

LAPPEENRANTA-LAHTI UNIVERSITY OF TECHNOLOGY LUT

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Master in Strategy, Innovation and Sustainability

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**B2B CUSTOMER PERCEPTIONS AND ENGAGEMENT OF SUSTAINABILITY IN THE
CONSTRUCTION INDUSTRY**

Master's thesis 2020

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ABSTRACT

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Title: B2B customer perceptions and engagement of sustainability in the construction industry

Master's Thesis: Lappeenranta-Lahti University of Technology LUT
90 pages, 10 figures, 11 tables and 2 attachments

Year of completion: 2020

Faculty: School of Business and Management

Degree program: Strategy, Innovation and Sustainability

Examiners: Associate Professor Laura Albareda, Postdoctoral researcher Laura Olkkonen

Keywords: Corporate sustainability, Sustainable development, Stakeholder engagement, B2B customer engagement, Construction industry, Sustainable building

The thesis aims to study what are the perceptions of B2B customers of a large construction product manufacturer about the industry transformation towards sustainable development and what kind of sustainability engagement is efficient for the specific stakeholder group. The thesis was conducted as a case study where 20 B2B customers of a building product manufacturer were interviewed about sustainability in the industry. The results of the thesis suggest that the transition to sustainable building is important for B2B customers, as sustainable building is seen as the future and something investment worthy. However, some customers have concerns about sustainability that create market barriers and challenges. For instance, sustainable alternatives need to be price competitive, and sustainability initiatives cannot complicate daily work. Stakeholder engagement of sustainability through reports was said to be inefficient due to the hectic working environment. Meetings, cooperation projects, and marketing in mainstream media were mentioned as good channels to reach B2B customers. The research results suggest that sustainability engagement could be very efficient with B2B customers in the construction industry to transform towards enhanced sustainable building. Engagement efforts, such as well-targeted communication as well as cooperation projects and training, should be developed with the customers. Future research could study perceptions and engagement of sustainability of other stakeholder groups in the industry, such as architects.

TIIVISTELMÄ

Tekijä:	Eerika Karvonen
Otsikko:	B2B-asiakkaiden näkemykset ja osallistaminen kestävään kehitykseen rakennusalaalla
Pro gradu -tutkielma:	Lappeenrannan-Lahden teknillinen yliopisto LUT 90 sivua, 10 kuviota, 11 taulukkoa ja 2 liitettä
Valmistumisvuosi:	2020
Tiedekunta:	Kauppätieteiden koulutusohjelma
Maisteriohjelma:	Strategy, Innovation and Sustainability
Tarkastajat:	Apulaisprofessori Laura Albareda, Tutkijatohtori Laura Olkkonen
Avainsanat:	Yritysvastuu, kestävä kehitys, sidosryhmien osallistaminen, B2B asiakkaiden osallistaminen, rakennusala, kestävä rakentaminen

Tämän tutkielman tavoitteena oli selvittää, miten suuren rakennusalan tuotteita valmistavan yrityksen B2B-asiakkaat näkevät rakennusalaalla tapahtuvan kestävään kehitykseen ja kestävään rakentamiseen tähtäävän murroksen. Lisäksi tavoitteena oli tutkia, miten B2B-asiakkaat osallistetaan tehokkaasti kestävään kehitykseen. Tutkimuksen menetelmänä käytettiin tapaustutkimusta, johon haastateltiin yhteensä 20 kohdeyrityksen yritysasiakasta. Asiakkaat pitivät tärkeänä sitä, että rakennusala kehittyi aiempaa vastuullisempaan suuntaan. Tämä nähtiin merkittävänä osana alan tulevaisuutta ja asiana, johon tulisi investoida. Lisäksi monet asiat herättivät myös huolta. Esimerkiksi kestävä kehitys mukaisten tuotteiden pitäisi pystyä kilpailemaan myös hinnalla, eikä hankkeiden tulisi vaikeuttaa työntekoa. B2B-asiakkaat kokivat, että raportit eivät ole toimiva viestintäkanava hektisen työaikataulun vuoksi. Sen sijaan tapaamiset, yhteistyöprojektit ja markkinointi valtamediassa koettiin tehokkaiksi. Tutkimuksen tulokset osoittivat, että B2B-asiakkaiden näkemys kestävästä kehityksestä on myönteinen ja että heidän osallistamisensa siihen liittyvään murrokseen voi olla tehokas tapa muuttaa rakennusala yhä kestävämpään suuntaan. Toimivia osallistamisen tapoja, kuten hyvin kohdennettua tiedotusta, yhteistyöprojekteja ja koulutusta pitäisi kehittää yhdessä asiakkaiden kanssa. Näkemyksiä kestävästä rakentamisesta ja osallistamisesta voisi tulevaisuudessa tutkia lisää jonkin toisen alan sidosryhmän, kuten arkkitehtien, näkökulmasta.

Acknowledgments

I want to thank all those people who have supported me with my master studies and the process of writing my final thesis. My supervisors, Laura Albareda and Laura Olkkonen, have been a great support throughout the whole process. I wish to express my gratitude to Saint-Gobain and especially Anne Kaiser for making it possible to co-operate with a case company. Additionally, I want to thank all those who took the time from busy working schedules to participate in the interviews.

Lastly, I want to give special thanks to friends and family for support and encouragement. This accomplishment would not have happened without you!

29.2.2020

Eerika Karvonen

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List of Abbreviations

B2B – Business-to-business

CO₂ - carbon dioxide

CSR – Corporate social responsibility

EPD - Environmental Product Declaration

LCA - Life cycle assessment

1. Introduction

This thesis discusses B2B (business-to-business) customer perceptions and stakeholder engagement of corporate sustainability in the construction industry. The thesis aims to find out what are the perceptions of B2B customers of a large construction product manufacturer about the industry transformation towards enhanced sustainability, and furthermore, what kind of sustainability engagement is efficient for the specific stakeholder group. The thesis is limited geographically to Finland.

The thesis uses a case study method where the perceptions about the industry transformation towards sustainability are researched through interviewing the B2B customers of a multinational construction product manufacturer Saint-Gobain Finland Oy. B2B customer refers to a company that buys products or services from another company. In the construction industry, a B2B customer can be, for instance, a construction company that buys a design from an architecture firm or a hardware store that buys building equipment from the manufacturer.

Saint-Gobain Finland Oy manufactures and sells building products and materials to construction companies and hardware stores. The company is a multinational company, but the research focuses on the Finnish subsidiary. The headquarters are based in Helsinki, and the company has operations and customers in all areas of Finland. Altogether 20 B2B customers of the case company were interviewed about sustainability to find out how they perceive the sustainability transformation and what kind of engagement and communication is efficient for them from the perspective of the multinational construction product manufacturer. The interviews included ten hardware stores and ten construction company B2B customers. The specific names or firms are not published in the thesis.

Perceptions and engagement are studied together because the engagement of sustainability can be targeted more efficiently to B2B customers if the overall view of sustainability is

understood. Understanding the overall perception helps in realizing the current knowledge, motivation, and awareness of the sustainability transformation of B2B customers operating in the construction industry. Vice versa, engagement can influence how B2B customers perceive sustainability transformation. Efficient stakeholder engagement can have a positive effect on how B2B customers view the situation and how motivated they feel about sustainability actions and initiatives. The following chapter introduces the background, framework, and main objectives of the thesis. Additionally, the research gap, scope, and structure of the thesis are demonstrated.

1.1 Background

The construction industry is facing the challenge of becoming more sustainable. The transformation towards sustainable building is important since the construction industry is a global, highly active industry (Ortiz, Castells, and Sonnemann, 2007, p. 29). Furthermore, the industry has a significant impact on the environment, societies, and economies. According to the European Commission (2019), buildings generate about 35% of all greenhouse emissions and account for the largest share of total EU final energy consumption (40%). Therefore, changing the industry plays an important role in the global sustainable development effort.

The industry creates a substantial portion of greenhouse gas emissions, land-use change, energy consumption, pollution, and other climate change-related issues. According to World Green Building Council (2017), buildings and construction together account for 36% of global final energy use and 39% of energy-related carbon dioxide (CO₂) emissions when upstream power generation is included. Even though the sustainability of construction and buildings is constantly improving, it still cannot measure up to the developing building sector and growing demand for energy (WorldGBC, 2017). Therefore, the industry is in the key role of finding new solutions and changing our society and planet towards a more sustainable future.

The ever-growing concern for climate change and related issues is creating market pressure for the whole sector to find new ways to build more ecologically, socially, and environmentally

sustainable infrastructures. Nowadays, the performance of a construction project is not only measured through cost-effectiveness, time-effectiveness, and quality but also with customer and stakeholder satisfaction (Oke and Aigbavboa 2017, p. 4). An important aspect of stakeholder satisfaction is reaching sustainability goals. Some even argue that reaching sustainability-related objectives is shifting to become a key performance driver in construction projects (Bal et al., 2013, p. 695).

Identifying, understanding, and engaging the key stakeholders is a vital part of social responsibility, which contributes to sustainable development (ISO 2010). The stakeholders involved are multiple in the construction industry. For instance, clients, builders, logistics companies, suppliers of building materials, architects, government, municipalities, and cities are all involved in a single construction project. All these stakeholder groups might have different expectations and needs that need to be met in the project to reach the best possible outcome. Consequently, stakeholder engagement is becoming ever more important in construction to reach sustainability goals such as increasing quality of life and comfort, decreasing negative effect to our planet, and also increasing the economic sustainability of the project (Bal et al., 2013, p. 696).

1.2 Objectives and Research Questions

The research aims to find out how customers in the B2B market of construction industry perceive sustainability of the industry and what kind of engagement of sustainability is efficient and wanted for the stakeholder group. Specifically, in this research, I study the perceptions about the industry's sustainability transformation of B2B customers of a case company that produces and sells construction products to construction companies and hardware stores. The B2B customers for the case company are the other companies that purchase and use the building materials they are selling and manufacturing. The two biggest customer groups of the case company are hardware stores and construction companies. Therefore, the perceptions and engagement of these customer groups are researched. The customer companies are all operating in Finland and include large, medium, and small size companies.

Furthermore, different underlying factors that influence the perception process are examined, such as internal factors, external factors, and information. Perception is a process where an individual organizes, selects, identifies, and interprets the information they receive (Kenyon and Sen, N.D., 2015, p. 41). This process is important to apprehend what impacts how the B2B customers view about the sustainability of the construction industry and which kind of engagement and communication would be beneficial. The perception process and influencing factors are introduced in detail in chapter 2.3. Additionally, the intensity and source of pressure to change towards a more sustainable direction will be addressed. The research has an abductive approach to study the perceptions where first, data is collected, and then the most likely explanation is made from the data.

The second objective of this master thesis is to find out what kind of sustainability engagement is adequate and needed in the industry according to the different B2B customers. The study additionally allows examining if the case company sustainability communication has reached the customers. The differences in perception and customer engagement needs and wants between two different customer groups (hardware store customers and construction site customers) will be examined. Therefore, the research questions are as follows:

Main research questions:

- 1. How do B2B customers in the construction industry perceive sustainability of their field regarding the transformation of the industry towards sustainable building?*
- 2. What kind of sustainability-related customer engagement between a construction product manufacturer and seller and their B2B customers is needed and accepted in order to transform the industry towards a strong sustainability implementation and transformation?*

Sub research questions:

1. *What factors have the biggest influence on how the sustainability of the construction industry is perceived by B2B customers who purchase building products and materials?*
2. *What factors trigger B2B customers who purchase building products and materials towards sustainability engagement, and where does the pressure to get involved in engagement come?*
3. *Are there differences between different B2B customer groups in the construction industry regarding how the sustainability of the industry is perceived and what kind of sustainability-related engagement is wanted? How do they differ?*

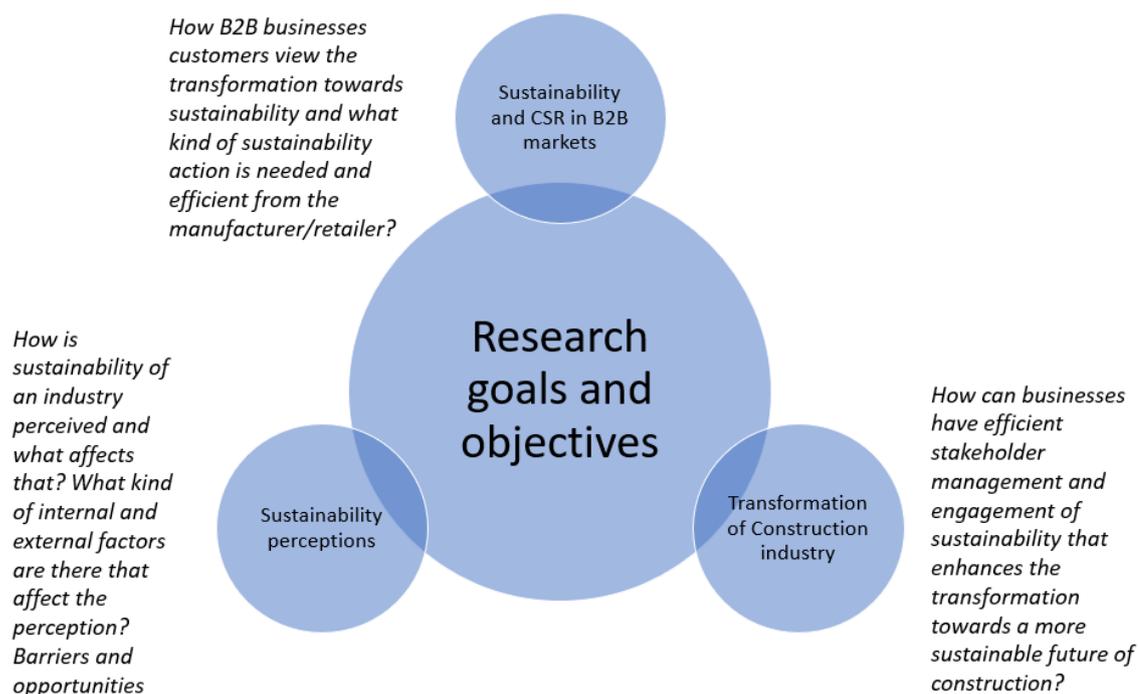


Figure 1. Demonstration of the research objectives and research questions.

Figure 1 shows the different objectives of the research. Firstly, the research addresses sustainability and CSR (corporate social responsibility) perceptions of B2B customers in the construction industry. Therefore, the aim is to understand what their current perception of

the industry's sustainability is and, additionally, what kind of underlying factors influence that perception. In the thesis, I have built a model that aims to understand how the general perception of the industry sustainability transformation helps in identifying what kind of awareness and preparedness level the B2B customers have towards engagement of sustainability.

Secondly, the case study company is a B2B business, and therefore the focus is on B2B markets in the construction industry. The views of specifically B2B customers are examined on the sustainable development of the construction industry. Lastly, the research objective is to understand how a manufacturer should efficiently engage with B2B customers in the context of the construction and building industry to support the change towards a sustainable future. The research aims to study what kind of sustainability engagement between two companies that operate in the same field is efficient.

1.3 Research gap

The awareness and attitude of stakeholders in the construction industry towards sustainability initiatives have been addressed in the previous research. Son et al. (2009) interviewed constructors in the US and Korea, and the results indicate a fairly high level of both awareness and preparedness of sustainable construction in both countries. Additionally, constructors in both countries were found to have a positive outlook on the future of sustainable construction. This finding indicates that some construction project stakeholders in some countries have not only a good information level about sustainability but also abilities and willingness to adopt sustainability initiatives. However, this kind of research has not been done with targeting specifically B2B customers in the construction industry and specifically selecting two types of customer types that allow the comparison between customer groups.

There are existing studies about the connection between customer perceptions of CSR and business. Potepkin and Firsanova (2017) found out in a comparative study of Finnish and Russian consumers that there is a strong correlation between CSR perceived by customers

and their loyalty and trust towards a company. A study in Pakistan suggests that marketers should engage in CSR practice in order to build customer loyalty and encourage the existing customers to repurchase (Chaudary et al., 2016) and a study in India (Dutta & Singh, 2013) implicates that CSR as a strategic tool can be used as a competitive advantage for a retailer and also has a positive relationship with consumer's purchase intention. Even though there are studies about the connection of perceptions, CSR activities, and impacts of those, there are no studies that concentrate specifically on B2B customers. Focus on B2B customers brings a new outlook to the existing studies. Furthermore, customers' perspectives about sustainability bring a new outlook to the existing larger field of research about green building and sustainable construction since the concept of perception has not been researched in this context before.

1.4 Scope of the Research

The research is limited geographically to Finland. The case study is based on the analysis of the relationships between building products and materials manufacturer and seller and 20 different customers (e.g., construction companies and hardware stores). Half of the customers included in the study will be customers that buy materials for hardware stores, and the other half are customers that buy materials directly for ongoing construction projects.

The research method is based on the abductive approach that can be described as constant movement between theory and empirical data which aims to find the most likely explanation from findings (Mantere and Ketokivi, 2013). The research does not have a specific hypothesis in the beginning. The abductive approach is used to formulate the simplest and most likely explanation of the complex phenomenon of perceptions and not to have any predetermined expectations that might influence the data collection, analysis, and interpretation of the findings. The research approach is illustrated in figure 2 below.

