

Barriers in the Public Procurement Process: Restricting Long-Term Sustainable Construction of Wooden Buildings

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Abstract

The municipalities control the planning of new housing projects in Sweden, basing their decisions on the general requirements and future strategic expectations. The activity is managed through the Public Procurement Act or the land allocation process depending on their development strategy. It involves the development of local strategies regarding design and geographical development, as well as the development of suitable procurement methods. Therefore, having the ambition to develop sustainability by increasing the use of wood building solutions imposes new challenges on the procurement process performed by municipalities in Sweden. The aim of this study is to identify ways to overcome barriers in the public procurement process for new building developments based on land allocation projects managed by Swedish municipalities, enabling an increase in wooden multifamily houses in Sweden. The study is based on direct participation at a municipality performing this activity, combined with interviews including municipalities and developers involved in the procurement process using land allocation. The result shows discrepancies in how the municipalities and developers perceive the land allocation activities. Furthermore, national standards, equal evaluation methods and a defined procurement process have been identified as drivers towards an efficient activity, which currently acts as a barrier to the development of wooden multifamily houses.

Introduction

Sweden faces a situation where the supply of apartments cannot match the actual demand and the strategies to fulfil the demand have traditionally been developed around well-known building materials such as concrete and steel. Hence, a possible development strategy to fulfil the construction requirement until 2025 (Boverket [Swedish National Board of Housing, Building and Planning], 2016) is to explore wood as a suitable construction material. This would support increased sustainability and make wooden buildings a viable solution for the Swedish municipalities' building requirements (Engström & Hedgren, 2012).

Political decisions are important drivers to fulfil the development requirements of wooden multifamily houses, specifically when expressed through legislation and taxation that can influence market development and increased sustainability (Björheden, 2006; Tudor, Adam & Bates, 2006). Hence, aligning the company strategy in regard to its external market context and actively working within these areas mitigates the effect of industry barriers (Venkatraman & Prescott, 1990).

Swedish municipalities are responsible for planning and fulfilling the housing demand in coordination with the development strategy (Boverket, 2016). Hence, specific requirements can be made in the municipalities' detailed

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development plans to increase the use of wooden buildings, which are an important factor for the development of wood building solutions. The transition towards sustainable building solutions has affected the strategies when using the land allocation process by requiring solutions using wood (Caesar, 2016).

Although the land allocation processes play a dominant role in housing supply, it was determined that the land allocation activity could result in inadequate transparency, including subjective evaluations by the municipalities (Caesar, 2016). Hence, Caesar (2016) developed a model to synchronise the various steps between the land allocation- and the planning process to provide an understanding of the involved activities culminating in project implementation. However, this is from the developers' point of view an initial step in a process similar to a procurement situation requiring structure to ensure transparency and project fulfilment (Weele, 2010). The model correlates with the activities up to the contracting stage, which implies that a more rigorous process similar to a procurement model to control the project deliverables is suitable (Koskele, 2003). The benefit of using the procurement process as a model, interchangeably with the land allocation process, is centred on the similarities between the two processes combined with the municipalities limited structural development and the possibilities to pose requirements similar to a procurement situation (Arrowsmith, 2010; Weele, 2010; Caesar, 2016).

Public procurement has increased in importance and is considered an integral instrument which local municipalities can employ to enforce specific demands in each procurement situation, but not from whom they procure (Upphandlingsmyndigheten, 2017 [National Agency for Public Procurement]). This is an important distinction since public sustainability strategies are the responsibility of the government, whereas the local municipalities are responsible for the development and implementation of sustainability solutions (Gustafsson & Wihlborg, 2016). Hence, municipalities try to maximise the impact of their planning capabilities to improve sustainability by the ability to require specific solutions using the public procurement process (PPA) (Hrelja, Hjerpe & Storbjörk, 2015).

There are several administrative and legislative tools for the municipalities to consider when implementing wood building strategies. Of these, the primary tools are the Planning and Building Act (SFS 2010:900), the Swedish Environmental Code (SFS 1998:808), the Public Procurement Act (SFS 2016:1145) and Boverket's Building Regulations (BFS 2011:6). Also, Swedish Local Government Act (SFS 1991:900) and the Act of Contracts (SFS 1915:218) include additional requirements. However, the law concerning the guidelines for municipality land allocation agreements (SFS 2014:899) stipulates that the municipalities are permitted to post specific requirements in their land allocation process in advance. New recommendations by Sveriges Kommuner och Landsting (SKL [Swedish Association of Local Authorities and Regions]) concerning the land allocation agreements review how the land allocation process is being used in combination with the PPA and other legislation (SKL, 2014). The municipalities claim civil law permits them to pose specific requirements, which provide opportunities to develop local sustainability programs by enforcing specific environmental and sustainability conditions using wood based building solutions (Lundqvist & von Borgstede, 2008).

Considering that many decisions in the procurement process are conducted based on the customer's previous experience and that wooden multifamily

houses are a relatively new alternative on the market implies an advantage for traditional building materials. The drive to change towards wood frame buildings is not based on design or technological features, but instead is based on political decisions and an ambition to reduce the environmental impact of the construction industry (Lindgren & Emmitt, 2017). Therefore, any specific requirements made by the municipalities to increase the use of wooden buildings are seen as an important driver for the development of wood building solutions (Lundqvist & von Borgstede, 2008).

