STAKEHOLDERS´ SUSTAINABILITY REPORTING PERCEPTIONS – AN EXAMPLE FROM WOOD PROCESSING INDUSTRY

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Author: Laura Björk
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Supervisor: Marileena Mäkelä

JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

ABSTRACT

Author
Laura Björk

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Abstract

This thesis aims to understand stakeholders' perceptions on the importance of various sustainability aspects in the wood processing industry, with a focus on differences among stakeholder groups. A stakeholder survey based on double materiality assessment was conducted, targeting the organization's personnel and key customers. The analysis involved comparing measures of central tendency and employing both Welch's and Student's t-tests.

Results indicated that the most important topics, based on mean values, were consumers and end-users, business conduct, workers in the value chain, and the organization's own workforce. The results also indicated that stakeholder perceptions are not always uniform, highlighting the need to directly engage stakeholders rather than relying on assumptions.

For the target organization, this thesis provides comprehensive insights into stakeholders' perceptions of CSRD-related sustainability issues, supporting the double materiality assessment process. The study also illustrates the advantages and limitations of survey research in double materiality assessment.

Key words
Sustainability reporting, double materiality assessment, European Sustainability Reporting Standards, Corporate Sustainability Reporting Directive

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Tiivistelmä

Tämän Pro gradu -tutkielman tavoitteena on ymmärtää sidosryhmien käsityksiä erilaisten kestävän kehityksen näkökohtien tärkeydestä puunjalostusteollisuudessa keskittyen erityisesti sidosryhmien välisiin eroihin. Tutkielman pohjaksi toteutettiin kaksoisolennaisuusarviointiin perustuva sidosryhmäkysely, joka lähetettiin kohdeorganisaation henkilöstölle ja avainasiakkaille. Analyysissä vertailtiin keskilukuja ja käytettiin sekä Welchin että Studentin t-testejä hypoteesien testaamiseen.

Tulokset osoittivat, että tärkeimmät aiheet keskiarvoihin perustuen olivat kuluttajat ja loppukäyttäjät, liiketoiminta, arvoketjun työntekijät ja organisaation oma työvoima. Tuloksista kävi ilmi myös, että sidosryhmien näkemykset eivät aina ole yhdenmukaisia, mikä korostaa tarvetta huomioida sidosryhmien näkemyksiä kestäyystyössä.

Tämä opinnäytetyö tarjoaa kohdeorganisaatiolle kattavan kuvauksen sidosryhmien käsityksistä CSRD:hen liittyvistä kestävän kehityksen aiheista ja tukee kaksoisolennaisuuden arviointiprosessia. Tutkimus havainnollistaa myös kyselytutkimuksen edut ja rajoitukset kaksoisolennaisuusarvioinnin työkaluna.

Asiasanat Kestävyysraportointi, kaksoisolennaisuusarviointi, eurooppalaiset kestävyysstandardit, yritysten kestävyysraportointidirektiivi	
Säilytyspaikka Jyväskylän yliopiston kirjasto	

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1 INTRODUCTION

1.1 Background

In recent years, Finnish forestry and, for example, the current state of carbon sinks, wood as energy source and green claims have been featured extensively in the media and social media. Despite, manufacturers of wood-based products and their stakeholders have not received as much attention, which is also reflected in the scientific literature. Research on the sustainability of the wood processing industry is limited, as the research focuses on e.g., to the energy perspective (Palander et al., 2020). Stakeholder research is one area whose research is particularly lacking in the wood processing industry. Stakeholder research related to reporting is not really found in the industry, and research related to wood products is mostly consumer research, which examines, for example, the quality expectations of wood products. However, a lot of stakeholder research has been done in other fields, also related to sustainability reporting. Naturally, perspective vary, and it is more usual to study stakeholders' perceptions on existing sustainability reporting and sustainability in general than the importance of certain aspects of sustainability.

In addition, increasing regulation, most recently the Corporate Sustainability Reporting Directive (CSRD), puts pressure on companies to consider their stakeholders more and more in their sustainability work and reporting (Directive 2022/2464). Since it is a new directive, there has been limited research on it, especially regarding stakeholders. Therefore, a need for research on the topic can also be recognized in the business world.