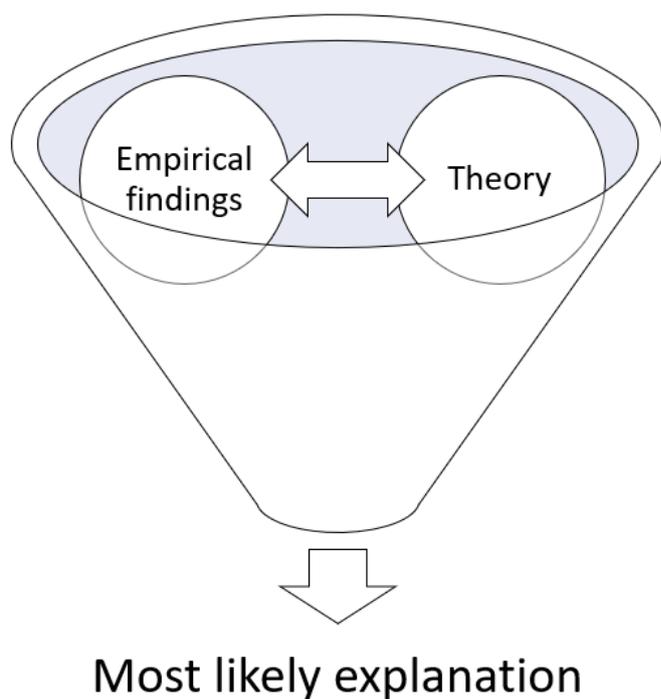


Figure 2. The abductive research approach of the thesis.

I use a case study methodology, which means that the research is investigating a phenomenon in a real-life context in a situation where the boundaries of context and phenomenon are not clear (Yin, 2009, p. 18 cited in Farquhar, 2012, p. 5). The case study includes semi-structured interviews, including some open-ended questions allowing a free discussion between the interviewees. Interviews were conducted as phone interviews. The interviews were transcribed and coded following the method developed by Gioia, Corley, and Hamilton (2013). This method aims to make sense of the data and help to detect patterns through similarities and differences. The method helps to illustrate the data and explain how I have reached certain conclusions from it. Furthermore, it allows the comparison of data to the theoretical background. The method provides the research multiple different views about the subject and the possibility to compare customer groups between each other's.

The second analysis method in the thesis is a comparative analysis between the two customer groups: hardware store customers and construction project customers. Both customer group's perceptions will be described, and similarities and differences will be analyzed.

Furthermore, whether there are differences between efficient engagement methods for sustainability will be addressed.

The thesis helps to understand how different stakeholders in the construction industry view the industry transformation towards sustainable building and what underlying factors influence the perception. The thesis addresses what kind of internal motivations and values B2B customers that purchase building materials have towards sustainability. Additionally, external factors, such as market pressure and sustainability information, are addressed. Furthermore, the research has multiple managerial implications, such as what kind of customer engagement is preferred and needed between a building product manufacturer and its clients and B2B market research.

The results indicate that generally, B2B customers in the construction industry perceive sustainability transformation to be important and investment-worthy. Concerns about sustainability were mainly about the economic viability of sustainability products and initiatives. Additionally, some had knowledge gaps about the subject. However, most were well-informed and interested in sustainable building. The results suggest that involving and engaging with B2B customers could be beneficial to the sustainable development of the industry since there were multiple good ideas of how to transform the industry to be more sustainable. Engagement methods such as face-to-face meetings, co-operation projects, phone calls, marketing in mainstream media, and social media advertising were mentioned to be efficient. Sustainability reports, e-mails, and other communication channels that require a lot of time investment came out as inefficient.

1.5 Structure of the Thesis

The master thesis is structured as follows: after the introductory chapter, the second chapter of the thesis will build a theoretical framework for the research. There are different theories adopted to frame the conceptual analysis of the research. Firstly, I will adopt the stakeholder theory, including stakeholder engagement, stakeholder management, customer

engagement, and perceptions. Secondly, I include previous research on customer perception and CSR and sustainable business. Finally, in the theoretical framework, I study the specific context of research: the construction industry and customer engagement actions in the context of transitioning toward a sustainable industry. The third chapter introduces the conceptual model for B2B customer engagement in an industry context towards sustainability that is based on the literature and theories. The model is then applied in the research later on. The fourth chapter describes the methodology of the research in detail.

The fifth chapter demonstrates the secondary data findings, which are an overview of the case company sustainability communication and publications. Additionally, the results of the interviews are shown in the fifth chapter. The primary data is portrayed as a data structure, and the results are demonstrated. This chapter followed by a discussion of the results in chapter six. The results are reflected to the relevant theoretical background. Lastly, the conclusions and implications of the research are examined in chapter seven. Additionally, the contribution of the research to existing academic literature will be covered, and limitations and possible further research opportunities will be examined.

2. Theoretical background

The following chapter describes the main theories and academic literature linked to the research. This research is built on two main theories. The analysis of stakeholder theory will be covered, and stakeholder engagement and management will be studied. Furthermore, a second theoretical background of perceptions will be explored. Lastly, to examine the research context, sustainable building, and sustainability communication in the construction industry will be introduced.

2.1 Stakeholder theory

The first theory adopted in this research is the stakeholder theory. The landmark book of stakeholder theory is Freeman's "Strategic Management: A Stakeholder Approach" which was published in 1984. There Freeman defines a stakeholder as "any group or individual who can be affected or is affected by the achievement of the organization's objectives" (Freeman, 1984 cited in Bal et al., 2013, p. 697). In addition to this, Jeffery (2009, p. 11) describes that stakeholders are critical "supply resources" for the company and that they are those who determine its success. He also argues that stakeholders are those whose welfare is directly influenced by the fate of the enterprise. Furthermore, Jeffery (2009, p. 11) defines stakeholders to be those entities that have the power to impact the performance of the enterprise, either negatively or positively.

Furthermore, Post, Preston, and Sachs (2002, p. 8) define stakeholders as follows:

"The stakeholders in a firm are individuals and constituencies that contribute, either voluntarily or involuntarily, to its wealth-creating capacity and activities, and who are therefore its potential beneficiaries and/or risk bearers."

Therefore, different stakeholders of a company can include, for example, owners of the company, employees, suppliers, government, customers, and shareholders. The company influences all of these actors. Still, these actors have the power to affect the performance of

the company. Figure 3 shows an example of a stakeholder network connected to a corporation.

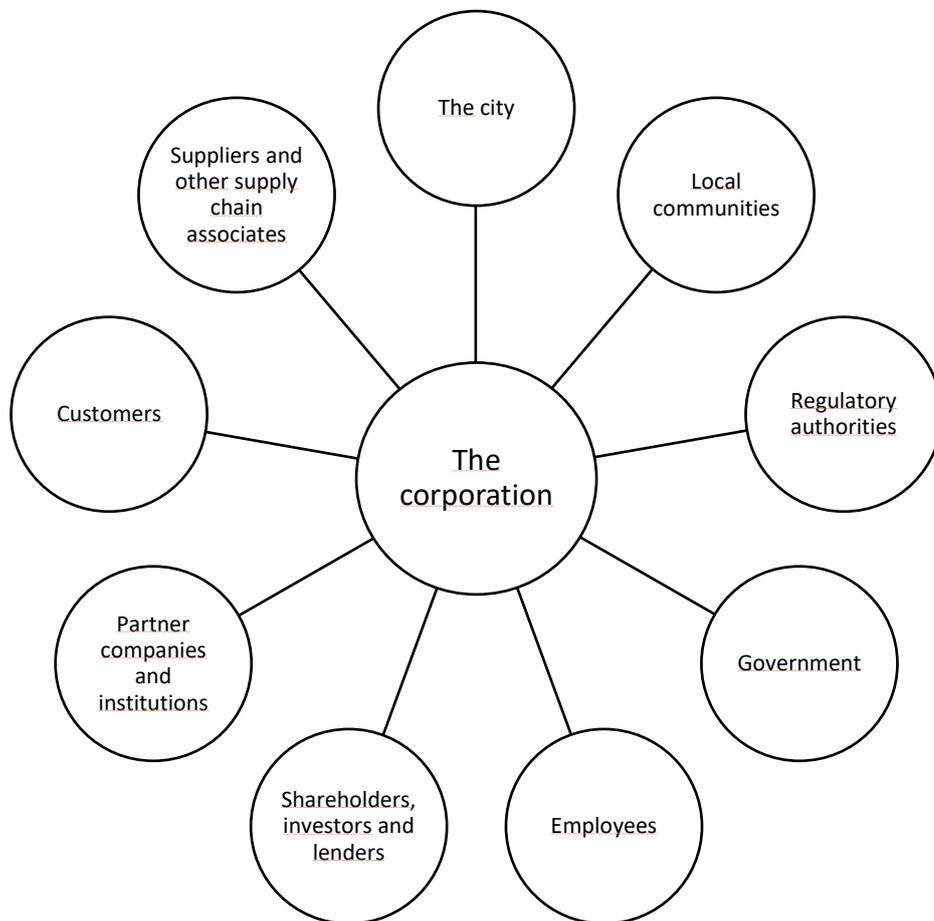


Figure 3. A corporation and its stakeholders. Reproduced from Post, Preston, and Sachs (2002, 10).

The main idea of stakeholder theory is that a business is successful if it can create value for not only customers but also suppliers, employees, communities, and financiers. Therefore, the basic assumption of stakeholder theory is that values are necessarily and explicitly a part of doing business. The theory pushes managers to understand what is the shared value that business creates and what brings the different stakeholders around the business together. In this way, the theory is very managerial, and the central goal is to help managers to define the main purpose of business and what responsibilities the management has towards the stakeholders. (Freeman, Wicks, and Parmar, 2004, p. 364)

According to Bowie (2012), the central claims stakeholder theory makes are that the main purpose of a business is to create value for various stakeholders. They further argue that stakeholder theory is the theory of management of organizations with a normative core in the center of it. Additionally, they state that there is no clear division between business issues and ethics issues, and therefore, stakeholder theory rejects a separation thesis that occurs in traditional business scholarship and business practice.

2.1.1 Stakeholder engagement

Stakeholder engagement is a vital component of ISO 26000 Guidance (launched from ISO, the International Organization for Standardization) on social responsibility that aims to contribute to sustainable development through encouraging businesses and other entities towards socially responsible actions towards their workers, natural environments, and communities.

According to ISO 26000 principle for social responsibility, stakeholder engagement includes all those activities that “create opportunities for dialogue between an organization and one or more of its stakeholders with the aim of providing an informed basis for the organization’s decisions” (ISO 2010, p. 4). Stakeholder engagement can also be defined as practices an organization initiates to involve stakeholders positively in organizational activities (Greenwood 2007, p. 317). Therefore, stakeholder engagement is all about involving different stakeholders in the decision-making process of an enterprise.

It can be argued that stakeholder engagement can have economic benefits. For instance, some studies support the argument that the capability to build up support from external stakeholders is the key driver of a firm’s financial performance (Henisz, Dorobantu & Nartey 2014, p. 1729). Henisz, Dorobantu & Nartey (2014, p. 1742- 1743) conclude in their study about the financial results of stakeholder engagement in the following way:

“Our theoretical arguments and empirical results point to the existence of a direct positive and economically substantive relationship between stakeholder support and financial market valuation”.

Mathur, Price, and Austin (2008, p. 601) say that meaningful stakeholder engagement can have positive effects, such as enhanced inclusive decision making, increased equity, improve local decision making, and build social capital. Furthermore, they argue that stakeholder engagement has an opportunity for social learning, which refers to a process where different stakeholders come together and learn about each other's values to create a shared vision. This kind of dialogue could be used to enhance awareness, change attitudes, and affect actions that are beneficial to sustainability. Similarly, Innes and Booher (2004, p. 429) argue that when there is an authentic dialogue between stakeholders that produces mutual learning, enhances trust and social capital, creates an opportunity for developing joint objectives and solutions, and promotes innovation towards problems that previously seemed unmanageable. However, it must be noted that the act of stakeholder engagement does not guarantee the responsible treatment of stakeholders, as it can be argued that it is a morally neutral activity (Greenwood 2007, p. 325).

2.1.2 Stakeholder management

Stakeholder management is an essential part of any project to be successful and therefore is in a central role of project management. Bourne and Walker (2008) found out that being able to identify the right stakeholder at the right time has a positive impact on project success. They have created "The Stakeholder Circle" methodology that creates five steps for stakeholder management. These steps are 1. Identify, 2. Prioritize, 3. Visualize, 4. Engage, and 5. Monitor.

The first step is to understand which stakeholders are connected to the project at hand. The goal is to understand the needs and requirements of each stakeholder. After that, the idea is to map the significance of that specific stakeholder to the project. Identification is done to every direction: Upwards (senior managers of the organization), Downwards (part of the project team), Outwards (stakeholders outside the project, such as end-users, government, unions, shareholders), and Sideways (peers of the project manager, such as other project managers). (Stakeholder Management, 2019)

The next step goes further into prioritizing the stakeholders in terms of power, proximity, and urgency. This step makes sure that every key stakeholder is acknowledged, understood and managed. The power, proximity and urgency rating is combined to create an “index” for every stakeholder. Then the stakeholders can be ranked based on their index, and this creates a list of prioritized stakeholders. The next step is to “visualize” where the prioritized list of stakeholders is used to create a communication plan. The stakeholders are visualized by putting them into the Stakeholder Circle (figure 4). The circle will create a tool for targeting the right stakeholder at the right time of the project. (Stakeholder Management, 2019)

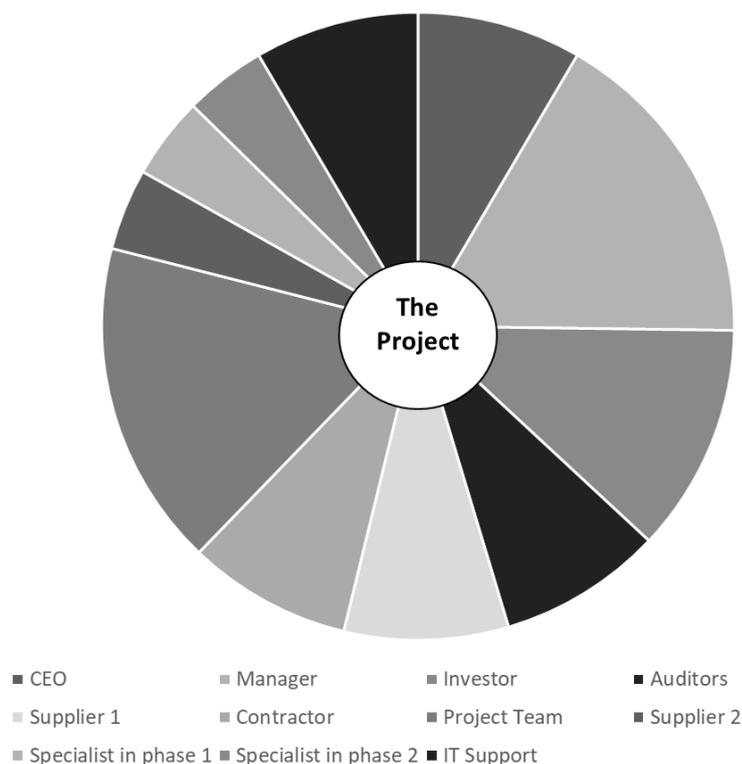


Figure 4. The Stakeholder Circle. Reproduced from Bourne and Walker (2008).

The next part is to engage with the stakeholders. The tools created should help with creating an engagement plan tailored differently to each stakeholder. The understanding of each stakeholders’ requirements that are created through previous steps helps to decide on the focus of engagement. The last step is to monitor the process over time. Monitoring includes

putting the communication plan into action and reporting about it constantly. However, the effectiveness of the communication plan diminishes over time as the project evolves and key stakeholders change. Therefore, it is recommendable to redo the whole process many times over the project. (Stakeholder Management, 2019)

2.1.3 Customer engagement

Brodie et al. (2011, p. 260) define customer engagement as follows:

“Customer engagement (CE) is a psychological state that occurs by virtue of interactive, cocreative customer experiences with a focal agent/object (e.g., a brand) in focal service relationships”.

They also acknowledge that it is a complex phenomenon that occurs differently depending on the situation and therefore is a *“multidimensional context that subject to a context- and/or stakeholder-specific expression of relevant cognitive, emotional and/or behavioral dimensions”.*

Customer engagement (CE) is often represented in academic literature as an activity or state of mind that goes beyond purchasing and as a vital aspect for companies (Kumar and Pansari, 2016, p. 499). Literature suggests that customer engagement is an important strategical tool that enhances company performance in terms of providing a competitive advantage, sales growth, and profitability (Neff 2007, Sedley 2008 and Voyles 2007 cited in Brodie et al., 2011, p. 252). Additionally, customer engagement can accelerate innovation and contribute to product and service development (Brodie et al., 2011, p. 252).

Kumar and Pansari (2016, p. 500) include dimensions such as customer purchases, referrals, influence, and knowledge to customer engagement. Customer purchases have a direct effect on company values. Customer referrals (or in the case of B2B companies references) are a form of engagement that helps to attract customers that do not respond to traditional

marketing. Customer influence refers to the effect a customer can make on social media. This influence can have a direct relationship with firm profits since social media reaches a wide group of customers. The social media influence is as effective for both B2B and B2C firms. Customer knowledge refers to the process where a customer is involved in product/service development through feedback and suggestions. It must be noted that this might affect firm value by providing important information about customer preferences. This information can be used to create products that are improved to fit the customers' needs better.

2.1.4 Stakeholder Engagement and Corporate Sustainability

Rodriguez-Melo and Mansouri (2011, p. 548) identify stakeholder engagement in the context of corporate sustainability as the biggest influential source of competitive advantage for companies. Therefore, they established that well-managed stakeholder relationships can create a competitive edge for a company and that stakeholder engagement is a beneficial tool for corporate sustainability. Furthermore, Johnson, Redlbacher, and Schaltegger (2018, p. 659) state that stakeholder engagement is important for corporate sustainability in many ways, such as making sure that the business practice is legitimate and spurring innovations.