Aim

The aim of this study is to identify barriers in the public procurement process for new building developments based on land allocation projects managed by Swedish municipalities, thereby detecting constraints within the land allocation activity and enabling new methods to improve processes for the development of wood building solutions.

Review of the theoretical platform

Defining the connections between the role of public procurement and the suppliers is important, and the agency theory is a beneficial method for reviewing this relationship as it will clarify the goals of stakeholders within the public procurement process (McCue & Prier, 2008; Ramsay & Caldwell, 2004). Furthermore, considering factors beyond the control of either the principal (municipality) or the agent (developer) can influence the outcome in the public procurement situation and requires a focus on how to organise these stakeholder relationships (Johnston & Seidenstat, 2007). Therefore, reviewing the public procurement process from an agency theory perspective requires an understanding of its limitations, which can be derived from the specific conditions of the public procurement system and its legislative constraints. Currently, the public procurement process is faced with information asymmetry that can generate increased agency costs and problems fulfilling the agreed contract deliverables, which is an issue that can be mitigated by a thorough evaluation process (Wiseman, Cuevas-Rodriguez & Gomez-Mejia, 2012; McCue & Prier, 2008).

The public procurement process is faced with double-sided information asymmetry where the municipality as a principal can become an agent in the relationship towards the public's role as a principal. This provides another layer of information asymmetry, i.e. double-sided information asymmetry, effecting the original agent / principal relationship. The negative effect of information asymmetry will influence the public organisation regardless of how the asymmetry is distributed in relation to the requirements of the public procurement process (Chrisidu-Budnik & Prezadańska, 2017; Aguilera & Jackson, 2010). Hence, the public organisation can enhance their knowledge of the procurement situation by formulating a description of the requirements included in the procurement process. Furthermore, the effectiveness of procurement improves if the agent can rely on the communication provided by the principal, thereby maximising the output of the public procurement situation (Nyman, Nilsson & Rapp, 2005).

An efficiently organised public procurement function is essential for the long-term success of public projects, requiring a professional and structured procurement process (Addo-Duah et al., 2014; McKevitt et al., 2012). The

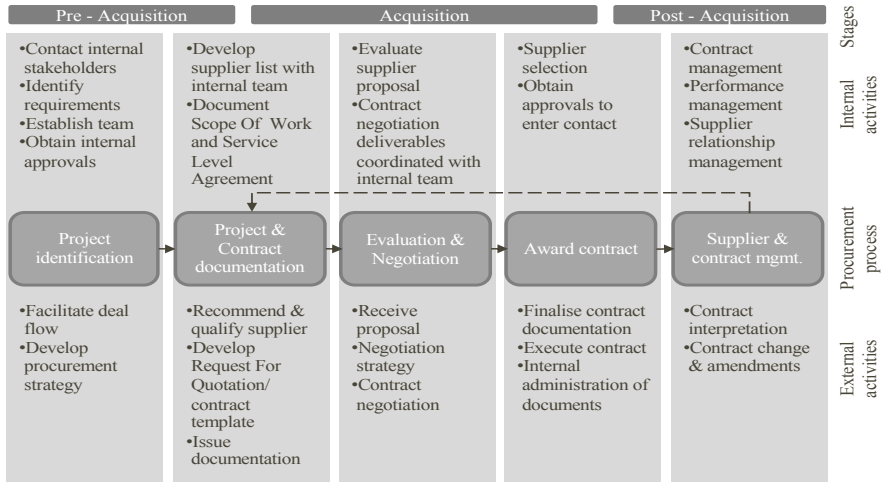
procurement activity has changed beyond its original scope and requires differentiated competencies associated with economic growth, environmental sustainability, market focus and lifecycle focus to be successful (Van Valkenburg & Nagelkerke, 2006; Addo Duah et al., 2014; Atkinson & Sapat, 2012). It is essential to develop a procurement process incorporating evaluations of relevant factors in the procurement situation and emphasising structured methods assessing the success of the procurement process (Dimitri, 2013). Hence, a stringent evaluation process is important for the attainment of the procurement goals (Arrowsmith, 2010), which could be created using different process phases, such as pre-acquisition, acquisition and post-acquisition.

Development of the procurement process is utilised to guarantee a stringent structure, which to a great extent can be derived from the complexity of the industry itself and from legislative conditions regarding public procurement (Weele, 2010). This is managed by creating a structure, which evaluates the various activities after the contract has been signed (Ruparathna & Hewage, 2015). Considering the complexity of construction projects and the structural requirements of the procurement process provides a greater need for integration and involvement by all participants in the process. This can be provided using rigorous preparation by the customer through standardised evaluation methods and communicated project deliverables (Ruparathna & Hewage, 2015).

Also, the basis for good decision-making is a clear understanding of what needs to be decided, and secondly securing the availability of suitable information to support the decision (Ncube & Dean, 2002). Hence, it becomes important for the customers to develop standardised methods presenting their project requirements making it possible for equal comparisons between the contractors' proposals. Therefore, managing a successful procurement process is reliant on good information and a transparent structure, which facilitates the suppliers' possibility to respond successfully (Arrowsmith, 2010).