Thus, research gaps can be identified both in sustainability research in the wood processing industry and around CSRD in general, as well as in stakeholder research around both topics. This study aims to fill those research gaps while also acting as a tool for the engagement of stakeholders in the double materiality assessment of the target organization. Thus, the research also complements

research related to double materiality assessment, which is also a very little researched area. In addition, CSRD has been a hot topic in the field of sustainability as well as on the desk of many companies, so understanding it is important in the field. This thesis offers an opportunity to learn more about the subject, especially in relation to the double materiality assessment, which is a mandatory part of CSRD reporting.

1.2 Aim of the research

As a result of the background presented above, the purpose of this research is to examine the perceptions of stakeholders on the importance of CSRD-defined sustainability matters in the wood processing industry. Therefore, the purpose is to study which aspects of sustainability are the most valued by stakeholders and how the perceptions differ between stakeholder groups. It is also discussed, how the findings can be utilised in sustainability reporting in terms of double materiality. The sustainability aspects whose importance in the eyes of stakeholders is examined in this study come directly from the European Sustainability Reporting Standards (ESRS), which CSRD obliges reporting entities to follow. The focus of this thesis is the wood processing industry, as the case company operates in the industry.

Since the research was carried out as part of the case organization's first sustainability report, its goal is also to provide the organization with useful information about their stakeholders. Therefore, in addition to the aspects of sustainability that are considered important, it is interesting to examine the differences between different stakeholder groups.

Based on both the research gaps and the target organization's needs, the research objectives were therefore to identify the sustainability matters that the stakeholders consider important for the organization, to clarify the differences between the views of stakeholder groups, and to support the double materiality assessment. Therefore, the following research questions were formed:

1. What sustainability matters listed in ESRS 1 different stakeholders in the wood processing industry emphasize?

2. What kind of differences there are between stakeholder groups´ perceptions?

3. How do the findings guide double materiality assessment?

1.3 Thesis structure

In order to reach the aim of the research, the structure of this thesis has been shaped as follows. First, this intro introduces the background of the study through both previous research and the need of the target organization. In addition, the goals of the research are defined with the help of research questions and a brief description of the structure of the thesis is presented. The next section is the theoretical framework, where the concepts relevant to the research are presented in more detail, as well as previous research related to the topic is presented. Therefore, the aim of theoretical background is to create an image of the context and background of the study for the reader. The theoretical background is followed by data and methods, where the target company is introduced in more detail, and issues related to the practical implementation of the research are reviewed. The data collection methods, and selected analysis methods are also presented. The results of the analyzes are reviewed in the results -section, which is divided according to analysis methods. In the discussion, the results are interpreted, and further research opportunities and research limitations are examined. Finally, in the conclusion, both the research results and the entire implementation are summarized. Through the results, the relevance of the research is also considered.

2 THEORETICAL FRAMEWORK

In this section, the theoretical framework of the thesis topic is examined, i.e., the concepts and phenomena related to the thesis are studied through previous scientific research. The first subsection discusses the historical development and methods of sustainability reporting in general. The second section focuses on the present, introducing the CSRD, which has significantly influenced the development and implementation of this research. After that, sustainability reporting standards are presented, of which the ESRS standards as a part of CSRD are a natural continuation. Fourthly, the concept of double materiality assessment, which also belongs to the CSRD directive, is opened. After that, the subject of the review is the industry in question. More precisely, the sustainability of the wood processing industry and stakeholder sustainability perceptions in the industry are examined. In addition to presenting the background of the topic, this section aims to highlight research findings of earlier studies with which the results of this research can be compared. Since the concepts in question concern companies operating in the European Union (EU), this section is written from a European perspective.

2.1 Evolution of sustainability reporting

Given that the thesis focuses on sustainability reporting, it is essential to examine the history of sustainability reporting to understand the developments leading to the current state. Even though the thesis topic is rather novel, the same cannot be said about sustainability reporting as a phenomenon. Diverse perspectives exist regarding the origins of sustainability reporting. According to Gokten, Ozerhan and Gokten (2020) the roots of sustainability reporting can be found as early as in 1962, when Rachel Carson´s book Silent Spring, considered the foundation of the environmental movement, was published. Larrinaga and

Bebbington (2021) and Khatri and Kjærland (2023) connect the foundation of sustainability reporting to the increased discussion of companies' environmental and social impacts in the 1970s and 1980s. Du Pisani (2006) highlights the emergence of the concept of sustainable development with the Brundtland Report in 1987 (Brundtland, 1987), which, paved the way for the development of sustainability reporting. Niskala and Palmuaro (2023) also have a slightly different view of the origin of sustainability reporting, because according to them, sustainability reporting was born in the 1980s and 1990s, when some companies began to report on their environmental impacts regularly. Gokten et al. (2020), Larrinaga and Bebbington (2021) and Khatri and Kjærland (2023) also add the that the beginning of standardized sustainability reporting takes place in the 1990s, as a well-known sustainability reporting framework GRI standards were published.