It can be argued that a company's ability to generate sustainable wealth over time and keep its value in the long-term, is determined by the quality of its relationships between key stakeholders (Post, Preston and Sachs, 2002). Additionally, Martín-de Castro, Amores-Salvadó, & Navas-López (2016, p. 253) have shown that integrating the stakeholders into the company decision-making process can create benefits for all parties such as reaching an improved competitive position and gaining legitimation. On this basis, stakeholder engagement and management should be a part of the firms' overall strategy to acknowledge the needs and wants of all of the stakeholders involved in the complex stakeholder network around the firm. Furthermore, it must be acknowledged that all stakeholder relationships are important to understand and manage even though relevance and priority vary depending on situation or issue (Post, Preston, and Sachs, 2002).

2.1.5 Stakeholder Engagement of sustainability in a B2B organization

B2B (business to business) organizations have very different market environment than B2C (business to consumer) organizations. Firstly, the monetary amounts a buyer spends on a single purchase are much larger. Secondly, the relationship between B2B companies are dependent on each other, complicated and interpersonal (Webster 1978). Furthermore, in a B2B environment, the interaction between customers and employees affects consumer decisions in a significant way (Kumar and Pansari, 2016, p. 502).

Johnson, Redlbacher, and Schaltegger (2018) have investigated whether the customer segment influences stakeholder engagement. A comparative study between B2C and B2B discovered that the customer segment does not have a significant impact on stakeholder engagement. However, studies found out that value-oriented parts of firms such as sustainability values and family-run operations have effects in stakeholder engagement. This notion contradicts the findings of previous studies such as a study by Haddock-Fraser and Tourelle (2010), which found out that B2C companies received greater pressure from various stakeholder groups than B2B companies. The pressure furthermore impacted their environmental reporting activities, which is part of stakeholder engagement. The contradictory evidence could be due to B2B companies improving their efforts over time since Johnson, Redlbacher, and Schaltegger (2018) have the most recent data compared to previously done research.

Kumar and Pansari (2016, p. 510) found out in a study about engagement that the effect of customer engagement on firm performance is stronger for B2B firms than for B2C firms. This finding suggests that targeting some specific stakeholder groups in engagement might be more effective and that customer relationships are especially important for B2B companies.

2.1.6 Summary of stakeholder theory and application to the research

The stakeholder theory acknowledges that it is vital for a business to create value for its stakeholders. The welfare of the stakeholders can determine how successful the business is

currently and in the future since the stakeholders can impact the performance of a business. Engagement of stakeholders in the organizational actions and decision-making can have positive impacts such as economic benefits, building social capital, mutual learning, and improved decision making.

The stakeholder theory is applied to this research by studying the stakeholder engagement of the B2B customers of the case company in the field of sustainability. The specific engagement and communication methods used by the case company are studied. Whether or not the current sustainability engagement has reached the customers is examined. Furthermore, the customers' viewpoint is introduced to what kind of engagement and communication would be efficient for them to enhance sustainable building in the construction industry.

2.2 Customer perceptions and sustainability

The second major literature adopted in this thesis is based on customer perceptions. Perception can be described as a process where an individual organizes, selects, identifies, and interprets the information they receive (Kenyon and Sen, N.D., 2015, p. 41). Everyone does this automatically, and it acts as a filter that prevents us from being completely overwhelmed by all of the sensory information we receive.

Kenyon and Sen (2015, p. 41) further explain how this perceptual system helps to keep the world stable even when the information (stimuli) we receive is not perfect and changes all the time and how expectations, memory, and learning influence perceptions. Troy and Kenny (2010, p. 215) define perception as the action of comprehending by using the senses and/or the mind. Therefore, perception is affected not only by senses but also through experiences and learning. They argue that perception is associated with complex dimensions of consumer behavior such as motivation, context, and learning.

According to Kenyon and Sen (2015, p. 42), there are three steps in the perception process. Step one is about noticing the stimuli, step two is organizing the elements in the stimuli, and step three is subjectively interpreting the stimuli. This whole process is affected by both external and internal factors. External factors are, for example, size, intensity, and motion. Internal factors include past experiences, attitudes, values, expectations, and motives. Especially internal factors have a huge influence on the interpretation phase of the perception process. Everyone has so-called “subconscious blinders” which refer to lack of awareness and perceived similarities. These factors can cause errors in judgment and misinterpretation of information. (Kenyon and Sen, 2015, p. 42)

Isaksson and Garvare (2003, p. 655) argue that customers' perceptions of how sustainable a product is socially and environmentally impacts their purchase choice since many customers aim to find products that align with their outlooks of sustainable development. Therefore, customer perceptions about sustainability might have an impact on the customer's purchasing decision of a product.

Furthermore, companies' communication about their green practices can influence their customer's perceptions. Namkung and Jang (2013) found out in their study that green practices have a remarkable effect on customer perceptions of a brand's green image and green behavioral intentions. This finding implicates that even though there are underlying internal factors that shape the perceptions of customers, companies have ways to shape their perception towards an improved green image of the company. The positive relationship between green practices and improvement in the firm image is supported by other studies (Miles and Russell, 1997 and Chen, 2008 cited in Bathmanathan and Hironaka, 2016). The positive green image supports firm growth, and therefore, customers' green perception can be considered an important factor for a company.

2.2.1 Customer perceptions in CSR and sustainability

Corporate social responsibility (CSR) is a concept that has been around for over 50 years and can be defined as *“a set of voluntary policies, codes, or guidelines, initiated and driven by the corporation”* or *“a company’s management of the economic, social, and environmental impacts of its behavior”* (Idowu et al., 2013). The concept overlaps with concepts such as sustainable business, corporate citizenship, the triple bottom line, and business ethics and is highly contextual in both corporate and national environment (Idowu et al., 2013). CSR helps companies in building credibility and trust between its different stakeholders, and it is currently a highly discussed and debated subject between businesses, politicians, consumers, NGOs as well as researchers (Habisch et al., 2005).

Multiple studies show the impacts of customer CSR perceptions in business. Chaudary et al. (2016) have found out in their study in Pakistan that green image influences customers' CSR perception of a company and also has an indirect effect on a firm’s profitability. Furthermore, they conclude that marketers should engage in CSR practices to build customer loyalty and encourage existing customers to repurchase. Furthermore, their results suggest that investing more resources to CSR capabilities and launching new CSR campaigns affect CSR perception positively.

A recent comparative study between Russian and Finnish consumers about customer perception of CSR activities (Potepkin and Firsanova, 2017) found out that there is a strong correlation between CSR perceived by customers and their loyalty and trust towards a company. The results showed that the relationship between perceived CSR and consumer loyalty is indirect in a way that the trust factor mediates the correlation between them. Their findings implicate that there were no significant differences between Finnish and Russian consumers when it comes to the impact CSR activities have on trust and loyalty to a company. The finding suggests that CSR activities and marketing are as efficient in Russian as well as in Europe.

A study in India by Dutta and Singh (2013) about customer perception of CSR and its impacts on retailer evaluation and purchase intention also showed that CSR as a strategic tool could be used as a competitive advantage for a firm and also has a positive relationship with consumer's purchase intention. They conclude that CSR can impact a retailer in a way that a consumer is willing to spend extra and displays a purchasing intent.

2.2.2 Summary of customer perception theory and application to the research

Perceptions are the act of apprehending information, and a perception process is where an individual organizes, selects, identifies, and interprets the information they receive. Customer perceptions about the sustainability of a product can impact customers purchasing decisions. Furthermore, a company can impact on how their customers perceive them and their green image by communicating about green practices. Additionally, investing in CSR can have a positive impact on the customer's perception of a company.

The customer perception theory is applied to the research by adopting the customer perception process by Kenyon and Sen (2015) to the research model and examining the internal and external factors the B2B customers of the case company have that impact their perception process. This is done to understand the underlying aspects that motivate sustainability and market barriers to sustainable building. The result of the perception process is customer perceptions about the sustainability of the construction industry. These perceptions that B2B customers have about the sustainable development of construction are identified and studied.

2.3 Sustainability in the construction industry

The main context of the thesis is the analysis of sustainability in the construction industry. Firstly, this section studies how the industry has been affected by sustainability. Secondly, the main tools and practices of sustainability in the industry will be introduced. Thirdly, customer engagement of sustainability in the construction industry will be examined.

Sustainable development can be defined as a development that *“meets the needs of present without compromising the ability of future generations to meet their own needs”* (World Commission on Environment and Development, 1987). Promoting sustainable development in terms of social, economic, and environmental sustainability is extremely important for the construction industry since it is a highly active industry globally (Ortiz, Castells and Sonnemann, 2007, p. 29). From the social and economic perspective, the industry is significant since, in the EU, the sector provides 18 million direct jobs and contributes to around 9% of the EU's GDP (European Commission, 2019). In Finland, the industry employs around 250 000 personnel (Rakennusteollisuus RT ry, 2019).

From the environmental perspective, the industry is in a key role when it comes to global sustainable development. According to the European Commission (2019), buildings generate about 35% of all greenhouse emissions and account for the largest share of total EU final energy consumption (40%). Therefore, different methods have been created to measure, control, and mitigate the carbon footprint of the industry.

Furthermore, researchers have found out that investing in sustainability pays off in the construction industry (Lu, Cui, and Le, 2013). Therefore, it can be argued that becoming sustainable is also economically beneficial for companies that operate in the construction industry, and this shows evidence that stakeholder engagement and sustainability communication should be invested in.

2.3.1 Main sustainability tools and practices in the construction industry

Life cycle assessment (LCA) is one of the common practices of the industry in terms of sustainability. It can be defined as a systematic analysis of the environmental impact of a product or a process during their entire life cycle (ISO 14040, 1997). LCA usually considers raw material acquisition through production, use, and disposal of the product. Ortiz, Castells, and Sonnemann (2007, p. 28) did a review about the milestones of LCA in the building sector and were able to conclude that the application of LCA is crucial to sustainability and improvement

in building and construction. LCA has broad international acceptance and can act as a tool to develop environmental processes, and additionally, it helps to define goals for mitigating harmful environmental impacts. In short, it builds a clear overall picture of the emissions created in every phase of the product life cycle, which helps to understand in what phase are the biggest challenges and where development is needed.

Sustainability in the construction industry can also be enhanced through the action of consensus building. Consensus building is a tool among other collaborative planning methods to tackle social and political fragmentation, conflicting values, and shared power (Innes and Booher 1999, p. 412). In other words, it is a process used to settle complex issues where many stakeholders are involved. Innes and Booher (1999) demonstrated the potential outcomes of consensus building that are illustrated in figure 5 below.

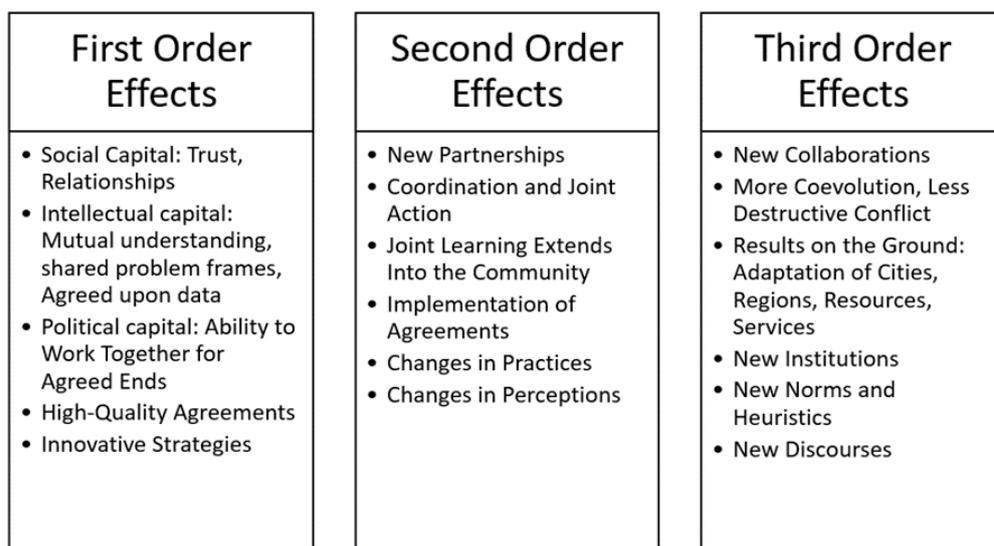


Figure 5. Potential outcomes of consensus building. Reproduced from Innes and Booher (1999, p. 419).

2.3.2 Customer engagement of sustainability in the construction Industry

According to Wong Et al. (2012), stakeholder engagement and communication in the field of sustainability is a “golden opportunity” in the construction industry. They argue that “recognizing and involving a broader group of stakeholders (including end-users, interest groups, and the public) is crucial because their priorities and agendas are often misaligned with the local councils and decision-makers, who have to take into account a larger spectrum of issues related to service delivery and meeting the needs of the community”. Furthermore, they believe that this ongoing dialogue can help decision-makers in the industry to meet the needs of the market more efficiently.

Son et al. (2009) conducted a survey in the US and Korea for constructors about the awareness level of sustainable construction methods and preparedness to implement these methods into actual construction projects. The results showed that constructors are knowledgeable enough to deliver sustainability and also that awareness and preparedness are both high. Therefore, some stakeholders in the industry have a high level of awareness about sustainability and are willing to adopt practices.

Additionally, there is evidence that eco-labeling in the industry works in promoting products (Low, Gao, and See, 2014). This finding suggests that sustainability communication is worth investing in and that stakeholders show interest in sustainability and that it has an effect on purchasing decisions. Bal et al. (2013, p. 707) found out that there when it comes to motivating participants of a construction project to reach sustainability goals, participants are motivated by a mixture of control, management, and organizing activities. These actions help the participants to engage with their internal and external stakeholders and reach sustainability objectives.

2.3.3 Summary of sustainability in the construction industry and application to the research

The construction industry has a significant impact on the global sustainable development. This globally active industry has a massive impact on economic, social, and environmental sustainability. Methods such as LCA and consensus building are used in the industry to pursue sustainability in the industry. Stakeholder engagement of sustainability in the industry offers opportunities such as firm growth, mutual learning, and economic benefits. There is evidence that some stakeholders in the construction industry are aware of and motivated about sustainability.

The research aims to study the B2B customer perceptions of the sustainability of the construction industry of a large building product manufacturer. Therefore, the general view the B2B customers have about the sustainability of construction is studied and identified. Furthermore, efficient engagement and communication methods of sustainability in the industry are described. The research aims to show whether or not sustainable building is a market opportunity according to corporate customers operating in the industry. Furthermore, the aim is to give managerial implications to the industry of what kind of customer engagement might be most beneficial when it comes to sustainable building.

3. Research Framework

This chapter introduces a model of B2B customer engagement and customer perceptions of sustainability in the context of the construction industry. The model brings together relevant theories and discusses how they are related. The model creates a framework for the research.

3.1 Model of B2B customer engagement and customer perceptions of sustainability in the context of the construction industry

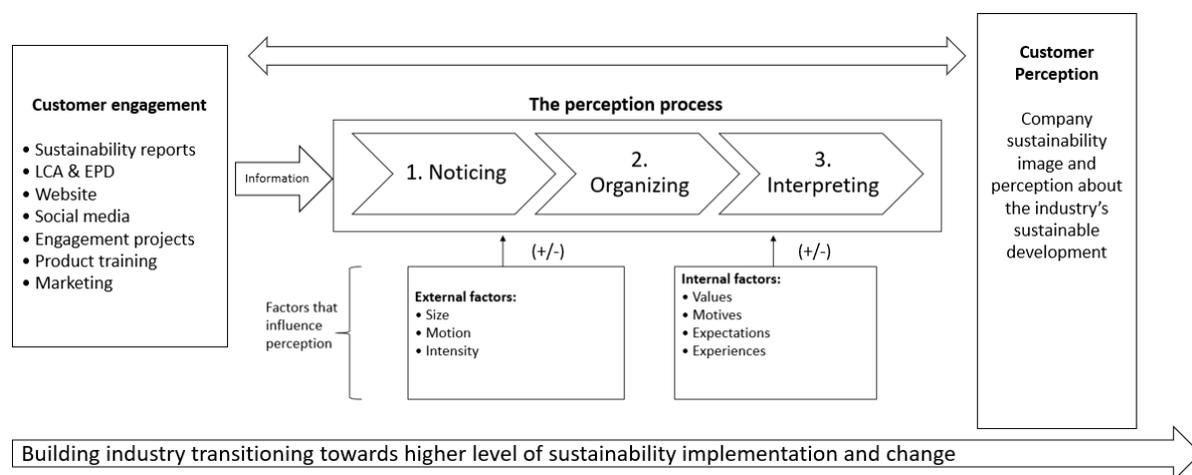


Figure 6. Model of B2B customer engagement and customer perceptions of sustainability in the context of the construction industry.

Figure 6 above demonstrates a model of B2B customer engagement of sustainability. The model was created based on the literature review and theory. It includes the dimensions that are relevant to the research in terms of customer engagement and customer perceptions. These theories are **customer perception process**, **company sustainability image**, and **customer engagement** actions of sustainability.

First, the **customer perception process** starts with the customer receiving information provided by the company or elsewhere. The process continues according to the steps Kenyon and Sen (2015, p. 42) introduce. First, the customer notices the *information*, then they organize it, and lastly, they interpret the information. This whole process is affected by both

external and *internal factors*. The model acknowledges that the impact can be positive or negative to the process. Additionally, there is a possibility that the information the customer receives may be misinterpreted. The outcome of the perception process in this context is the B2B customer's perception of the company's sustainability and overall perception of the whole transformation of the industry towards sustainable development.

Secondly, customer perceptions can influence the company's sustainability image. The information the company produces can have a positive effect on the green image (Namkung and Jang, 2013) and there is evidence that company adopting green practices has a positive relationship between company image (Miles and Russell, 1997 and Chen, 2008 cited in Bathmanathan and Hironaka, 2016). Therefore, customer engagement is influenced by the company's sustainability image based on customer perceptions. The model suggests that customer perceptions can affect how successful or efficient the customer engagement actions are, and vice versa, successful customer engagement might accelerate company sustainability image and help in shaping the customer's perception generally about the sustainable development of the construction industry. The customer engagement dimension in the model includes sustainability reports, LCA:s & EPD:s, website, social media, engagement projects, product training, and marketing. According to the theory, efficient engagement can accelerate innovation, product and service development, ideas for sustainability practices, improved trust between company and stakeholders, and mutual learning.