Having the capability to perform the supplier selection is one of the most important decisions made by the customer and is connected to a successful project (Cheng & Li, 2004). Also, previous contacts and similar traditions have a positive effect on the project result (Lindgren & Emmitt, 2017). Figure 1 describes the steps taken by the municipality to facilitate an efficient procurement process. This structure is intended to identify suitable developers based on predetermined criteria established by the municipalities during their internal pre-acquisition phase (Arrowsmith, 2010). After that, the developer will respond to the activities in accordance with the communicated documents during the acquisition phase. The internal activities relate to the preparation facilitating the procurement structure, whereas the external activities are taken towards the respondent to facilitate an efficient procurement process (Weele, 2010).

Figure 1: Activities in the procurement process (Weele, 2010, adaptation of Chevrons model).



The general objective for the customer is to maximise the value derived from the project by facilitating an efficient procurement process, as defined in Figure 1. This requires a well-planned structure, which includes comprehensive contractor evaluation methodologies and good business practice (Latham, 1994). Fong and Choi (2000) identify several evaluation criteria in the development of a suitable method, including financial capability, historical performance, available resources, past relationship and price. The process of selecting the best solution from potentially numerous alternatives requires a stringent and transparent evaluation process, which needs to be followed by the customer’s response in the Request for Information and Request for Quotation (Weele, 2010; Tkach & Simonovic, 1997).

Research process

The initial stages of the research process were conducted by attending two land allocation projects initiated by a medium-sized municipality in Sweden from October 2016 to March 2017. The first project included approximately 270 apartments or townhouses and the other project involved one kindergarten and approximately 30 apartments. All projected construction used a wood-based building solution. This gave insights into the process for both the Swedish municipalities and the developers regarding structure, official building strategies, documentation, the public procurement function in building projects and communication throughout the land allocation process. Initially, the steering committee within the municipality created and submitted documentation to the selected developers. The selection process was conducted in two stages, preselection of 30 developers reduced to 15 developers for the first project and 14 developers reduced to 5 developers in the second project. The final selection process was based on amended submissions and the awarded bid was selected based on a joint evaluation by the steering committee.

Research design

As not much has currently been published about this concept a new research focus is required, resulting in an exploratory study with descriptive components (Ellram, 1996; Yin, 2014). Using different levels of interviews is an appropriate research approach for the complexity faced in a public procurement process, according to Yoshikawa et al. (2013). This provides a structured view identifying the most important factors linked to the land allocation activity. The study is suitable for both a qualitative and quantitative research approach providing greater depth and range to the result (Yoshikawa et al., 2013; Mertens, 2012). Also, using interviews is applicable when explanations and descriptions are required (Ellram, 1996). The interview template was based on 34 questions, where 24 questions had an additional quantitative option, based on the general procurement process in Figure 1 and as presented in the Appendix.

Data collection

The initial stage of the study identified the framework for data collection and the main stakeholders in the public process regarding land allocation and the wooden multifamily house industry in Sweden. In addition, the selection of key stakeholders within this process was conducted using the key informant approach (McKendall & Wagner, 1997). Attending the initial land allocation projects provided sufficient information enabling the design of a pre-interview template, which was discussed during an initial validation process during March 2017, where three developers (two CEOs and a Business Development Manager) and three Planning Managers from municipalities discussed the appropriateness of the interview scope. Thereafter, 50 interviews were conducted during April and May 2017 with 25 developers from 25 companies within the wood building industry (nine CEOs, six Business Development Managers, six Sales Directors and four Project Managers) and 25 employees from 16 municipalities (13 Land and Exploration Managers and 12 Planning/Project Managers). The municipalities represent a cross-section in size: 55% had 30,000–100,000 inhabitants and 25% represented large urban areas in Sweden, namely Stockholm, Gothenburg and Malmo, thus providing a good representation of building requirements in Sweden. Similarly, the developers included in this study were from a mix of small, medium and large companies, representing the challenges faced by developers, irrespective of company size.

The interviews, each 35–80 minutes in length, were based on an interview template including questions about the procurement process, the municipality building policy, the strategic role of procurement and the requirements of the land allocation process, intending to identify the process scope and possible barriers restricting development. Furthermore, the questions were designed to overlap the procurement process presented in Figure 1, pre-acquisition, acquisition and post-acquisition.

Data analysis

All interviews were analysed by reviewing the interview responses, summarising them into shorter value statements using systematic text condensation (STC) (Kvale & Brinkmann, 2009; Malterud, 2012). These statements were categorised based on the total impression, identifying and sorting meaning units, condensation and synthesising. Table 1 illustrates the process using STC for two themes – land allocation and developers – applying them on one initial code and

the effect on the fourth and fifth phases of the STC. This process has been repeated for all of the defined themes to identify new codes, or using a similar code for several themes, as deemed appropriate. This process has generated a structure to analyse data in relation to the context of this study, which is directly reflected in the Results and Analysis section where the qualitative data is derived from the collected empirical information.

Table 1: Visualisation of the data analysis process using STC.

