sustainability, based on the assumption that the municipalities are influenced by both the market and community logic. Hence, the municipalities have a vested interest in promoting a development of wooden construction both to increase employment in the region, stimulate economic growth and enhance their environmental profile. Goal-conflicts were not communicated to a higher extent, a potential reason for this could be that the strategies that were investigated does not demonstrate the opposing thoughts against it, since the strategies have a promotional aim.

The third identified activity was the use of municipal instruments. The municipalities are using their legal mandate through their responsibility over plans and land guidelines to steer the development towards increased wood construction. Additionally, it could be seen that all of the municipalities tend to use public procurement as a tool or instrument. However, common to all

municipalities is that procurement is identified as a development area, which was also highlighted in previous reports.

8.2 Implications

Although this study does not contribute to the development of existing theory, it is yet another empirical example supporting the theory of how organizations can act as institutional entrepreneurs and bring about change, as well as the extent to which different logics exist and influence its actions. The results obtained are also practically applicable for other municipalities that are considering implementing a wood construction strategy since it demonstrates their important entrepreneurial role in the transition towards more sustainable societies. Leaving this development entirely to the private market, there is a risk that development will stall. Hence, these stimulating, and sometimes more coercive measures are of great importance in promoting contributors for sustainable development. The study also points out areas for development, such as public procurement, for those who already implemented a strategy or for those who are in the initial stage.

8.3 Suggestions for further research

Based on the challenges identified by the municipalities themselves regarding public procurement, an interesting continuation of this study would be to identify knowledge gaps in the different units of the municipalities. A strategy involves many actors in a municipality, which is why it is important to ensure that knowledge of the strategy and its meaning is integrated throughout the organization. A more in-depth study with respondents from other units than the sector for community building therefore would be interesting to see how the strategy is implemented and complied with.

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