Lastly, the customer engagement and customer perceptions about the industry's sustainability evolve constantly as the whole industry develops towards a higher level of sustainability implementation, and therefore, the model develops and changes through time. The model acknowledges that effective stakeholder engagement has a positive effect on sustainable development, and therefore, the outcomes of customer engagement can accelerate the sustainable development of the construction industry.

The model is applied to the secondary data, which are the company sustainability publications. The aim is to examine what kind of stakeholder engagement in the form of reports, publications, website information, and other content the company currently has. Once this is clear, the model is then applied to the primary data, which are the semi-structured interviews with B2B clients. The interviews focus on finding out what kind of perceptions the customers have formed about the company's sustainability image and on a larger scale, about the whole transition of the industry towards sustainable building. Furthermore, the influencing external and internal factors that impact the perception will be examined. Additionally, the model is applied to study the relationship between stakeholder engagement and perceptions. The relationship will be addressed in the interviews by seeing if the current sustainability communication has reached B2B customers or not.

4. Research Methodology

This chapter describes the research approach and the research methods of the thesis. The approach of this research is abductive and a qualitative approach. I use a case study method for the research. The case study involves the design of the interview, data collection and sample, sample representativeness, and analysis method. Furthermore, reliability and validity will be examined.

4.1 Research Approach and Design

The research method is a qualitative case study. As the research is focused on understanding and interpretation, it is qualitative research opposed to quantitative research, where the focus is on explaining a phenomenon with testing hypothesis and statistical analysis (Eriksson & Kovalainen, 2008, p. 3). The main focus is to describe how B2B customers perceive sustainability in the construction industry and also what factors have an influence on this perception. Furthermore, the research aims to find out what kind of sustainability engagement is needed and welcomed in the industry by the specific stakeholder. The differences between customer groups are described, and underlying reasons for the change of practice to a more sustainable direction will also be discussed. Therefore, there is no

specific hypothesis in the research, but the research rather focuses on a holistic understanding of the issues (Eriksson & Kovalainen, 2008, p. 3).

The empirical research aims to study the research framework presented in the previous section. It is based on an exploratory case study of a leading construction product manufacturer in the building industry in Finland. The research is investigating a phenomenon in a real-life context in a situation where the boundaries of context and phenomenon are not clear and, therefore, can be described as a case study (Yin, 2009, p. 18 cited in Farquhar, 2012, p. 5). In other words, the research introduces a case study of a company and utilizes theoretical knowledge to a specific activity as a means of interpretation and/or recommending better practice (Farquhar, 2012, p. 4).

The thesis uses abductive reasoning, which starts with making observations and then aims to find the simplest and most likely explanation for these observations (Mantere and Ketokivi, 2013). The underlying general logic of the abductive approach is about turning “surprising facts” into matters of course. Therefore, abductive reasoning is used to find the best possible explanation for the observations from many competing alternatives. In this research, I create a theoretical model and then proceed to test it to find the best alternative explanation about the observations.

4.2 Case Study description

The research is built on a case study. To develop the case study, I use different sources, which are: 1) Semi-Structured Interview (primary data) and 2) Company publications about sustainability (secondary data). As mentioned earlier, the case company Saint-Gobain Finland Oy manufactures a variety of building materials and sells them to hardware stores and construction companies. The company is a multinational corporation, but the research is limited to a Finnish subsidiary. The company operates in all areas of Finland.

Data used for the research is primary data collected through phone interviews via a semi-structured interview. Altogether 20 B2B customers were interviewed. Half of the B2B customers were hardware store customers and other half construction project customers. The interview design can be seen in Appendix 1. The semi-structured interview follows an interview guide but allows for the flexibility and contextual adaptation (Farquhar, 2012, p. 10). I chose this method to gain in-depth data about the phenomenon and understand the underlying factors such as motivations and attitudes of interview subjects. A deeper conversation between interview subjects helps to answer the research questions better than a mere “yes” or “no” survey since the phenomenon studied is very complex. Especially, customer perceptions are hard to understand merely through a survey, and therefore, a more detailed interview is required to reach the study objectives. The interview was conducted in Finnish.

Additionally, secondary data such as company sustainability reports and other company published information such as information on the website, LCA:s and social media will be included in the study. The current customer engagement is analyzed to understand what kind of customer engagement is already in action and what kind of information the customers receive about sustainability from the case company. This can be used to understand whether or not the sustainability communication and engagement has transmitted through the perception process towards the company image. Analysis of the efficiency of current methods helps to understand what kind of engagement is further needed and wanted in the industry by B2B customers.

4.3 Interviews: Target Sample and Data Collection

The target sample is customers of the case company, which is operating in the construction industry B2B markets in Finland. More specifically, the case company manufactures and sells building materials for other companies. Therefore, the targeted stakeholder group is the buyers of those building materials. The buyers in this case study are other companies operating in the industry, and the relationship with the company is that they are B2B customers to the company. The target group is roughly divided into two customer groups:

hardware store buyers and buyers for construction sites/projects. The sample size is 20 customers, and the research includes ten hardware store buyers and ten construction site buyers. The sample is not limited geographically in any other way than targeting only Finnish companies. Therefore, the targeted companies are located in all areas of Finland.

The customers are otherwise chosen randomly from the customer pool by using simple random sampling. First, the case company database of customers was organized by giving each customer company a number. Then random number generator was used to get random numbers. The number generated was then used to pick from the database a company that was contacted and interviewed. At the point, I already had all ten of my “hardware store customers” and the random number picked hardware store company for me, I skipped over that number and randomly generated numbers until I got “construction customers” and vice versa.

Furthermore, when there was a scenario where I got the same number multiple times, I just ignored the duplicate number and proceeded to the next number. Additionally, I had to pick those customers who had time for the research, so therefore if I could not find a person from the randomly selected company that had time for the interview, I had to skip that customer and proceed to the next randomly selected company. Additionally, there were some customers in the database that were not active or had a low level of purchasing activity, and I chose to skip over those customers. Table 1 below shows the description of the interviewees' data.

Table 1. Data of the interviewees.

Hardware store 1 (CEO/Shop owner)	Construction company 1 (Head of supplies)
Hardware store 2 (Seller)	Construction company 2 (CEO)
Hardware store 3 (Regional sales manager)	Construction company 3 (CEO)
Hardware store 4 (Shop owner)	Construction company 4 (CEO)
Hardware store 5 (CEO/Shop owner)	Construction company 5 (CEO)
Hardware store 6 (Seller)	Construction company 6 (Supervisor)
Hardware store 7 (Seller)	Construction company 7 (Design)
Hardware store 8 (Seller)	Construction company 8 (CEO)
Hardware store 9 (CEO/Shop owner)	Construction company 9 (Seller)
Hardware store 10 (Store manager)	Construction company 10 (Head of supplies)

The data collection took place from 22.10.2019 to 13.11.2019. The person who was contacted was not limited in any way mean that the interviews included personnel from all levels of the company; for instance, CEO's, purchasing managers and sales personnel were interviewed. The interviews were conducted as phone interviews and lasted around 20-40 minutes each. All 20 interviews were fully transcribed, and they were done in Finnish.

Additionally, the data included secondary data, which was the case company's sustainability publications. The secondary data included company website publications, social media publications, and company reports. These were analyzed to gain an understanding of how the company is currently communicating and engaging its customers. Additionally, the secondary data was used to understand the context of the research. The secondary data was compared to the primary data.

4.4 Analysis of the data

The approach for the research abductive. The research approach is close to inductive since the research process starts from exploratory empirical material (theoretical framework and data collection through interviews) and proceeds to theoretical results as opposed to a deductive approach where the research starts from theoretical propositions (hypotheses) and proceeds into testing these propositions in an empirical study (Eriksson & Kovalainen, 2008,

p. 14). The objective is to gather data from customers and formulate a thorough analysis of this data using a model that results in the best possible explanation for the phenomenon.

Primary data was collected in the form of interviews. The interviews were transcribed and coded to make sense of the data in a way that when something repeats in the interviews or is central to the research questions, it was coded. These codes were grouped into categories, and the connections between these categories were examined. Lastly, the research questions were answered according to the data. Therefore, the method of the research is data-driven analysis.

The coding process follows a method developed by Gioia, Corley, and Hamilton (2013). The interviews and analysis process happen somewhat simultaneously as by interviews proceed different themes or categories will start to occur, and analysis will already begin. Following this codification method, the first phase is called the 1st-order code analysis, and it is based on a descriptive approach of the analysis of the transcriptions. Here multiple categories are created without restricting the amount of them. Therefore, in the early phase of the research, there were a huge number of different categories (156 categories) that emerged from the data.

The next phase called 2nd-order analysis, and it is based on grouping methodologies of first-order codes. It is where these categories are analyzed through similarities and differences and looking for relationships between them to limit the number of categories into a manageable number (9 categories emerged from the research). These categories were then labeled. The 2nd-order analysis explains the observed phenomena by looking for clear themes that come up from the concepts that occurred in the interviews.

The last phase is to further group together the 2nd-order themes and concepts into “aggregate dimensions” or conceptual dimensions. This process is based on the analysis of 2nd level codes. 2nd level codes are clustered together into conceptual categories that rely on theory-

building notions. Altogether three dimensions were formed from the data in this research. All of these steps are done to build a data structure that serves as a visual tool for understanding the data and also shows a graphic representation of how I was able to form categories and themes from the primary data to be analyzed further. The data structure helps to understand how the research was conducted, what occurred in the data, and how I was able to reach the conclusions that answer the research questions. Figure 7 shows the data structure of the thesis where the phases 1st-order, 2nd-order, and “aggregate dimensions” are presented.

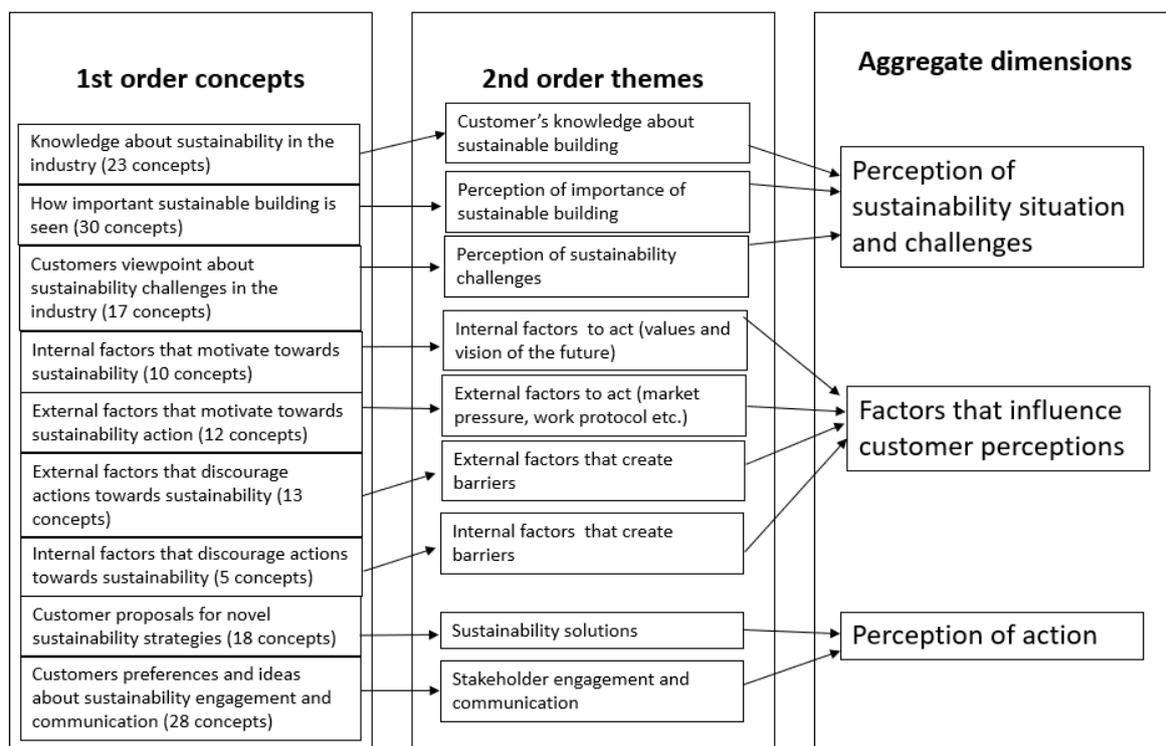


Figure 7. Data structure. Reproduced from Gioia, Corley, and Hamilton (2013).

In addition to the Gioia methodology, the thesis includes a comparative analysis of the two customer groups that are studied in the research: hardware store customers and construction project customers. Both viewpoints will be described separately, and then similarities and differences between perceptions will be analyzed. The analysis additionally describes whether there are any differences in what engagement methods the customer segments prefer.

4.5 Reliability and Validity

The overall reliability and validity of the research were good, but some limitation factors that influence the reliability and validity of the research that must be acknowledged. Firstly, some of the interview questions had to be modified through the interview process. Modification was done to get the information that served the goals of the research and sometimes the interviewed person found it hard to understand some of the questions and they had to be changed. Sometimes there were comments such as “can you repeat the questions” or “that is very difficult to answer”. In these instances, the questions had to be clarified since they were too complicated and not specific enough.

For instance, the first question, “What do you know about green building?” was modified to be “What comes in mind from the word “sustainable building”. The question was modified because the first three interviews got answers such as “very little” or “I have not read much about this subject”. The more open question got more interesting answers such as “building from wood” and “using quality materials”. It also was a less intimidating question to begin the interview and build a more positive atmosphere for the interview.

Furthermore, the question “does sustainability impact your buying decisions?” had to be clarified to be “Does sustainability impact your buying decisions in work/professional life” since the first was often understood to mean personal buying decision and the research aimed to limit the results to consider construction only and professional life-related perceptions and engagement.

Secondly, another factor impacting the reliability and validity is that some questions were skipped over. Skipping was done because of time restrictions or because the answer had already come up earlier in the conversation. Additionally, the order of the questions was sometimes changed a little bit to keep up the conversation flow.

Lastly, the thesis was made in co-operation with a company. This fact might have impacted the answers of the interviewee even though the documentation was anonymous. There might have been some limitation to the openness due to this that has to be considered. However, the interviews seemed to be very open and honest, which was a good aspect in terms of reliability and validity. For example, sustainability issues were discussed very openly rather than just stating that everything is already perfect in the industry in terms of sustainability.

Otherwise, the research method proved to provide answers to the research questions and therefore, it was a valid method for this specific research. The semi-structured interview method was efficient in this research because of the flexibility of the method. The method allowed the questions to be changed to get the data needed for the research and this allowed to reach the research objectives. The reliability of the research can be considered good since the research results can be reproduced when the research is repeated under the same conditions.

5. Results

In this chapter, the results of secondary data, which is company sustainability publications, is described. Additionally, this chapter goes over the interview results of 20 B2B customers' perceptions about the sustainability of the construction industry and the conversations about sustainability engagement. Firstly, the data structure is demonstrated. Secondly, the aggregate dimensions, which group the main findings are discussed. Finally, the differences and similarities between B2B customer groups are addressed with a comparative analysis.

5.1 Case company sustainability communication

This chapter includes an overview of the case company Saint-Gobain's sustainability publications, which are the secondary data of the research. The corporation published an annual report in 2018 on the multinational level, and they have an integrated report. Integrated reporting (IR) is a new form of reporting that combines financial reporting and sustainability reporting and adds on to them. Therefore, it can be argued that it is a more

complex and comprehensive way of reporting than having to separate reports, financial reports, and sustainability reports. The purpose of integrated reporting is to communicate to investors and other stakeholders the means of how the specific organization creates and sustains value over time. According to International Integrated Reporting Council (IIRC 2013 cited in Mio 2016, p. 20) “integrated report is a concise communication about how an organization’s strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term”.

The corporation’s annual report in 2018 clearly states that it includes both the annual financial report and CSR information. The report states that the company adopts the transition to a low-carbon economy in its core strategy, and they aim to reach this goal through risk control and the development of new market opportunities (Saint-Gobain, 2018 p. 74). The company focuses plans of action around areas of reducing the carbon footprint of the products and solutions, cooperation among stakeholders, forging local partnerships to identify resilient local ecosystems favorable to a low-carbon economy and changing lifestyle by integrating “new principles of construction, mobility and personal services that are more sustainable, affordable and close to the needs of end-users” (Saint-Gobain, 2018 p. 74).

The report communicates about multiple concrete actions the corporation takes against climate change. For instance, the corporation has set an internal carbon price, developed products and operations to improve the CO₂ footprint, trained customers, and measured the carbon benefits of products and solutions actively (Saint-Gobain, 2018 p. 74-77). Circular economy is supported by introducing services to recover waste from different customer activities, in particular, waste from renovation or demolition/deconstruction (Saint-Gobain, 2018 p. 78). Marketing teams are analyzing products to improve recyclability, reduce the content of dangerous substances, and finding ways to replace raw materials with recycled or renewable materials (Saint-Gobain, 2018 p. 78).

In addition to this, the company considers social and economic sides of sustainability since the report states that the corporation promotes local, inclusive economic development by, for instance, creating affordable housing, creating jobs, and forming partnerships with SME's. Furthermore, the corporation is contributing to societal issues through sponsorship and philanthropy through initiatives, local societal actions, and active local foundations (Saint-Gobain, 2018 p. 79-82). Overall, the company reports about sustainability in a very comprehensive way in their annual report, and that information about social, economic, and ecological sustainability is transparent and easy to find. Finnish subsidiary does not have a separate integrated report.