	<i>Total impression</i>	<i>Identifying and sorting meaning units</i>	<i>Condensation</i>	<i>Synthesising</i>	
	Chaos	Themes	Code	Meaning	Descriptions and concepts
	<ul style="list-style-type: none"> • Digesting and reviewing the material to find a pattern 	<ul style="list-style-type: none"> • Land allocation • Developers • Municipalities • Wood building 	<ul style="list-style-type: none"> • Working methods • Market requirements • Rules and legislation • Barriers 	<ul style="list-style-type: none"> • Effectiveness • Development potential • Strategy • Knowledge 	<ul style="list-style-type: none"> • Public Procurement • Building specifications • Governmental actions • Process constraint • Ethical concerns

This provided an understanding of how these activities were perceived by the respondents, including the main barriers influencing the land allocation process (Malterud, 2012). The quantitative data used a 5-graded Likert scale, where 1 indicates no importance / no focus and 5 indicates high importance / high focus (Likert, 1932). The quantitative information, that is, grading the response from 1 to 5, was provided by the respondents. This was used to calculate a composite score combined with descriptive statistics to provide an opportunity for statistical tools to classify the respondent’s perception, which in combination with the qualitative answers generates a comprehensive picture (Boone & Boone, 2012).

Credibility

The interviews were audio-recorded to enhance credibility, source triangulation was applied by using multiple respondents, and investigator triangulation was applied since the research was discussed among the research group and certain respondents for possible adjustments (Barratt, Choi & Li, 2011). Furthermore, the study addressed validity and reliability by conducting pre-interviews with key respondents to validate the questions and the results. Systematic analysis of the results and ongoing discussions provided improved validity and reliability (Whitten, Bentley & Dittman, 2004).

Results and analysis

The general information regarding the municipalities’ building development strategies and the perceived roles in the land allocation process regarding wood as a building material is exhibited in Table 2. The analysis of the pre-acquisition, acquisition and post-acquisition phases are presented in the following text, which is based on the structure in Figure 1 and provides possibilities to review how the market perceives the development requirement of the land allocation process.

Table 2: General information regarding the respondents' environment.

1. Municipalities expected building requirement during next 5-year period	0-10%	10-20%	>21%
	7%	40%	53%
2. Municipalities aspiration to increase building with wood	Yes	No	Don't know
	46%	47%	7%
3. Municipality developed strategy to build more using wood material	Yes	No	Don't know
	33%	67%	0%
4. How is the procurement activity normally executed in your municipality?	PPA	Land allocation activity	Other
	33%	58%	8%
5. How is the procurement activity normally executed in your contact with the municipality?	PPA	Land allocation activity	Other
	40%	48%	12%
6. What factors, according to municipalities, are driving development decisions towards an increase in wooden house construction?	Politics, government, EU	Market requirement	Other
	47%	34%	19%
7. What factors, according to developers, are driving development decisions towards an increase in wooden house construction?	Politics, government, EU	Market requirement	Other
	75%	21%	4%
8. How do you as a developer perceive your role at a land allocation competition?	Buyer	Seller	
	21%	79%	
9. Do you as a developer consider the possibility to influence rules and regulations important for the development of the procurement process?	Yes	No	
	93%	7%	
10. Do municipalities need to have clearer requirements as well as follow-up methodology throughout the construction process?	Yes	No	
	80%	20%	

The information provides an understanding of how the municipalities and developers perceive their current situation regarding development using wood building solutions. The Appendix represents the qualitative questions in relation to the structure in Figure 1. These questions have been reviewed using the process displayed in Table 1 and are incorporated into this section combined with the statistical results in Table 3 and 4. These tables display the mean, maximum, minimum and standard deviation (SD) for each question, thus providing increased understanding of the respondents' answers in relation to the total group. The responses have been divided into three groups based on the perceived level of importance for the respondents: 1.00–2.33 low importance / ability, 2.34–3.66 average importance / ability and 3.67–5.00 high importance / ability.

The results in Table 3 and 4 show some general discrepancies between the responses from the municipalities and the developers. However, just looking at the average score of all questions combined will not enhance one's understanding since the questions are asked differently, that is, some indicate a favourable situation with a high score while others have a low score. The average min/max difference for the municipalities is 3.00, with an average SD of 0.89, while the developers have an average min/max difference of 2.33, with an average SD of 0.79. The smaller gap between minimum and maximum, as well as a smaller SD, displays a much more homogeneous perception about the market situation among the developers than among the municipalities.

Table 3: Statistical information regarding the responses to the questions in the Appendix.

	<i>Municipalities</i>											
<i>Question</i>	1	2	3	4	5	6	7	8	9	10	11	12
MEAN	2.40	4.32	4.12	2.24	2.12	2.12	1.60	2.76	4.36	4.00	2.92	2.40
MAX	5	5	5	4	4	4	3	5	5	5	5	4
MIN	1	3	2	1	1	1	1	1	3	2	1	1
SD	1.225	0.748	0.881	0.970	0.781	0.927	0.707	1.012	0.700	0.866	1.038	0.866

Table 4: Statistical information regarding the responses to the questions in the Appendix.