From the beginning, the background of sustainability reporting has been communication between the organization and its stakeholders, especially to support stakeholders' decision-making (Niskala & Palmuaro, 2023; Christensen, Hail & Leuz, 2021; Larrinaga & Bebbington, 2021). Multiple researchers (see e.g., Christofi, Christofi & Sisaye, 2012; Larrinaga & Bebbington, 2021 and Niskala & Palmuaro, 2023) also highlight accountability as a determining factor in sustainability reporting since the early stages. By accountability they mean that organizations have responsibility to share reliable information to their stakeholders. In addition, the economic perspective in general has also been closely linked to sustainability reporting, even though environmental awakening has increased the reporting (Christofi et al., 2012). By economic perspective, he means e.g., that financial drivers have guided sustainability reporting, as it has been seen more as an appendix to the annual report than as its own entity.

Sustainability reporting has also been defined by its voluntary basis for decades, as organizations have been reporting on their sustainability matters years before the first internationally binding regulations in the 2010s came into force (Gokten et al., 2020; Hummel & Jobst, 2024). However, as Niskala and Palmuaro (2023) state, the development of various international frameworks has significantly shaped even voluntary sustainability reporting practices. Perhaps the most well-known and used framework is Global Reporting Initiative's (GRI) GRI-standards. The GRI was founded in 1997, and the first version of the standards were published in 2000 to guide organizations, regardless of size, to report on their impacts on people, the environment, and the economy (Global Reporting Initiative, n.d.; Hummel & Jobst, 2024). The standards in question have guided the use of both uniform reporting practices and calculation principles (Niskala & Palmuaro, 2023). Although the GRI has been voluntary throughout its history, it has been considered the basis of sustainability reporting, even by the United Nations since 2010 (Gokten et al., 2020). Even in 2022, according to a study carried out by KPMG (2022), up to 78% of World 250 largest companies reported about their sustainability matters according to GRI, so the framework has kept its position.

After GRI, several other operators have also published initiatives and standards to guide voluntary sustainability reporting practices. For example, in 2013 International Integrated Reporting Council (IIRC) published an integrated reporting framework, which has a more financial approach to sustainability by focusing on accountability, quality of information and value creation for stakeholders (Integrated Reporting, n.d.; Niskala & Palmuaro, 2023; Larrinaga & Bebbington, 2021). According to Niskala & Palmuaro (2023) the value creation is examined through strategy, business model, management, results and future prospects.

In recent years, the EU has increasingly taken a stand on the regulation of sustainability reporting. In the European framework, the first regulatory publication in sustainability reporting, the directive on non-financial reporting was introduced in 2014, and it was set into force in 2016 (Directive 2014/95). Non-Financial Reporting Directive (NFRD) is a directive obligating large companies with more than 500 employees to report about their environmental, social and governance matters (Directive 2014/95). According to its name and content, the NFRD aims to make a difference between the reporting of sustainability issues and financial information. In other words, the focus is different from the previous economic perspective of sustainability reporting that prevailed earlier (Hummel & Jobst, 2024; Larrinaga & Bebbington, 2021; Christofi et al., 2012). Conversely, Christensen et al. (2021) argue that the NFRD's limitation lies in its focus solely on serving financial stakeholders. According to them, the directive has not adequately distanced itself from an economic standpoint. Therefore, it can be questioned whether the dimensions of sustainability are taken into account equally.

After the NFRD's entry into force, research has been done on the impacts of the directive on sustainability reporting. Although Ottenstein et al. (2022) concluded in their study that the NFRD has increased the transparency and reliability of sustainability reporting, many researchers such as Christensen et al. (2021) and Abela (2022) recognized a need for standardised and broader regulation. In addition, as it was found in Ottenstein et al. (2022) research and Niskala and Palmuaro's (2023) book, the NFRD did not significantly improve the comparability of sustainability reporting in the EU either.