The Finnish subsidiary Saint-Gobain Finland Oy has a lot of sustainability information on its website. The main focus is that the company supports sustainable, material-efficient building, and the building of projects that have environment certificates such as LEED, BREEAM, RTS, and Nordic Ecolabel. The company provides an EPD (Environmental Product Declaration) for every product. EPD is based on Life Cycle Analysis and provides a transparent and comparable document about the environmental impacts of the product through its whole life cycle. An independent third party authenticates EPD. It includes the assessment of the environmental impacts of the product through the extraction of raw materials to transportation and the end treatment of the product (cradle to grave approach). Therefore, information about sustainability is easy to find and accessible to B2B customers online. (Saint-Gobain Finland, 2018)

Furthermore, the Finnish subsidiary is actively developing products to be more sustainable. The company is taking part in an eco-innovation program. The company is also taking an active role in an EU innovation program, which aims to turn one of its products into a renewable material. Furthermore, the company has signed an energy efficiency agreement which is a tool, chosen together by the Government and industrial and municipal associations, to reach the EU energy efficiency obligations set for Finland (Energiatehokkuus, 2019). The company publishes information about these sustainability initiatives, and actions on the company website (Saint-Gobain Finland, 2018).

Furthermore, the company communicates about sustainability actively in social media. They have an Instagram and Facebook page where they have information and news about the latest sustainability actions. For instance, the company markets the EU level innovation project through Instagram. Therefore, the company uses additional communication channels actively to communicate about corporate sustainability. Overall the secondary data suggests that the company is very involved with sustainability and can be even described as a forerunner when it comes to innovating in sustainable building products. The communication is very thorough and active when it comes to reports, website information, product information, and social media.

5.2 Data structure

Multiple concepts and themes occurred in the interviews, and a data structure was formed based on the observations. The method by Gioia, Corley, and Hamilton (2013) was used to build the data structure for the research. The first order of concepts included 156 concepts. The concepts were collected from the transcribed interviews. A couple of examples of 1st order concepts found are: “sustainable building offers a long-term investment for customers”, “carbon neutrality is familiar from product information,” and “sustainability offers an opportunity for the construction industry to create a better image”. All of the concepts were directly picked from the conversations with B2B customers. All of the 1st order concepts are visible in Appendix 2.

These concepts were then grouped into 2nd order themes, which were then again combined to create aggregate dimensions. The 2nd order themes were clustered by addressing what related on and influenced that specific aggregate dimension. There were altogether nine 2nd order themes that formed three aggregate dimensions. The 2nd order themes and aggregate dimensions can be seen from figure 8 below.

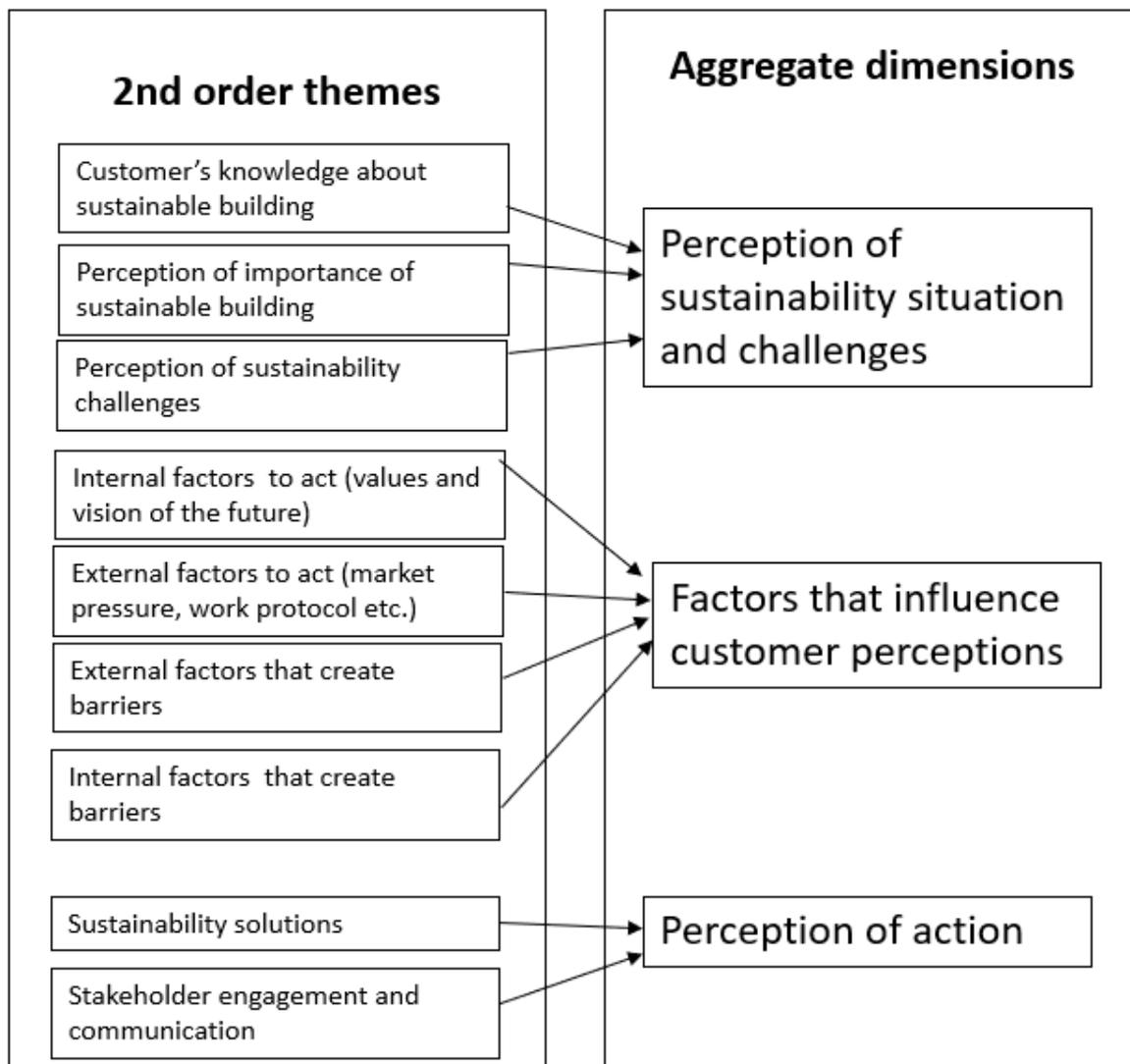


Figure 8. Data structure. 2nd order themes and Aggregate dimensions.

5.2.1 Perception of sustainability situation and challenges

The first aggregate dimension is called “Perception of sustainability situation and challenges” and it aims to answer the customer perception concept in the research model. In this dimension, I study how the customers perceive the sustainability transformation and situation in the construction industry. The dimension includes three 2nd order themes: “Customer’s knowledge about sustainable building”, “Perception of importance of sustainable building” and “Perception of sustainability challenges”. Altogether the dimension

includes 70 1st order concepts and therefore, the majority of the concepts that emerged from the interviews contribute to this dimension. The dimension includes all those concepts and themes that describe and explain how B2B customers in the construction industry view the current situation of sustainability transformation.

The 2nd order theme is called “Customer’s knowledge about sustainable building” and it includes altogether 23 concepts that are demonstrated in table 2 below. The dimension grouped all those concepts that portrayed how well B2B customers know the central terms of sustainable building, where has that information come from, and generally how well informed they are about the subject. The awareness of the situation can be considered as an important element of the perception since the first step of the perception process is noticing the information. The quality and amount of information affect how B2B customers form an interpretation and perception of the issue at hand.

Table 2. 2nd order theme “Customer’s knowledge about sustainable building” and the 1st order concepts it includes.

Customer’s knowledge about sustainable building
LCA is familiar from work training
LCA is known from studies
LCA is a known term
Carbon neutrality is familiar from product information
Carbon neutrality is familiar
Circular economy is familiar
Circular economy is familiar in terms of avoiding unrecyclable and expendable products.
Knowledge of sustainable building comes mainly from news and media
LCA is somehow familiar in terms of how long the building lasts
Carbon neutrality is familiar from forest industry and finance news.
Carbon neutrality is known from news and media
Carbon neutrality is known from conversations
Circular economy is familiar in terms of recycling
Circular economy is known from conversations
Circular economy is known from news and media
The industry needs to be changed to be more sustainable but it is difficult to determine how it could be changed.
Little knowledge about sustainable building
Not sure how building industry affects sustainability
More education about sustainability is needed
LCA is unknown
Carbon neutrality is not familiar
Circular economy is unknown
Does not know how industry could be changed to be more sustainable

For many of the interviewed B2B customers, concepts such as circular economy, life cycle analysis, and carbon neutrality were familiar. In some cases, the information about sustainability had come from industry related studies, work training, and studying the product information. Therefore, it can be said that many were well informed about sustainable building. Also, many were moderately informed about the sustainability terms, and information was received from news and media and general conversations. This finding aligns with the previous research from the industry by Son et al. (2009), where they found out that constructors in the US and Korea have a high awareness level of sustainability. Furthermore, it implies that the level of motion, intensity, and size of sustainability information the B2B customers experience is high since there is a lot of information coming from many sources to this specific stakeholder group. This has an impact on B2B customers' perception of the sustainability transformation of the construction industry.

However, some hadn't heard about these central sustainability terms or were not sure about their definitions. In addition, some were not sure about what could be done or is being done in terms of sustainable development in the industry. Therefore, this shows that some B2B customers have knowledge gaps in the sustainability transformation and situation. The need and want for more education about sustainability came up. One answer to the question "How could the industry be changed to be more sustainable?" was, "I don't know how we could affect. First, we should get educated about the subject so we would know what we are talking about".

The aggregate dimension "Perception of sustainability situation and challenges" also includes 2nd order theme "Perception of importance of sustainable building" which includes 1st order concepts that demonstrate how important the interviewee stated that the transformation of the industry towards sustainable development goals is. How important the B2B customers value the sustainability transformation tells about how they perceive the issue generally. Altogether, it includes 30 concepts that are shown in table 3. There possibly is a relationship with the "knowledge" theme and the "importance" theme since knowing and acknowledging

the sustainability situation affects how important the sustainability transformation is, according to the interviewee.

Table 3. 2nd order theme “Perception of the importance of sustainable building” and the 1st order concepts it includes.

Perception of importance of sustainable building
The quality of products and materials is important in terms of sustainable building
The quality of building is important in terms of sustainable building
The design phase is important in terms of sustainable building
Construction industry affect sustainability in a way that certain norms and criteria need to be met
Sustainable building offers a longterm investment for customers
Sustainable building takes into account environment
Construction industry has a positive effect on creating jobs (economic sustainability)
Believe that sustainable development is one of the main purposes of construction industry
Sustainable building is the future
The industry should be developed to be more sustainable
The change needs to come from inside the industry itself
Sustainability is important in terms of human health (houses shouldn't have problems with mold)
Building industry could set an example for other industries in terms of sustainability
Sustainability is important because of future generations
Sustainability is important because construction industry could set an example for other industries
Sustainability is important in terms of the whole picture (better globe).
Sustainability is important in terms of circular economy.
Changing to be more sustainable is important in because of environment and energy efficiency
Sustainability is very important in terms of human health (mold houses should be avoided)
It is important to change the industry to be more sustainable because buildings should last longer and there is too much investments going to preparing new buildings that were not build well enough in the first place
Sustainability has an impact on buying decisions
Sustainability has a big impact on purchase decision in terms of quality
Has already introduced more sustainable product options
Willingness to change to a more sustainable product if there is one in the markets
Willingness and interest towards sustainability initiatives
Has already changed to more sustainable work protocol and willingness to do even more is there
Perceives that industry has a moderate impact on sustainability (from scale of 10-5, 5)
The interviewers perception is that industry has a small impact on sustainability
Building industry is already fairly sustainable
Changing the industry to be more sustainable is not very important (on the scale of 1-10 = 3)

Overall, the answers in this section displayed that the majority of B2B customers think that it is important to change the industry towards a higher sustainability level. This finding again supports the findings of Son et al. (2009), where they found out that constructors have a high level of preparedness of sustainability in the US and Korea. The interviews portrayed that B2B customers perceived sustainability to be important because of human health and wellbeing, creating a better image of the industry, setting an example for other industries, acknowledging and building for future generations, creating long-term investments, protecting environments and creating energy-efficient solutions, enhancing circular economy, innovation value and creating a better globe and living environment.

Generally, there was a positive attitude towards sustainability initiatives and alternative sustainable products. Some were even interested in a more sustainable product even when it would cost more than the alternative option. Some answers showed that sustainability impacted the purchasing decisions and that sustainability is often already incorporated in the daily work routines. Additionally, some conversations stated that sustainability is integrated into the overall strategy of the company. Therefore, the study by Low, Gao, and See (2014) where they found that eco-labeling works in the industry are supported by the findings in a way that the interviews show that there is a market demand for sustainability in the construction industry. Many B2B customers saw sustainable product alternatives are going to grow in demand in the future. Many were already focused on emphasizing the sustainability of their products, for example, in terms of quality.

Furthermore, B2B customers saw sustainability as something investment-worthy. One answer when talking about how important changing the industry to be more sustainable was: "It is extremely important. In terms of energy efficiency and the environment, it is a spectacular thing. And if construction pursues sustainability, it would set an example for other industries". Another answer that reflected that B2B customers see sustainability as an important issue was: "Building industry effects sustainability a lot, and it is one of their main missions. I see it as important".

However, some B2B customers thought that sustainable development is not that important to them. One answer to the question “How important is it to change the industry to be more sustainable?” was: “If this were on a scale from 1-10, it would be a 3/10. So, I don’t feel it is important”. Additionally, some B2B customers thought that the industry is already fairly sustainable or has a moderate or even low impact on sustainability. Even though a minority of answers aligned with the low importance level, this implies that some B2B customers have a clear knowledge gap about the subject and also that more efficient communication, education, and engagement is needed in the industry.

Furthermore, the aggregate dimension “Perception of sustainability situation and challenges” includes 2nd order theme “Perception of sustainability challenges” that had 17 concepts that rose from discussions about what should be changed or discussed in the sustainable building field. Table 4 displays all of the concepts in this theme.

Table 4. 2nd order theme “Perception of sustainability challenges” and the 1st order concepts it includes.

Perception of sustainability challenges
Building from wood comes in mind from sustainable building
The buildings should last longer than they have lasted.
Schools and other public buildings should be more sustainable
The problem in the industry is too much byrocracy
The problem in the industry is that work safety has gone overboard (too much byrocracy here also)
The problem in the industry is that constructors try to build as cheap as they can (buyer and constructor have different goals)
The problem in the industry is material waste that comes from ordering wrong amounts of building materials.
The problem in the industry is that freight in smaller orders is very high(=everyone has to order more materials just in case)
The problem in the industry is construction waste
One problem in terms of sustainability is that people want to live in very large buildings
Problem in the industry is the quality of building
Problem in the industry is recycling is not efficent enough and some workers do not have enough motivation to execute recycling on site. It should be an automatic works protocol.
One problem is that customers often buy the cheapest option so there is yet not enough demand for a sustainable product that is more expensive
Timetables and haste are a challenge in the industry
One problem in the industry is protecting the buildings in the construction phase
One problem is that there is not enough attention to sustainability in purchasing
Not enough investmens to maintenance of buildings

Overall, sustainability issues were acknowledged openly, and the interviewees seemed very aware of different issues that need tackling in the industry. The awareness and knowledge about sustainability issues have an effect on how important B2B customers believe the transformation is and how they perceive it generally. One issue that came up in many of the conversations is overregulation in some areas and insufficient regulation and supervision in others. Furthermore, one B2B customer mentioned the problem of buyer and constructor having different goals. He pointed out that sometimes constructors aim to build as cheap and effective as they can, and the buyer aims to have a good quality build. This difference of perspective creates tension in the industry. B2B customers often mentioned the quality of buildings, especially the quality of public buildings such as schools and kindergartens, are seen as sustainability challenges. Additionally, according to the interviews, often cheap materials and products have the most market demand in the industry as opposed to a better-quality option, and this creates a challenge in terms of sustainability of the building.

Sometimes the interviewees thought that the biggest issues were in the construction phase, where there are cases of inadequate protection of the building when constructing. Additionally, there were conversations about insufficient recycling due to lack of motivation, space in the construction site, and lacking recycling protocol. Ordering excess of building materials in the construction sites came up in the conversations, and therefore optimizing purchases could be developed further. Another issue that was mentioned and reflected often is the strict timetables and haste that create a challenge in the industry. The majority of the B2B customers were aware of the sustainability challenges related to their work and field. Furthermore, the interviews implicate that overall many B2B customers see that there is still a lot that could be done in the industry in terms of sustainable development.

5.2.2 Factors that influence customer perceptions

The aggregate dimension “Factors that influence customer perceptions” studies the underlying aspects that impact the customer perception process that is introduced in the research model. The goal is to find out what kind of external and internal factors shape the B2B customer’s perceptions about the sustainable transformation of the construction

industry. The dimension includes four 2nd order themes that group together all those 1st order concepts that explain what affects the B2B customer perception about the sustainable development of the construction industry. Altogether there are 40 first-order concepts in this dimension. The first 2nd order theme in this aggregate dimension is “Internal factors to act”. Here are grouped all the concepts that the B2B customers mentioned motivated them internally towards sustainability actions such as personal values, motives, and own vision of the future. Table 5 shows the 1st order concepts included, which were altogether 10.

Table 5. 2nd order theme “Internal factors to act” and the 1st order concepts it includes.