	<i>Developers</i>											
<i>Question</i>	1	2	3	4	5	6	7	8	9	10	11	12
MEAN	4.40	3.84	2.12	1.92	1.84	1.88	4.08	3.72	4.16	4.12	3.12	2.00
MAX	5	5	3	3	3	4	5	5	5	5	5	3
MIN	3	2	1	1	1	1	3	2	3	3	2	1
SD	0.707	0.800	0.781	0.759	0.746	0.833	0.702	0.980	0.746	0.781	0.833	0.764

Pre-acquisition phase

Planning the required building development is performed by statistical information and the building development plan, which according to the municipalities are of high importance for the development of new building

projects (Table 3, question 2). However, the government's ambition to increase sustainability within the building industry through wooden buildings is not reflected in the municipalities' development plans and 54% have no aspiration or do not know if they have a plan to use wooden building solutions. This could be derived from not having a strategy towards wooden buildings within the respective municipality and only 33% have a communicated strategy. Hence, the efficiency of the procurement situation could be negatively influenced by not relying on clearly communicated strategies, which affects the agent/principal relationship according to the studies by Nyman, Nilsson and Rapp (2005) and Addo-Duah et al. (2014). This is also reflected by municipalities considering the development of a wooden buildings strategy as being of average importance (Table 3, question 1), which is also mentioned by a respondent who said, "There is no point in specifically developing a wood building strategy since we traditionally use other materials and our knowledge is in this area". Currently, municipalities depend on official environmental policies rather than developing a specific target of wooden buildings. Therefore, only 46% focus on wood building solutions, which was confirmed by a municipality respondent who said, "We don't focus specifically on wood buildings; rather we try to implement a sustainability perspective irrespective of material choice". This contradicts the studies by Ruparathna and Hewage (2015) and McKeivitt et al. (2012) mentioning the importance of having a strategy in place supporting long-term success; that is, official strategies must reflect the ambition in Sweden to focus on wood building solutions. However, despite the limited focus by the municipalities, the developers are considering the market potential for wood buildings as high in importance (Table 4, question 1).

Land allocation activities are, according to Table 2, the main method regarding new building development projects for both municipalities and developers, and the development of land allocation activities are considered highly important for the increased construction of wooden buildings (Table 3, question 3; Table 4, question 2). According to the municipalities, land allocation activities can influence the process of selecting specific companies and building solutions for the intended project. This will also provide possibilities to start thinking about wood building solutions at an initial stage of the project (Ncube & Dean, 2002) as important for a successful procurement activity. This view is shared by the developers, who regard the option of selecting solutions applicable to specific materials and designs without being limited by the structure of PPA as beneficial for wooden buildings. As one developer commented, "Land allocation is an excellent process for the municipalities to control the building development in a specific direction, for example, certain companies, designs or materials". Both the municipalities and the developers perceive the negative aspects of this process as being subjective and without any clear structure regarding expectations, which provides arbitrary input and is difficult to evaluate. This can be perceived as unfair where developers can receive advantages based on vague evaluation criteria, which is contradictory to studies highlighting the value of a communicated and transparent procurement structure to maximise the result (McKeivitt et al., 2012). This is reinforced by two developers who said, "It's difficult to get a clear view regarding their requirements since these are very poorly communicated, combined subjective evaluations, which implies that the decisions are made randomly and are difficult to follow up" and "Absolutely no clarity in how you will be evaluated, which

may not matter because they do not seem to follow this anyway". Furthermore, the public procurement function has in recent years focused on the ability to evaluate the success rate of their projects using stringent evaluation procedures, according to Dimitri (2013), which contribute to minimising the information asymmetry and the project costs (Wiseman, Cuevas-Rodriguez & Gomez-Mejia, 2012).

Acquisition phase

An important clarification regarding the land allocation activity is that despite developers buying land from the municipalities, 79% of the developers consider their role in this process to be as a seller to the municipalities. This is expressed by a developer as "We have to comply with so many requirements and present detailed solutions in order to procure land that it feels more like we are actually selling something to the municipality". This is an important distinction as municipalities perceive themselves as sellers of land using certain buyer requirements, which is a situation that can influence the public procurement situation and requires a new definition of the roles (McCue & Prier, 2008; Johnston & Seidenstat (2007). However, the municipalities' intentions are expressed as "We only provide a general guideline for the developers regarding environment and energy etc., and after that, it is up to the developers to present a viable solution in order to procure the land". Hence, the focus when defining the roles should be on the activities imposed by the municipalities to qualify as a potential buyer and the perception of those who are responding to these requirements. This distinction will clarify how this process is required to be developed and provide transparency for those involved in the process, which is in line with the procurement process discussed by Weele (2010) and Arrowsmith (2010). Also, this supports the assumptions that the land allocation activity is interchangeable with procurements made according to the PPA. Furthermore, this structure of uncertainty by both parties creates possibilities for double-sided asymmetry, which can influence the public process negatively (Chrisidu-Budnik & Prezadańska, 2017; Aguilera & Jackson, 2010).