Internal factors to act (values and vision of the future)
Perception that building industry is currently behind in sustainability but will speed up the process (already now happening)
Sustainability offer a opportunity for construction industry to create a better image
There needs to be change in thinking: it needs to be understood that quality can cost more
Sustainability innovations are important in the industry and create opportunity
Sustainability impacts buying decisions and might even buy a more expensive product if it is more sustainable.
Pressure to be more sustainable in personal life
Pressure to be more sustainable because of own internal values, motives etc. No outside pressure.
A little bit pressure to be more sustainable due to public conversation and market shift towards it
No pressure but clear vision that we are heading towards a more sustainable time little by little
No pressure to be more sustainable but still a sees that there could be a market demand in the future from consumers

Some B2B customers said that they feel an internal pressure to be more sustainable that originates from their values and motives. These were, for example, the value of using quality materials or feeling it is important to contribute to sustainable development. Many also seemed to have a clear vision that sustainability is the future and necessary. Additionally, some thought that sustainability is an opportunity for the industry to develop and saw that we need to go that direction. Other sources of pressure mentioned were public conversation and general market shift. Additionally, there was a perception that the industry is currently lacking behind, and improvements should be made, and it is important.

Some B2B customers did not feel a direct pressure at the moment but still had the vision that sustainable development is the future of the construction industry. For example, one answer to the question “Do you feel pressure to be more sustainable in your professional life?” “How should I put this. I do not feel direct pressure about it but of course we all the time get acquainted and solve these things with our product, those little details of how certain aspects are being resolved and if we find something that is in a bad state I feel pressure through that to change those parts. But when talking about the bigger picture, I think the biggest pressure comes from the public conversation, and the market shift and consumer demands are the biggest pressure that drives (sustainability). It is clearly visible that we have to go there, and it is profitable to go there and if we do not consider these things we will suffer it in sales in the future. However, I do not feel great pressure at the moment.”

In addition to the pressure to act that was coming from within the B2B customer's own values, motivations, and visions, the interviewees mentioned a lot of external factors that create motivation for sustainability actions. Some external motivations mentioned were market pressure, work protocol, and legislation. The 2nd order theme “external factors to act” includes 12 1st order concepts that can be seen from table 6. below.

Table 6. 2nd order theme “External factors to act” and the 1st order concepts it includes.

External factors to act (market pressure, work protocol etc.)
There is economic incentive to recycle materials in construction sites
Sustainability does impact in a way that higher level of organization determines the what products are sold and they consider sustainability
Sustainability does impact working protocol and how materials are being used in the work site.
Sustainability impacts planning of logistics in the building site
Experience that consumers need and want more sustainable products
Pressure to be more sustainable comes from higher up the organizations/organizational goals and strategy
Pressure to be more sustainable comes from young customers
There is pressure to be more sustainable through market demand. Specifically the forerunners on the industry are create demand.
Pressure to be more sustainable that comes from customers (market pressure)
Pressure to be more sustainable in terms of work safety, pressure comes from economic punishments
Legislation determines building industry
Sustainability impacts buying decisions but in the end the customer and design determine what materials are used. So if the desing is ecological, sustainable materials are used.

One B2B customer working in a hardware store described the external pressure to be more sustainable in professional life in the following way “I do (feel pressure). It comes from consumer customers, and also some come from professional customers. Nowadays, it is the consumers that come here to our counter, and the pressure comes from them. They ask about ratings; the origin of materials is interesting in many of the products”. Others mentioned that pressure comes from young customers, forerunners of the industry, and demand for sustainable products. Therefore, some of the B2B customers are currently experiencing market pressure that creates clear economic and business strategic motivation toward sustainability actions. Many stated that sustainability is integrated into the overall strategy and goals of the company they work in or own. Also, the interviewees mentioned work protocol and legislation as external motivation.

Many aspects create barriers to sustainability actions for B2B customers in the industry. The 2nd order theme “Internal factors that create barriers” collected together all those 1st order concepts that came up in the interviews as internal motivating factors that create uncertainty towards sustainability transformation. Altogether five 1st order concepts are demonstrated in table 7 below.

Table 7. 2nd order theme “Internal factors that create barriers” and the 1st order concepts it includes.

Internal factors that create barriers
Believe that customers thinking cannot be changed from the position they interviewed person is in
Concern whether the consumer is willing to pay from sustainability or not
Only pressure to be more sustainable when the project itself requires it. Otherwise no pressure.
Tired of hearing about environment issues
No pressure to be more sustainable in professional life.

Some were having concerns about whether the consumers are willing to pay more for sustainability, and overall seemed that some had the impression that sustainability automatically raises prices. Therefore, some experienced doubts about the economic market shifting towards enhanced sustainability. Additionally, some said that they felt they could not

influence the customer's beliefs from the professional position they are in towards a more sustainable direction. There were conversations where the interviewee thought that sustainability is somewhat important but felt that the issue could not be tackled from where they are standing. In other words, some of the interviewees think the change needs to come from some other sector in the company, political and public level, legislation, consumers, or some other section of the industry.

Many did not feel pressure in their professional life to enhance sustainability more, but it must be noted that many were already doing a lot towards sustainable development and therefore said that there is no pressure. One B2B customer also said that they were tired of hearing about the subject, and this implicates there might be some information overflows about sustainable building for the B2B customers.

Even though some internal beliefs create barriers for actions, the B2B customers mentioned more external barriers for sustainability transformation. Table 8 shows the 2nd order "External factors that create barrier" that includes 13 1st order concepts. This theme groups together the outside pressure that creates a barrier for B2B customers to act towards the sustainable transformation of the construction industry.

Table 8. 2nd order theme “External factors that create barriers” and the 1st order concepts it includes.

External factors that create barrier
Price is the number one decision maker in the industry. Only if it is mandatory in terms of safety etc. to use sustainable product that is more expensive, it is used.
The industry needs to be changed to be more sustainable but also costs cannot rise
The control to decide about specific product is not in the hands of the interviewed person.
Sustainability does not impact because market demand determines what products are purchased. However there is possibility to offer a sustainable option to the customer but demand is hard to create from a hardware store.
Willingness to change to a more sustainable product if there is a clearly established market demand first
Willingness to change to a more sustainable product if there is convincing evidence that the product actually works
Willingness and interest towards sustainability initiatives if it does not add to work load/make work more difficult
Willingness and interest towards sustainability initiatives if there is enough personnel
Sustainability matters in purchase decisions but price is more important
Willingness to change to a more sustainable product if price is competitive
Willingness and interest towards sustainability initiatives if it is economically viable
Sustainability does not impact purchasing decision because there is no control of what materials are used.
Sustainability does not impact purchasing decisions. Price impacts.

Many conversations showed interest in sustainability and sustainable products, but often other factors were seen to be more important. For example, many interviews mentioned that sustainable products are something to consider, but the price has to be competitive for them to change to the product, and there needs to be an established market demand. Additionally, the product itself has to be proven to work as well or better than the less sustainable alternative. One answer to the question “could you consider changing to a more sustainable product if there was one in the markets?” was: “Of course, but I always measure the options with some reservation. I need to know how long the product has been in the market and how well it has worked. I need to get some proof that others are also using it, and the material or whatever substance we are changing actually works.”

Additionally, the work resources came up in many of the interviews. The industry is already very hectic, and therefore, sustainability engagement, actions, and initiatives cannot make work more difficult, or there need to be enough resources (personnel, time, etc.) provided.

Additionally, some of the interviewed B2B customers said that they had no control of the materials that the customers decided to use, and therefore, this proposes a barrier. These results show that multiple stakeholders need to be involved in the transformation of the construction industry for it to be efficient.

5.2.3 Perception of action

The last aggregate dimension “Perception of action” includes concepts that are connected to the B2B customer engagement of sustainability and the perception B2B customers had on these sustainability actions. Therefore, this dimension answers to the customer engagement part of the research model. This last aggregate dimension groups together 46 1st order concepts and two 2nd order themes. Additionally, this dimension includes whether the interviewee had heard about the case company's sustainability efforts or not, and therefore the effectiveness of communication is addressed.

The first 2nd order theme this aggregate dimension includes is “Sustainability solutions”. Here were clustered all the ideas that rose from the interviews of how the industry could be changed to be more sustainable. Altogether there were 18 ideas, and therefore, almost all of the B2B customers had unique ideas of how to enhance sustainability in the industry. The amount of good ideas shows clear motivation and innovating spirit in the industry, and many of the solutions could be pursued through engagement. Furthermore, the ideas propose market opportunities in the context of sustainable building. Table 9 shows all the 1st order concepts included.

Table 9. 2nd order theme “Sustainability solutions” and the 1st order concepts it includes.

Sustainability solutions
The industry should be changed through using more recycled material ja sustainable production of materials
Educating workers about sustainability could be one solution
Regulation is needed to tackle sustainability issues but it should take into account different working conditions of construction sites (limited space in Helsinki area etc.)
Learning from failures and success is one solution
A system similar to energy cost counting could be used for counting carbon footprint in constructions
More space is needed in the construction sites in order to recycle
Longer life cycle of products offers a solution
Using recycled materials could be a solution
Quality of materials is one solution to sustainability issues
Building from wood is one solution, especially in Finland
Modular building could provide solutions
AI and technology (smart houses etc.) can provide solutions
Careful design could be one solution
Politics could take a bigger role in sustainable building
There should be stricter legislation of sustainability
The industry was better earlier and we should look back
Optimizing material purchases could be one solution
Sustainability idea: Combining cargo together to create a better freight/logistics system for smaller shipments

The solutions mentioned in the interviews included, for example, introducing more circular economy to the industry through recycling of materials and sustainable production of materials, a system similar to energy cost counting that could be used for counting carbon footprint in construction projects, educating workers about sustainability, building from wood (especially in Finland), modular building, AI and technology (smart houses, etc.), sustainable design, stricter regulation, and legislation, optimizing material purchases and combining cargo to create a better freight/logistics system for smaller shipments. The mere amount of solutions that came up in the conversations shows how much potential there is in the industry for innovations and engagement opportunities.

There were many answers considering product development, for example: “I am sure that products could be developed further and of course developing inside firms and learning from

failures and success". Also, the transparency of supply chain and manufacturing came up often: "Development through monitoring and supervising the work. And manufacturing raw materials, supervising where they are acquired and how the materials are treated".

Furthermore, the 2nd order "Stakeholder engagement and communication" were clustered to the "Perception of action" aggregate dimension. This theme addresses the conversations about how B2B customers should be engaged with sustainability. Table 10 shows all the 29 1st order concepts this theme includes.

Table 10. 2nd order theme “Stakeholder engagement and communication” and the 1st order concepts it includes.

Stakeholder engagement and communication
Has heard about sustainability efforts
Has read product information and through that about sustainability
Has heard from sustainability efforts through a sales person
Positive experience of engagement by a trip to company headquarters
Have not read sustainability reports or other sustainability publications
Has not heard of company sustainability efforts
Best sustainability communication reachability through company website
Can be reached through product info
Could be reached through a sustainable product that is cheaper than existing products
Can be reached through email
Can be reached through mainstream media. Does not follow construction industry media.
Can be reached through a hand out/fact sheet
Can be reached through mainstream media: television, financial news
The sustainable product is easier to sell if it wins an award etc.
Can be reached through courses and meetings
Can be reached through personal visits
Can be reached through phone
Can be reached through social media advertising
Can be reached through mail (post)
Emails are not a good communication channel due to the amount of daily emails
Can be reached through industry publications (like construction news etc.)
Can be reached through face to face trainings
Prefers face to face communication or phone
Communication idea: banners in streets
Communication idea: pop up advertisements in the internet
Communication idea: Humorous or otherwise eye catching marketing videos in the internet
Communication idea: face to face training where salesperson tells about the product to everyone working in the hardware store
Communication idea: a co-operation projects between the bigger chain

The interviews also included a section where interviewees were asked whether they had heard or were aware of the case company’s sustainability actions or not. Most replied that they had not heard of company sustainability actions or could not remember them if they had. Some seemed to have an understanding that sustainability is important for the company but could not point out what the company had done to enhance sustainability. Even though the majority hadn’t heard about the case company’s sustainability actions, some B2B customers had a very clear understanding of the actions of the company. One B2B customer even had had an opportunity to visit headquarters and learn there about sustainability actions. Therefore, there were still some B2B customers that sustainability communication and engagement had reached.

Overall, it seems that sustainability reports and publications are not an efficient channel to reach the B2B customers according to the interviews since the majority had not read them and had not heard of case company efforts. The impression from the interviews is that there is not enough time to read sustainability reports and publication in detail and that there is sometimes an information overload since the B2B customers have not only one company's products and sustainability initiatives to follow. The interviews suggest that even though the majority of the B2B customers have a perception that sustainability is important and they are knowledgeable and interested in the subject, they do not read sustainability reports or publications of the case company.

Nevertheless, when asked about engagement and communication ideas, there were many good ideas to consider that might work better for this stakeholder group. The engagement opportunities mentioned were that many followed mainstream media, and therefore, the communication could be targeted there. Face to face training, product info, and meetings were also mentioned often as a good communication channel. Some B2B customers preferred to be contacted by phone, and others said social media and company websites are good channels to reach them.

There were many comments about email being a wrong channel to reach the B2B customers since the number of emails they receive is a lot, and everything that is not relevant to the task at hand gets lost. Some marketing ideas were banners in the streets, face to face training where salesperson tells about the product to everyone working in the hardware store, cooperation projects between the companies, humoristic or otherwise eye-catching marketing videos on the internet and pop up advertisements on the internet. Table 10 shows all the communication and engagement channels mentioned in the interviews by B2B customers that they would prefer. The table 11 below shows the channels that were mentioned to be challenging or ineffective.

Table 11. B2B customer engagement channels for sustainability.

Preferred engagement and communication channels for sustainability	Channels that were mentioned as challenging or ineffective
Face-to-face trainings, product info and meetings	E-mail
Co-operation projects between companies	Reports
Marketing in mainstream media	Other publications that require a lot of time investment
Marketing in industry related media	
Marketing in social media	
Banners in the streets	
Sustainability info in product information	
Sustainability info in company website	
Humoristic or otherwise eye-catching marketing videos in the internet	
Pop up advertisements in the internet	
Social media advertising	
Phone	

5.3 Comparative analysis between B2B customer groups

In this second part of the findings, I introduce the analysis of the perception of two customer groups. The main goal is to analyze whether the perceptions about sustainable development of the construction industry differ and whether there are differences in what kind of engagement is efficient for hardware store customers and construction project customers. Both viewpoints are examined first separately, and then the similarities and differences are analyzed.

5.3.1 Hardware store customers

When asked about the sustainability issues, hardware store customers pointed out aspects such as the logistics system should be optimized, purchasing should be optimized, the quality of building, quality of materials that are used, prices are rising for the normal consumer,

quality of building and inadequate trust between the client and the constructor, in general building too cheap and in too much haste and that using recycled materials should be enhanced more. Some thought that the biggest issues are not the products but the building itself: "Actually the biggest problems in this industry, in my opinion, are not necessarily the products but the makers (those who build). Building bad quality. Meaning that the work is the problem; there is the most to learn".

Some thought that there needs to be a change in thinking in the whole industry when it comes to prices: "First it should be understood that if you are willing to pay for something you should also demand quality. But if you pay 20-30 percent less, the quality will not be the same as in a more expensive product. That should be understood. And the manufacturer should understand that if you can make a product with high quality, you should be able to sell the product in a way that the price can be higher". Others also talked about the problem of consumers buying the cheapest product in the market and not realizing that some other better-quality products would be more economical in the long-term and more sustainable in terms of durability over time.

5.3.2 Construction project customers

The construction project customers often mentioned issues such as haste in the working site, the pressure to build as cheap as possible, the amount of waste generated in the construction sites and inadequate recycling, too much bureaucracy and paperwork, too short time to build projects, inadequate protecting of materials during the building project and too short drying times, the quality of public buildings such as schools and kindergartens and mold and other health-related problems.

Additionally, absence of the opportunity for clients to compare carbon footprints of construction projects was mentioned, and a system for counting carbon footprints of building was discussed: "But if we started to put carbon footprint value to buildings that would create a comparable document for end-users and clients and through that different stakeholders

would start to develop their product and start competing on how to answer the competition and consumers demands. In my opinion, the change would come from there. Meaning if this kind of carbon footprint measuring would become mandatory to every real estate, that would certainly contribute to sustainability and the whole picture.”

5.3.3 Similarities and differences

The perception and viewpoint of the two customer groups, hardware store customers and construction project customers, differed to some level but not enough to be considered significant. The difference was mainly the perspective of where they were viewing the issue, but for example importance level of perception or influencing factors to it did not differ that much. Naturally, when asked about “what comes in mind from sustainable building?” the hardware store customers often started talking about sustainable products and the construction project customers about the quality of building and work itself.

Even though the standpoint of these customers was a bit different, nearly all of the answers to this question somehow addressed the sustainability of building materials. One hardware store customer commented in the following way: “The direction is towards sustainable building and it is more and more important that the products are produced sustainably and that they are good quality in a way that their life cycle is long”. One construction project customer answered this question with: “Well, there is the aspect if using sustainable products and long-lasting products. In a way, also being environmentally friendly so that the products are sustainable in terms of the environment”.

Even though the focus of sustainability issues was a bit different, both customer groups mentioned haste, strict timetables, and market demand of building as cheap as possible with cheap products as the underlying core issues that create challenges with sustainability in the industry. Therefore, the perception of both customer groups shifted to the general perception that sustainable building is quality construction with good quality products and builders that

create long-term investments to the customers and also enhances better living conditions, human health and acknowledges the environment.

Furthermore, the majority of both customer groups thought that changing the industry towards a more sustainable direction was important. All of the construction project customers answered that it is important or that it is important. They often mentioned that the price needs to be competitive. Most hardware store customers also answered that it is important. "I see it as extremely important. It cannot be so that we have to demolish already now buildings that were constructed in the 70s. A building should last at least 100 years." Only one answered that it is not that important, and one thought that it is not their main job "That is not our task. The mission is to get products sold. I think of this issue as sales personnel. I sell what the customer wants to buy. I am the wrong person to change the thinking of customers."

When it comes to the feeling of pressure to be more sustainable, the majority of answers were that they did not feel direct pressure. However, the hardware store customers experienced more pressure than the construction project customers, and the pressure came mainly from customers, both consumers, and B2B customers. Some mentioned that the customers often have questions about the origin of the products or other sustainability-related questions. A couple of hardware store customers said that specifically, young clients are interested in sustainability.

The majority of the construction project customers did not feel pressure about sustainability. One construction project customer mentioned that they only felt pressure about sustainability when the project itself demanded it. Some construction project customers felt that sustainability was already well enough addressed in their work, and others didn't feel direct pressure but saw that the demand for sustainable building is growing in the future. A person specialized in purchasing said that they did feel pressure and experienced market demand.

When it comes to the knowledge level of sustainability, many of the construction project customers were often not sure how to answer the question “how does building industry affect sustainability?”. It must be considered that this is a very broad question that probably seemed very overwhelming because the industry has so many impacts, and this affected the answers being sometimes “I cannot really answer that”. Some answered that the industry does not have that big of an impact: “on a scale from 1-10, I would say 5. That comes in mind first. So that the industry does not represent the peak and not the lowest but around there in the middle” and “of course we are a small actor and all but probably.”

The hardware store customers had more elaborate answers to this question, but one cannot jump to the conclusion that they were more knowledgeable necessarily. There were answers such as “Yes, the industry has a big impact, or at least it can affect quite a lot. Sustainable products are being developed and when those are marketed, that is where it starts” and “That is a difficult one. What kind of impacts are there? What comes in mind is the impact on wellbeing and creating jobs, those at least”. However, some were not sure and said that more education about sustainability is needed.

Overall, in both customer groups, some are very knowledgeable and interested in sustainability, and others are not that acquainted with the subject. Generally, there seemed to be some knowledge gaps in both customer groups about sustainability in their field.

Consequently, the biggest similarities with the two customer groups were that both had similar perceptions of sustainability. The importance level and core issues were similar. The biggest differences were that the focus was a bit different and that the hardware store customers talked more about experiencing market pressure towards sustainability. Naturally, the construction project customers considered more the quality of building as the hardware store customers focused more on the quality of products. However, it is not that straight

forward since some of the hardware store buyers also saw that the biggest sustainability challenges are in the quality of building itself.

When it came to engagement, there were no significant differences between customer groups. It was clear that sustainability reports and similar do not work for both interviewed B2B customer segments, according to the interviews. The majority had not read any sustainability reports or other publications from the case company, and they had not heard or could not remember the case company's sustainability efforts. Many were following mainstream media or industry media, and many preferred face-to-face engagement such as product training and info. Email was considered as a difficult communication channel by both customer groups generally. Overall, ideas about engagement were similar to both customer groups.

6. Discussion

The construction industry is in the peak of transformation towards enhanced sustainability. Furthermore, the industry is in the key role of making changes when it comes to sustainable development since it creates a substantial amount of impacts on climate change. As established in chapter 2, including stakeholders in the firm decision-making process is a vital element of transforming the industry to enhanced sustainability.

Understanding how stakeholders in the industry perceive the transformation can help in comprehending what kind of sustainability engagement is needed and welcomed by them. Understanding the way B2B customers in the industry view the sustainable development transformation helps to identify what kind of engagement is efficient. For instance, if there is a lack of knowledge about the subject that can be addressed in engagement actions or if the B2B customers have a high awareness and preparedness about the subject, perhaps co-operative projects could be the way to go. Additionally, the effectiveness of stakeholder engagement and management can influence how the B2B customers perceive the industry

transformation and vice versa the general perception of the issue can determine how well the engagement is received and welcomed.

The research was limited to find out how B2B customers of a construction product manufacturer perceive the transformation of the industry towards enhanced sustainability and what kind of sustainability-related engagement and communication between the manufacturing company and its B2B clients is efficient. The main result of the thesis is that the transition to sustainable building is seen as important by B2B customers in the construction industry. Nevertheless, B2B customers have concerns about the sustainable development transition of the construction industry that create market barriers and challenges. Another important result of the thesis was that stakeholder engagement of sustainability through reports is inefficient for B2B customers due to hectic work schedules. For instance, meetings, cooperation projects, and marketing in mainstream media were mentioned as good channels to reach B2B customers in sustainability engagement. Overall, the research results imply that sustainability engagement could be very efficient with B2B customers in the construction industry to transform the whole industry towards enhanced sustainable building and involving B2B customers in decision-making could spark innovations and enhance mutual learning.

In more detail, the first main research question of the thesis was:

How do B2B customers in the construction industry perceive sustainability of their field regarding the transformation of the industry towards sustainable building?

The results of the research suggest that the majority of B2B customers believe that the sustainable development of the construction industry is important. B2B customers see sustainable building as the future and something investment and effort worthy. Many felt that it is very important to shape the industry towards a more sustainable direction. Most of the B2B customers were also very well or moderately well informed about sustainability in

their field. Sustainability innovations such as smart housing, modular building, and building from wood came up in many of the conversations as a point of interest for B2B customers.

The results support the earlier research about awareness of sustainability in the construction industry done by Son et al. (2009), which found out that constructors in the US and Korea are knowledgeable enough to deliver sustainability and also that awareness and preparedness are both high. Furthermore, the research by Low, Gao, and See (2014) about the efficiency of eco-labelling in the construction industry was supported since the results suggest that there is a market demand in the B2B markets for sustainable products since many mentioned that they are already using or selling sustainable products or would be interested in changing to a more sustainable alternative.

However, the results suggest that there are many challenges or barriers for sustainability to be perceived as important that need to be overcome. Firstly, the industry is very price-oriented, so the sustainability actions and products need to be economically competitive to work. Secondly, the products need to be of a high standard for B2B customers to feel comfortable recommending them to customers or use them in projects. Thirdly, the sustainability actions need to be given enough resources in terms of time and personnel so that it does not complicate daily work. The aspect of economic sustainability, therefore, needs to be addressed, and some of the B2B customers need more information about the economic pillar of sustainability. Economic sustainability was sometimes not considered in the interviews and seemed like sustainability was many times seen as something that might be economically unviable or might make work more complicated. To further understand the underlying influencing factors of the perception, the following sub-research questions were formed:

What factors have the biggest influence on how the sustainability of the construction industry is perceived by B2B customers who purchase building products and materials?

What factors trigger B2B customers who purchase building products and materials towards sustainability engagement, and where does the pressure to get involved in engagement come?

The interpretation for the majority of interviewees, in the end, seems to be that sustainability is important, investment-worthy, and a market opportunity. Different underlying internal factors influenced customer perception. For instance, many said that they have internal pressure that comes from their values to change their work to be more sustainable. Some had had positive experiences with sustainability and engagement, and this also reflected on the perception. Some mentioned that they have children, and that is the motivation for them, and others said that there is going to be market demand for sustainability. For many, motivation came from the core strategy of the company they work in, and many were already experiencing market pressure and demand from customers to offer sustainable products. The perception process and different influencing factors that came up in the interviews are shown in figure 9. External and internal factors impact the whole perception process.

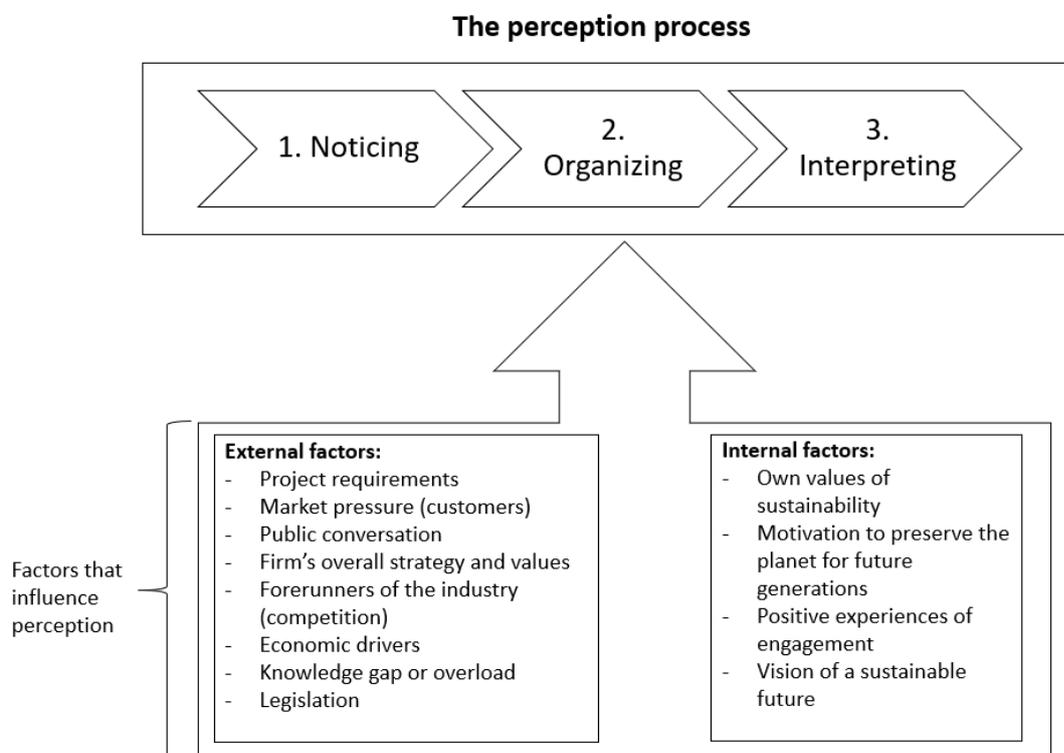


Figure 9. The external and internal factors that influence the perception process of B2B customers about industry transformation towards sustainable development in the construction industry.

The interviews implicate that the more there is knowledge and engagement about the sustainability of the industry, the more positive the overall perception of the whole transformation is. Therefore, this suggests that stakeholder communication and engagement could be efficient in shaping the perceptions to a more positive direction and help to erase and mitigate the barriers of enhanced sustainability in the construction industry. Vice versa, the perception that that sustainability transformation is important encourages and motivates engagement and could potentially enhance the co-operation between manufacturing companies and their B2B customers. The perception that it is important and effort-worthy inspires more actions towards sustainability and creates opportunities for the companies to work together to find innovations and problem solving that is needed to transform the industry.

The research included two kinds of B2B customers: hardware store customers and construction project customers. To understand whether customer segment had any influence on the perception and preferred engagement, the following question was formed:

Are there differences between different B2B customer groups in the construction industry regarding how the sustainability of the industry is perceived and what kind of sustainability-related engagement is wanted? How do they differ?

According to the interviews, the B2B customers that were working directly with purchasing and selling products and materials experience more market pressure about sustainability than the customers that were working in construction projects. Hardware store B2B customers said more often than construction project customers that they felt pressure from the markets. However, those construction project customers that were involved in purchasing products and selling mentioned feeling pressure also. Additionally, when talking about the general perception of sustainable building, almost all mentioned the sustainability of products and materials. Therefore, it seems that the market pressure of sustainability is directed more to the products and materials in the construction industry.

Nevertheless, the sustainability of the building process itself was often mentioned when asking about sustainability issues. In the end, there were no significant differences between the two customer groups. Other factors, such as whether the person was directly connected to purchasing activities, seemed to have more effect. To conclude, the majority of the perceptions of both customer groups were that the transformation of the industry towards enhanced sustainability is needed and important, and the differences of perception were minor. In terms of engagement, there were no clear differences.

Efficient customer engagement is vital to changing the industry towards enhanced sustainability. Therefore, it is important to understand what kind of engagement is welcomed and needed by the B2B customer. Therefore, the second main research question of the thesis was:

What kind of sustainability-related customer engagement between a construction product manufacturer and seller and their B2B customers is needed and accepted in order to transform the industry towards a strong sustainability implementation and transformation?

When reflecting the findings to the customer perception model, it is clear the B2B customers receive a lot of information about sustainability from different sources (training, media, conversations, etc.). Therefore, it seems that there are a lot of external factors in terms of size, motion, and intensity about sustainability in the construction industry. However, when looking at the case company's sustainability communication, the B2B customers had not received or could not remember receiving information from the sustainability reports or publications. Some had heard about company sustainability actions, but none of the interviewees could remember reading the case company's sustainability reports or publications. Therefore, the results implicate that mainly sustainability information comes from other sources to this stakeholder group and that reports are not the most efficient channel of sustainability communication for B2B customers in the construction industry.

Therefore, when it comes to engagement, the results propose that sustainability communication in the form of reports and publications might not be efficient. The results are similar to the research by Bal et al. (2013, p. 707), which found out that there when it comes to motivating participants of a construction project to reach sustainability goals, participants are motivated by a mixture of control, management, and organizing activities. The findings suggest that many kinds of communication and engagement methods are needed since the B2B customers all preferred different kinds of communication channels and had very different kinds of engagement ideas. The results of the research suggest that email and reports are considered an inefficient way to communicate due to lack of time and overload of emails and information. Other methods suggested by B2B customers, such as face to face training, engagement projects, and videos and marketing in mainstream media, could potentially be more efficient.

One factor that came up in the conversations is that sometimes B2B customers feel that they cannot impact sustainability from their position and that the change needs come from somewhere else. Additionally, some of the findings suggest that there are B2B customers that wanted more information about sustainability and had some knowledge gaps about the subject. Furthermore, some had even perceptions that the industry does not have a big impact on sustainable development, which suggests that there probably is a need for more well-targeted training and empowering engagement about the subject. However, it must be taken into account that this occurred in a minority of the interviews meaning that the majority of B2B customers interviewed were either very well or moderately well informed about the subject and were already empowered and prepared for sustainability actions.

7. Conclusions

To conclude, the results are summarised in figure 10 below. Stakeholder engagement and communication between B2B customers and building material manufacturer and seller affects what kind of input goes into the perception process of B2B customers. Different underlying issues that come within the B2B customers' cognition (values, motives, experiences, visions, etc.) and outside motivators (market demand, economic pressure, competition, etc.) influence the whole process of forming the perception.

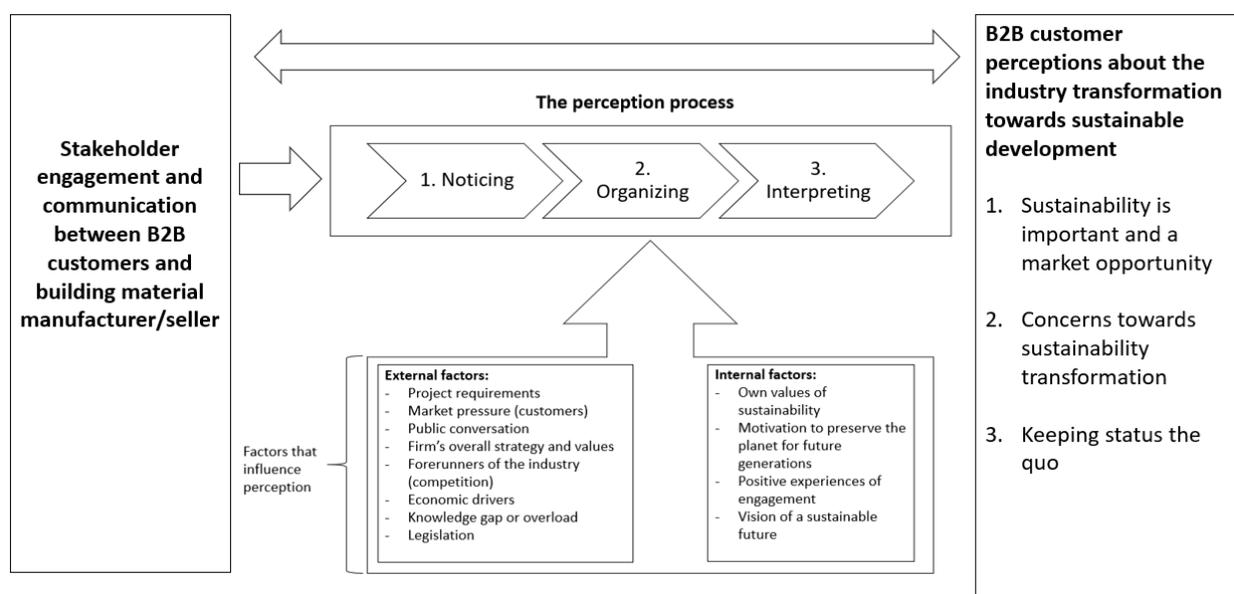


Figure 10. The perceptions of B2B construction product buyers and the role of stakeholder engagement of sustainability.

Three generalizations of perceptions came up in the interviews. Firstly, majority felt that the transformation towards enhanced sustainability is important and a market opportunity in the construction industry. Secondly, some had concerns about the sustainable development of the construction industry. For instance, some wondered if sustainability is economically viable, will there be enough market demand, will sustainability initiatives complicate daily work and do the more sustainable alternatives function as well as older products that have already proven to work. Lastly, some B2B customers did not feel so strongly about sustainable development transformation and did not see it as linked to their work as others. Some felt that the industry is already sustainable enough. There were also some knowledge gaps about

the subject for some B2B customers. However, this perception of “keeping the status quo” was the least dominant one.

When it came to how the manufacturing company could engage with the B2B customers, there were many good ideas the B2B customers preferred, and also some that they did not feel were efficient. Generally, reports and similar content were said to be inefficient due to the hectic working environment and time limitations the B2B customers have. Face-to-face meetings, cooperation projects, and marketing in mainstream media were mentioned as good channels to reach B2B customers. The stakeholder engagement and communication channels are summed up in the previous chapter 5.4.