However, the ability to execute the process is important, irrespective of the benefits of using the land allocation process as a procurement model. The developers perceive the municipalities as having low ability and insufficient knowledge to manage these processes (Table 4, question 4), which according to Addo-Duah et al. (2014) is an important area requiring a stringent evaluation process to maximise the effect from the procurement activities. This is also influenced by the impact from asymmetric information since the municipalities' knowledge of the specific solution is inferior to the developers', which increases the cost and problems to fulfil the agreed contract deliverables (McCue and Prier, 2008). The focus is not on a standardised approach to provide transparency according to the municipalities (Table 3, question 5). However, the developers find the insufficient structure to be a problem, namely "The municipalities need to develop a transparent evaluation method that increases the confidence in their abilities using a stringent quality practice and developing a standardised process applicable on a national level". The low ability provides uncertainties in the response process, making the developers concerned during their contacts with municipalities (Table 4, question 5). The importance of a standardised procurement process providing information and fulfilling expectations is as an enabler for success (Weele, 2010; Ncube & Dean, 2002). Also, both the

municipalities and developers recognise problems associated with an insufficient procurement process without proper evaluating methods considering the low current ability (Table 3, question 6; Table 4, question 6). This further indicates a process built on insufficient information without a proper pre-acquisition structure, which is reinforced by the municipality's opinion regarding the "lessons learned" process to be low in importance (Table 3, question 4). As one respondent said, "There are currently no established routines for this, but it needs to be clarified, and there could possibly be a point in developing this in the future". Cheng and Li (2004) discuss this need and highlight the importance of proper preparation for a diligent selection process. Insufficient pre-acquisition work will present an issue during the acquisition phase due to inadequate documentation, structure and lack of standardisation.

Post-acquisition phase

It thus becomes more important for the developers to identify the requirements and manage an efficient procurement process. Currently, according to the municipalities, the EU and the Swedish government are the main drivers towards wood building development and sustainability. Having the capability to incorporate sustainability and environmental aspects into the procurement process (Atkinson & Sapat, 2012) are important capabilities for economic growth beyond the traditional focus of the municipalities, a view also expressed by a municipality respondent, "I believe that you have to capture a wider perspective than just the construction alone, and it would be considerably easier to quantify the assessments towards the builders and clarify sustainability and its impact on the construction projects if you created a sustainability model for the entire life cycle". Officially communicated strategies towards wood buildings enables the developers to adjust their production and market strategies accordingly. This view, reflected in Tables 3 and 4, question 10, is considered highly important for municipalities and governmental entities to have an active role in the procurement process and increase the development rate for wood buildings (Tudor, Adam & Bates, 2006).

The developers believe competition should be on equal terms – irrespective of building material – and the functional building specifications should be the decisive factor for choosing a certain solution. This opinion is shared by municipalities who feel the development has to be done on its own merits, not by changing the regulatory framework. Hence, the functional specification should be presented in a way making the material choice secondary to the building specification, as a developer comments, "[I] believe that the competition should be on equal terms but may consider some sort of sustainability quota regardless of building material, e.g. by developing an LCA model, which would support a quantifiable sustainability solution based on a points system in order to achieve an equal competitive situation regardless of building materials". Transparency and standardised assessment methods during the pre-acquisition and acquisition phases would facilitate new development of, for example, wooden building solutions (Arrowsmith, 2010). Thus, developing standardised specifications for building projects improves the long-term performance of the procurement activities. McKevitt et al. (2012) identifies this as an important factor for success in public projects. Also, the municipalities consider the ability to improve the activity important for the development of wooden buildings (Table 3, question 9). Equally, the developers find the possibility to adjust the procurement activity

to support wooden building solutions to be important (Table 4, question 9). This view is shared by Latham (1994), who expresses the importance of a properly developed procurement process with clearly communicating requirements. However, the development of an evaluation method towards functional drivers requires knowledge about the various building solutions to provide equal opportunities independent of the solution. Both parties included in this study express concerns about the municipality's knowledge to evaluate a solution based on wood compared to concrete. As a municipality respondent mentioned, "There is no knowledge of wood, which is why we have no communicated ambition to develop wood-building solutions". The negative effects derived from insufficient knowledge and how it influences the procurement process is discussed by McKevitt et al. (2012). The municipality sees themselves as having average ability in this regard (Table 3, question 12), whereas the developers consider the municipalities' ability to be low (Table 4, question 12). The developers propose a combination of increased knowledge regarding wood buildings and a development towards standardised assessment methods, but they also question how the evaluation of the proposed alternatives is carried out. Having a well-planned evaluation process has also been mentioned by Fong and Choi (2000) who discuss the importance of having identified key criteria to be evaluated in order to conduct a thorough selection process. This is a process mentioned by a developer as being

... based on subjective assessments of the projects and relying on an arbitrary effort by the municipalities that can be difficult to interpret. This is an unfair model where some can gain an advantage based on ambiguous assessment conditions and provides too much freedom to choose specific solutions based on a vague process, which also can change from project to project.

Developing an evaluation structure that extends to the project delivery for land allocation projects is important since the ownership of the land included in the project is transferred to the developers, which reduces the municipalities leverage if projects are not delivered according to specification. These factors contribute to uncertainty and added costs based on limited understanding of the requirements, which is due to increased information asymmetry based on inadequate evaluation procedures (Chrisidu-Budnik & Prezedańska, 2017; Aguilera & Jackson, 2010). This issue is highlighted by the municipalities perceiving the post-evaluation activity as low in importance (Table 3, question 7), indicating a non-existent activity. However, the developers consider a follow-up on the project deliverables as highly important for the development of a transparent procurement process and the development of wood buildings in general (Table 4, question 7). Ruparathna and Hewage (2015) confirm the developers' view and consider the possibility for objective evaluation of procurement projects as important for long-term success. Furthermore, it is necessary for municipalities to create a national standard for the activities associated with land allocation projects. This would generate an efficient process across different municipalities, which is currently very fragmented contributing to an inefficient process lacking in evaluation possibilities. The developers are looking for increased transparency in the decision-making process that minimises subjectivity based on insufficient procedures. They favour project

fulfilment evaluation, which is discussed by Tkach and Simonovic (1997), mentioning the benefits of this process for the post-project evaluations.

Improvements of the public actions in land allocation projects

Both the municipalities and the developers consider it necessary for the municipalities or the government to clearly state their intention towards wood buildings, thereby providing direction for the building industry to adjust to these requirements. Developing public building projects based on sustainable solutions using wood could stimulate the building trends towards the use of wood building solutions. One developer sees it this way:

The municipalities need to actively engage in promoting wood as building materials by being active contractors in the procurement and acquisition process, which would generate a faster development of wood building constructions and lower final costs. In addition to this, a clear involvement by public authorities is seen as a very good catalyst that can affect industry development.

A study by Venkatraman and Prescott (1990) also supports this view mentioning the importance of government involvement in the industry's transition toward a new business focus, namely sustainable buildings. Björheden (2006) agrees in a study reviewing the importance of political decisions and actions enhancing development drivers for sustainability within the building industry. This is an effect of double-sided information asymmetry encountered by public organisations, according to the study by Chrisidu-Budnik and Prezadańska (2017) where the municipalities have limited knowledge of the government's actions or the implications of the developers' proposals.

The ethics displayed by municipalities during the procurement process was expressed as a concern by the developers. Therefore, a suggestion to improve the situation within the building industry and thereby enhance the possibilities for the wooden building industry was not to develop the land allocation activities or adhere to the PPA. Instead, as a developer states, "[They should] make certain the anti-bribery laws are followed by a diligent review process of the municipalities' actions", and approximately 25% of the developers included in this study suggested that bribery was a factor involved in awarding contracts by municipalities. This is partially discussed by Lindgren and Emmitt (2017), mentioning the implication of good relations when selecting a partner, which indirectly provides incentives for the developers to sustain these relationships for increased profitability.

Discussion and conclusion

The objective of this study is to identify barriers in the public procurement process for new building developments based on land allocation projects managed by Swedish municipalities. This is done by capturing the perceptions of those involved in the building process, namely municipalities and developers.

The study used a theoretical perspective towards public sector activities associated with building development that focused on the effect from actions in the land allocation process (Chrisidu-Budnik & Prezadańska, 2017; McCue & Prier, 2008), combined with implications from the relationship context (Chrisidu-Budnik & Prezadańska, 2017; Aguilera & Jackson, 2010), and the

similarities between public procurement processes and land allocation activities (Arrowsmith, 2010; SFS 2014: 899; Weele, 2010; Ruparathna & Hewage, 2015). Thus, how the theoretical understanding of the actions within the customer / vendor relationship can change the pre-conditions of a specific relationship context, i.e. what constitutes a public sales activity based on how the roles are perceived in the specific situation.

This is related to the power exerted by actors in the relationship paradigm, which currently restricts the development of an efficient land allocation activity. Further theoretical development is based on the perceived roles in the public building development process, which provides possibilities to apply procurement theories to improve the land allocation process. Hence, we need to investigate how increased understanding of the land allocation activity creates possibilities for the development of a similar model for the public procurement process, which can enhance the development of wooden multifamily houses in public building projects.

Furthermore, several areas have been identified as barriers, which provide guidance on how the Swedish municipalities can adjust their current process and enable a more efficient result:

- increased knowledge regarding the procurement process
- changed approach towards land allocation activities based on new buyer/seller perspective
- evaluating functional specification
- increased knowledge regarding wood building solutions

The practical implications of this study are based on how the land allocation activity is used by municipalities in relation to the procurement process in Figure 1. It is evident that the municipalities use this method to create opportunities to control the outcome of the projects without the constraints of the PPA. Municipalities see themselves as a seller of land, which is not a procurement activity that is associated with requirements in regard to public regulations. They embrace the opportunity to pose requirements on those companies invited to make a bid for the land and influence the project according to their strategic ambition. However, this is not a view shared by the developers who have to provide a detailed proposal of their intended solution, which is activities found in the pre-acquisition/acquisition phase of the procurement process in Figure 1, which also is an activity more associated with a sales process, where they have to convince the seller, the municipality, of their solution. This can be derived from an unclear buyer/seller relationship that provides uncertainty in their internal expectations. Therefore, the process would benefit if the buyer/seller relationship is clarified as a modified procurement situation by the municipalities, which would improve how the participants perceive their roles and facilitate a transition for the municipalities to develop a standardised method similar to the structure displayed in Figure 1 and the PPA. Reviewing the interaction between municipalities and developers from a public procurement situation requires an understanding of the specific conditions and legislative constraints to efficiently reorganise the process (McCue & Prier, 2008; Johnston & Seidenstat, 2007). As a result, if municipalities adjust the requirements of the land allocation activity based on the perception of their counterparts, the developers who see themselves as sellers, therefore, municipalities must take the role as a buyer of a product or service. This change in scope will clarify the

process and minimize information asymmetry reducing project costs and improving project fulfilment (McCue & Prier, 2008; Wiseman, Cuevas-Rodriguez & Gomez-Mejia, 2012; Aguilera & Jackson, 2010). Furthermore, the perception of the participant's roles in the land allocation activity also influences how and what kind of information is provided by the municipalities, which currently is lacking, and limit the effectiveness of the process displayed in Figure 1 (Nyman, Nilsson & Rapp, 2005).