The effectiveness of stakeholder engagement and management can influence how the B2B customers perceive the industry transformation and vice versa the general perception of the issue can determine how well the engagement is received and welcomed. Therefore, the results suggest that the majority of B2B customers would welcome sustainability engagement and marketing of sustainable products. Still, some market barriers need to be considered, and additionally, some B2B customers need more convincing to reach the whole B2B market in terms of sustainability.

7.1 Theoretical contribution

The research topic is very context-driven and specific: the perceptions and engagement of sustainable development of B2B customers in the construction industry. Therefore, the focus is very specific and aims to fill a research gap of bringing the specific stakeholder group (B2B clients that purchase building products) into the larger discussion of sustainability engagement and transformation in the construction industry. Awareness level and preparedness of sustainability from the perspective of other construction industry stakeholders have already been explored by previous research (Son et al. 2009 and Bal et al. 2013). Additionally, the customer perceptions of CSR and business (Potepkin and Firsanova 2017) generally have already been examined, yet the perceptions of sustainability by B2B

customers in the construction industry have not yet been addressed by previous literature. Therefore, the research brings a new perspective to the sustainable development discussion in the industry. Furthermore, studying stakeholder engagement and perspectives simultaneously in the thesis brings a new angle to researching the transformation of the construction industry towards enhanced sustainability. The thesis addresses and suggests that these two aspects influence each other.

The research contributes to stakeholder theory proving that there is a possibility to create shared value by involving the stakeholder group “B2B customers” to the decision-making processes of a manufacturing company and engaging with them in terms of sustainable development. Stakeholder theory pushes managers to understand what is the shared value that the business creates and what brings the different stakeholders around the business together (Freeman, Wicks, and Parmar, 2004, p. 364). The research has found out that there is a shared vision between two stakeholders operating in the construction industry (manufacturing company and their B2B customers) that sustainable building is important and a possible market opportunity.

Stakeholder engagement can be an opportunity for social learning where different stakeholders come together and learn about each other’s values to create a shared vision, and this dialogue can be used to enhance awareness, change attitudes and affect actions which are beneficial to sustainability (Mathur, Price and Austin 2008, p. 601). The results imply that customer engagement in the construction industry could be beneficial to the sustainable development of the industry since the perceptions about the issue are positive, the awareness level is moderately good, and the results show that B2B customers have innovation potential. Furthermore, specific engagement methods for B2B customers are suggested.

The research contributes to the existing theory about perceptions by identifying what factors influence the perception of B2B customers about the sustainable transformation of the

construction industry and by understanding the perceptions this specific stakeholder has. Furthermore, the research results support previous studies that state that companies' communication about green practices can influence their customers' perceptions since it suggests that there is a relationship between stakeholder engagement and company green image.

7.2 Managerial implications

This chapter demonstrates the practical implications for the case company of the research. The results showed that there is a market opportunity for sustainable products and that the majority of B2B customers are motivated about sustainability actions and initiatives. Furthermore, the results showed what kind of engagement and communication B2B customers prefer and what they felt was not working for them. Possible ideas for sustainability solutions were also asked from the B2B customers. Overall, the results implicate that engagement with B2B customers could bring new understanding and innovation potential to a building product manufacturer's sustainability effort.

7.2.1 B2B customer market opportunities and challenges

Almost all of the interviewees were interested in changing to a more sustainable alternative product if there was one in the market. Many mentioned that they were already using or selling sustainable products. Some reservations were that the price must be competitive. Many were not willing to pay extra for a sustainable product. Furthermore, the product must work well or better than the alternatives for B2B customers to feel comfortable selling it to end customers.

Many had a vision that the demand for sustainable building is growing, and the majority of the B2B customers had a perception that transformation of the industry towards enhanced sustainability is both important and a market opportunity. Especially hardware store customers mentioned that they were currently experiencing pressure from customers about sustainability. Both consumers and professional customers were mentioned to be interested

in sustainability. B2B customers mentioned that the forerunners of the industry especially create demand and market pressure. Many interviewees had already changed to a more sustainable product and work protocol.

Furthermore, the conversations suggest that sustainability pressure is directed strongly towards the materials and products used in construction. Therefore, this supports the perception that there is a market opportunity for sustainable materials, and this can work as an efficient marketing tool for products. The case company already has many sustainable products that enhance, for example, the concept of circular economy. However, many of the customers did not mention these products or did not remember hearing of sustainability initiatives. Still, some were experiencing market pressure for sustainable products, and most could consider changing to a more sustainable alternative. Therefore, there could potentially be an opportunity for the case company to market and communicate more about their already existing sustainable products and sustainability actions to the B2B customers and increase sales and find a marketing opportunity through this.

Even though sustainability transformation is, according to the interviews, considered to be extremely important, the conversations suggest that the focus of market demand is still price. Therefore, there is a huge market segment that is only interested in buying the lowest priced product in the markets. Therefore, sustainable products must be able to compete economically. Quality was often mentioned, and therefore, the products additionally have to be proven to function well or even better than alternatives. Additionally, some conversations implicate that some actors in the market do not currently address sustainability and do not see it as a market opportunity.

Therefore, market barriers, according to interviews, are knowledge gaps of the sustainability of construction industry, not seeing sustainability as a big enough market opportunity, and fear that sustainable alternatives will not be economically viable or as good products as the ones that have been in the markets for a long time. These barriers need to be addressed to

reach the whole customer segment and reduce apprehension against the industry's transformation to enhanced sustainability.

7.2.2 B2B customer engagement opportunities

The interviews with B2B customers suggested that there are many ways to target and focus engagement efforts on sustainability for this specific stakeholder group. Face-to-face meetings, cooperation projects, and training about the subject were something that came up in many of the conversations, and therefore, these engagement efforts could be beneficial in terms of sustainable development of the whole industry.

Generally, the interviews suggested that B2B customers would be interested and motivated about this kind of engagement since they had an abundance of sustainability-related ideas and a good basic knowledge level about sustainable building. The interviews showed that the majority of B2B customers were interested in innovations around the concept of sustainable building. Every B2B customer interviewed had ideas about what should be changed in terms of sustainability in the construction industry, and already from brief interviews, many practical solutions and innovations came up. The amount of ideas implicates that B2B customers such as constructors and hardware store personnel could bring a lot of innovation potential in cooperation projects since they have vast knowledge about market requirements and realities of the industry. Stakeholder inclusion into decision-making processes, in this case, could help to shape products and ideas towards enhanced sustainability in the construction industry.

The B2B customers said that they followed more mainstream media as opposed to industry and company reports. Some, however, read industry-related news and product information, and they were also mentioned as a good communication channel. Strict timetables and haste of the industry influenced on B2B customers having limited time in activities that were not directly connected to the task at hand. Some mentioned receiving a huge amount of emails daily, and therefore, this communication and marketing channel is not recommended

according to interviews. Therefore, better communication and marketing channels would be, for instance, videos, social media marketing, and marketing in mainstream media. Since, many said that they could predict a growing market for sustainability-related construction products, using these channels to market with sustainable building approach could be very efficient in the case of constructors and hardware store personnel.

7.3 Limitation and further research

The research has interviews of only 20 B2B customers in the industry, and the research could not limit in any way in what position the interviewed person is working in due to the interview subjects working in a hectic and timetable-oriented industry. Therefore, it was not possible to target specific professional groups (for example, CEO of a small company or purchasing manager), and the research included the perceptions of a larger sample of people working in different areas of the company. In other words, the thesis interviews included multiple perspectives from construction company CEO's, purchasing personnel, hardware store managers, sellers, etc. Focusing the stakeholder group could allow a better comparison of interviews and a deeper analysis.

Additionally, the sample size of only 20 B2B customers is relatively small to conclude how the whole stakeholder group views the subject of sustainable development of the construction industry, and this has to be taken into account when analyzing results. Furthermore, executing the research with co-operation with a case company could have affected on how freely the subjects talked even though the research was done anonymously.

The relationship between effective stakeholder engagement and perceptions could be researched further since the interviews implicate that, for instance, knowledge level and experiences of engagement could impact the perception of a given issue and vice versa perception could affect how the engagement is received and what kind of engagement is efficient. Additionally, the perspectives of other stakeholder groups could be researched further in terms of the construction industry's transformation towards enhanced

sustainability. The interviews often mentioned how big of an impact design of the construction has on what materials are being used, and therefore researching the perceptions of architects could potentially bring new insights on what are the market barriers and opportunities in sustainable building.

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Appendices

Appendix 1. Semi-structured interview design.

Demographic
Hardware store customer or Construction project customer
Sex
Occupation/profession
What do you know about sustainable building? (later changed to: What comes in mind from the word "sustainable building"?)
In what way construction business impacts sustainable development?
Have you heard of LCA? What do you know about it? Do you remember where have you learned about this?
Have you heard of zero carbon? What do you know about it? Do you remember where have you learned about this?
Have you heard of Circular economy? What do you know about it? Do you remember where have you learned about this?
Do you think the construction business should be developed to be more sustainable?
What are the biggest problems in the industry or your work where change is needed in your opinion?
How could the industry be changed to be more sustainable in your opinion?
How important is changing the industry to a more sustainable direction? Why is it important? Why not?
Does sustainability impact your buying decisions? No: What impacts? Yes: How?
Do you feel there is a pressure to become more sustainable? Where does the pressure come from?
If there would be available a new more sustainable alternative product could you consider using it and what would motivate the change?
If there would be a change available for more sustainable direction (for example a new way to recycle or a new more sustainable product) how motivated would you be to change
What do you remember that Saint-Gobain has done in terms of sustainability?
What kind of sustainability communication and engagement has been useful for you?
Have you read any sustainability related publications from Saint-Gobain? What is your opinion about them? Did you find the information you needed?
Have you heard anywhere else about sustainability of Saint-Gobain? For example from social media or co-worker?
Communication and co-operation ideas? How could we reach you better in terms of sustainability?

Appendix 2. 1st order concepts.

LCA is familiar from work training
LCA is known from studies
LCA is a known term
Carbon neutrality is familiar from product information
Carbon neutrality is familiar
Circular economy is familiar
Circular economy is familiar in terms of avoiding unrecyclable and expendable products.
Knowledge of sustainable building comes mainly from news and media
LCA is somehow familiar in terms of how long the building lasts
Carbon neutrality is familiar from forest industry and finance news.
Carbon neutrality is known from news and media
Carbon neutrality is known from conversations
Circular economy is familiar in terms of recycling
Circular economy is known from conversations
Circular economy is known from news and media
The industry needs to be changed to be more sustainable, but it is difficult to determine how it could be changed.
Little knowledge about sustainable building
Not sure how building industry affects sustainability
More education about sustainability is needed
LCA is unknown
Carbon neutrality is not familiar
Circular economy is unknown
Does not know how industry could be changed to be more sustainable
The quality of products and materials is important in terms of sustainable building
The quality of building is important in terms of sustainable building
The design phase is important in terms of sustainable building
Construction industry affect sustainability in a way that certain norms and criteria need to be met
Sustainable building offers a long-term investment for customers
Sustainable building takes into account environment
Construction industry has a positive effect on creating jobs (economic sustainability)
Believe that sustainable development is one of the main purposes of construction industry
Sustainable building is the future
The industry should be developed to be more sustainable
The change needs to come from inside the industry itself
Sustainability is important in terms of human health (houses shouldn't have problems with mold)
Building industry could set an example for other industries in terms of sustainability

Sustainability is important because of future generations
Sustainability is important because construction industry could set an example for other industries
Sustainability is important in terms of the whole picture (better globe).
Sustainability is important in terms of circular economy.
Changing to be more sustainable is important because of environment and energy efficiency
Sustainability is very important in terms of human health (mold houses should be avoided)
It is important to change the industry to be more sustainable because buildings should last longer and there is too much investment going to preparing new buildings that were not built well enough in the first place
Sustainability has an impact on buying decisions
Sustainability has a big impact on purchase decision in terms of quality
Has already introduced more sustainable product options
Willingness to change to a more sustainable product if there is one in the markets
Willingness and interest towards sustainability initiatives
Has already changed to more sustainable work protocol and willingness to do even more is there
Perceives that industry has a moderate impact on sustainability (from scale of 10-5, 5)
The interviewer's perception is that industry has a small impact on sustainability
Building industry is already fairly sustainable
Changing the industry to be more sustainable is not very important (on the scale of 1-10 = 3)
Perception that building industry is currently behind in sustainability but will speed up the process (already now happening)
Sustainability offers an opportunity for construction industry to create a better image
There needs to be a change in thinking: it needs to be understood that quality can cost more
Sustainability innovations are important in the industry
Sustainability impacts buying decisions and might even buy a more expensive product if it is more sustainable.
Pressure to be more sustainable in personal life
Pressure to be more sustainable because of own internal values, motives etc. No outside pressure.
A little bit of pressure to be more sustainable due to public conversation and market shift towards it
No pressure but clear vision that we are heading towards a more sustainable time little by little
There is an economic incentive to recycle materials in construction sites
Sustainability does impact in a way that a higher level of organization determines what products are sold and they consider sustainability
Sustainability does impact working protocol and how materials are being used in the work site.

Sustainability impacts planning of logistics in the building site
Believe that consumers need and want more sustainable products
Pressure to be more sustainable comes from higher up the organizations/organizational goals and strategy
Pressure to be more sustainable comes from young customers
There is pressure to be more sustainable through market demand. Specifically, the forerunners on the industry are create demand.
Pressure to be more sustainable that comes from customers
Pressure to be more sustainable in terms of work safety, pressure comes from economic punishments
Legislation determines building industry
Sustainability impacts buying decisions but in the end the customer and design determine what materials are used. So, if the design is ecological, sustainable materials are used.
No pressure to be more sustainable but still a vision that there could be a market demand in the future from consumers
Building from wood comes in mind from sustainable building
The buildings should last longer than they have lasted.
Schools and other public buildings should be more sustainable
The problem in the industry is too much bureaucracy
The problem in the industry is that work safety has gone overboard (too much bureaucracy here also)
The problem in the industry is that constructors try to build as cheap as they can (buyer and constructor have different goals)
The problem in the industry is material waste that comes from ordering wrong amounts of building materials.
The problem in the industry is that freight in smaller orders is very high (=everyone has to order more materials just in case)
The problem in the industry is construction waste
One problem in terms of sustainability is that people want to live in very large buildings
Problem in the industry is the quality of building
Problem in the industry is recycling is not efficient enough and some workers do not have enough motivation to execute recycling on site. It should be an automatic works protocol.
One problem is that customers often buy the cheapest option so there is yet not enough demand for a sustainable product that is more expensive
Timetables and haste are a challenge in the industry
One problem in the industry is protecting the buildings in the construction phase
One problem is that there is not enough attention to sustainability in purchasing
Not enough investments to maintenance of buildings
Price is the number one decision maker in the industry. Only if it is mandatory in terms of safety etc. to use sustainable product that is more expensive, it is used.
The industry needs to be changed to be more sustainable but also costs cannot rise
The control to decide about specific product is not in the hands of the interviewed person.

Sustainability does not impact because market demand determines what products are purchased. However, there is possibility to offer a sustainable option to the customer, but demand is hard to create from a hardware store.
Willingness to change to a more sustainable product if there is a clearly established market demand first
Willingness to change to a more sustainable product if there is convincing evidence that the product actually works
Willingness and interest towards sustainability initiatives if it does not add to workload/make work more difficult
Willingness and interest towards sustainability initiatives if there are enough personnel
Sustainability matters in purchase decisions but price is more important
Willingness to change to a more sustainable product if price is competitive
Willingness and interest towards sustainability initiatives if it is economically viable
Sustainability does not impact purchasing decision because there is no control of what materials are used.
Sustainability does not impact purchasing decisions. Price impacts.
Believe that customers thinking cannot be changed from the position they interviewed person is in
Concern whether the consumer is willing to pay from sustainability or not
Only pressure to be more sustainable when the project itself requires it. Otherwise no pressure.
Tired of hearing about environment issues
No pressure to be more sustainable in professional life.
The industry should be changed through using more recycled material ja sustainable production of materials
Educating workers about sustainability could be one solution
Regulation is needed to tackle sustainability issues, but it should take into account different working conditions of construction sites (limited space in Helsinki area etc.)
Learning from failures and success is one solution
A system similar to energy cost counting could be used for counting carbon footprint in constructions
More space is needed in the construction sites in order to recycle
Longer life cycle of products offers a solution
Using recycled materials could be a solution
Quality of materials is one solution to sustainability issues
Building from wood is one solution, especially in Finland
Modular building could provide solutions
AI and technology (smart houses etc.) can provide solutions
Careful design could be one solution
Politics could take a bigger role in sustainable building
There should be stricter legislation of sustainability
The industry was better earlier, and we should look back
Optimizing material purchases could be one solution

Sustainability idea: Combining cargo together to create a better freight/logistics system for smaller shipments
Has heard about sustainability efforts
Has read product information and through that about sustainability
Has heard from sustainability efforts through a salesperson
Positive experience of engagement by a trip to company headquarters
Have not read sustainability reports or other sustainability publications
Has not heard of company sustainability efforts
Best sustainability communication reachability through company website
Can be reached through product info
Could be reached through a sustainable product that is cheaper than existing products
Can be reached through email
Can be reached through mainstream media. Does not follow construction industry media.
Can be reached through a hand out/fact sheet
Can be reached through mainstream media: television, financial news
The sustainable product is easier to sell if it wins an award etc.
Can be reached through courses and meetings
Can be reached through personal visits
Can be reached through phone
Can be reached through social media advertising
Can be reached through mail (post)
Emails are not a good communication channel due to the amount of daily emails
Can be reached through industry publications (like construction news etc.)
Can be reached through face to face trainings
Prefers face to face communication or phone
Communication idea: banners in streets
Communication idea: pop up advertisements in the internet
Communication idea: Humoristic or otherwise eye-catching marketing videos in the internet
Communication idea: face to face training where salesperson tells about the product to everyone working in the hardware store
Communication idea: a co-operation projects between the bigger chain