Clarifying the roles and responsibilities offers opportunities to create a stringent process and provide a platform for development that requires a new approach considering the uncertainty of how the involved parties perceive the land allocation activity. This provides an unstructured and subjective approach towards the prerequisite of being awarded a building project, which from a content perspective is not applicable to the process steps displayed in Figure 1. With the municipalities using a limited evaluation process, displaying a knowledge gap regarding their internal activities in relation to the land allocation activity, providing inadequate information, not presenting clear requirements of their expectations and having no process to follow up the project deliverables on completion, the situation is far from ideal.

The municipalities are recommended to treat the land allocation activity similar to a normal procurement process to provide more control and transparency throughout the project life cycle. Only if the municipalities start adjusting their perception towards a procurement situation, instead of a sales situation defined in the land allocation process, will the possibility to evaluate the various process steps successfully be incorporated (Arrowsmith, 2010; Weele, 2010; Atkins & Sapat, 2012). Hence, it becomes more important to design a new process that is adjusted to the land allocation activity, using clearly defined process steps of pre-acquisition, acquisition and post-acquisition (Figure 1). This will provide internal guidance for the municipality as well as increased transparency regarding the project requirements for the developers – evaluation criteria, extending municipalities' focus beyond the point of sale and project fulfilment rate as well as accountability for discrepancies with the initial proposal (Arrowsmith, 2010; Dimitri, 2013).

These issues, combined with the general independence of the 290 municipalities in Sweden, provide a complex situation with sub optimization for the developers. This could be rectified if a national standard is developed regarding how the land allocation activities are performed and to what extent the municipalities are involved to influence the project progression after the sale of land has been finalised. It would also be beneficial if the evaluation criteria could include quantifiable information such as project budget and cost per square meter, in addition to design and sustainability. In addition, both municipalities and developers have identified a knowledge gap regarding the possibilities of using wood in building projects, which can limit the development of wood buildings in favour of traditional building materials, such as concrete. The decision-makers within municipalities are more likely to continue opting for solutions based on concrete if they have a long tradition of evaluating building projects based on this solution. Therefore, municipalities have to make certain this gap is closed, either by internal development or by an external partnership to enhance the competence level, thus providing an environment where different building solutions can compete on equal terms (Addo-Duah et al., 2014).

Further studies

I recommend development of an environmental standard to be included in the evaluation process for land allocation projects looking at the total supply chain perspective, over the project lifespan, which provides an opportunity to grade the projects using quantifiable methods. This would include mean building projects would be evaluated based on functional specifications, choosing the best solution for the intended project without any regulations favouring a specific direction.

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Appendix

Interview questions associated with Figure 1.

	Municipalities	Developers
Pre-Acquisition	1. How important is the development of a wooden building strategy?	1. How do you perceive the market development potential for wooden buildings?
	2. How important is the planning process regarding the building requirements?	2. How do you perceive the advantages of increasing wooden buildings by using land allocation competition?
	3. How do you perceive the advantages of increasing wooden buildings by using land allocation competition?	
Acquisition	4. What is the importance of conducting an analysis of previous projects?	3. How is the performed quality of the procurement activity by the municipality?
	5. Do you follow a predefined and standardised procurement structure?	4. Do you think that municipalities possess the necessary competence to carry out the process?
	6. Have you developed clear assessment criteria, and do you follow them in the evaluation of proposals?	5. Do municipalities follow a predefined and standardised procurement structure?
		6. Are they clear regarding the assessment criteria, and do they follow them in the evaluation of proposals?
Post-Acquisition	7. Do you follow up building projects on completion to ensure that the objectives are met based on the proposal?	7. Do municipalities need to have clearer requirements and follow-up methodology throughout the building process?
	8. Can municipalities ask for specific requirements in the procurement process favouring certain materials?	8. Can municipalities ask for specific requirements in the procurement process favouring certain materials?
	9. Would activities developing the procurement structure contribute to growth of the wooden building industry?	9. Would activities developing the procurement structure contribute to growth of the wooden building industry?
	10. Do municipalities need to have active involvement in the procurement process to generate a higher development rate of the wooden building industry?	10. Do municipalities need to have active involvement in the procurement process to generate a higher development rate of the wooden building industry?
	11. What level of importance do you place on research and development in relation to wooden house development?	11. What level of importance do you place on research and development in relation to wooden house development?
	12. Do municipalities have the necessary knowledge to objectively assess solutions based on wood?	12. Do municipalities have the necessary knowledge to objectively assess solutions based on wood?