The debate on the functionality of the NFRD has certainly also been influenced by two significant international agreements in the field of sustainability, both of which were published shortly after the NFRD. In 2015 United Nations (UN) Climate Change Conference (COP21) resulted in historical Paris Agreement, according to which the member states, among other things, aim to limit global warming to 1.5°C above pre-industrial levels (United Nations, n.d.a; Hummel & Jobst, 2024). In addition, the United Nations (n.d.b) also published 2030 Agenda for Sustainable Development, including 17 Sustainable Development Goals (SDGs), in the same year. Although the SDGs were originally targets for states, many organizations have also included them in their reporting (Hummel & Jobst, 2024; Diwan & Amarayil Sreeraman, 2023) Consequently, today the SDGs are a common part of sustainability reports.

In 2018, the European Commission turned the sustainability discussion back to the financial approach when it published an Action Plan for Financial Sustainable Growth (Hummel & Jobst, 2024). During the same year, Sustainability Accounting Standards Board (SASB) created voluntary sector-specific standards for sustainability reporting to serve investors and financial markets in general (Niskala & Palmuaro, 2023). Industry-specific standards define scientifically proven material sustainability factors for each sector, which companies can use in their reporting (SASB, 2024; Niskala & Palmuaro, 2023). Also, in 2018 Financial Stability Board (FSB)'s Taskforce on Climate-related Financial Disclosures (TCFD) published recommendations, which encourages reporting on the economic impacts of climate change -related risks and opportunities (Niskala & Palmuaro, 2023). Abela (2022) emphasizes that a key objective of the TCFD is to encourage organizations to inform investors about their efforts to align with the goal of limiting climate change to two degrees. As Niskala and Palmuaro (2023) highlight, historically TCFD is special due its future-oriented approach. It guides companies to create goals and scenarios for the future, when previous frameworks have focused on the impacts of their previous and current operations. Perhaps partly from the same reason, the impact of TCFD's recommendation has been so significant in the field of voluntary sustainability reporting that it was later incorporated into the current EU sustainability reporting regulation (Niskala & Palmuaro, 2023; Hummel & Jobst, 2024).

The next significant step in shaping sustainability reporting scene in the European framework took place in 2019 (Hummel & Jobst, 2024). The European Commission published the European Green Deal, which is a package of policy initiatives aiming for a climate neutral EU by 2050 (European Commission, 2019). Furthermore, as part of the Green Deal, the Commission suggested an alteration to environmental legislation, which came into effect in 2021, mandating member states to reach net-zero greenhouse gas emissions by 2050 (Hummel & Jobst, 2024).

In 2022, the EU aimed to address the shortcomings of the NFRD with the introduction of the new Corporate Sustainability Reporting Directive (CSRD). The CSRD also seeks to implement international sustainability agreements, such as the Green Deal, as integral components of corporate sustainability (Directive 2022/2464; Hummel & Jobst, 2024). According to Hummel and Jobst (2024), the objective of CSRD also involves expanding the reporting requirements to a greater number of organizations compared to NFRD.

Additionally, efforts have been made to establish mandatory standards to guide sustainability reporting and support the CSRD at both EU and UN levels. Today, earlier mentioned IIRC and SASB are part of the International Sustainability Reporting Standards Board (ISSB) established by the International Financial Reporting Standards (IFRS) Foundation (Hummel & Jobst, 2024). In 2021 the monitoring of TCFD was also transferred under ISSB (Niskala & Palmuaro, 2023; Hummel & Jobst, 2024). ISSB has played a significant role in the development and implementation of mandatory sustainability reporting

standards. In 2023, ISSB published the first standards that enter into force in 2024, initially voluntarily and later as mandatory (Niskala & Palmuaro, 2023). Around the same time, EFRAG also published the European Sustainability Reporting Standards (ESRS), which became mandatory at the beginning of 2024 (Directive 2022/2464). These obliquing standards and CSRD are discussed in more detail in the subsections 2.2. Corporate Sustainability Reporting Directive and 2.3 Sustainability Reporting Standards.

When studying the history of sustainability reporting, it should also be noted that the field is constantly changing, so the information in this thesis is already out of date at the time of publication. For example, the Council of the European Union approved in the late May a Corporate Sustainability Due Diligence Directive (CSDDD), which aims to impose a duty of due diligence on organizations (European Commission, 2024). For organizations, the directive means an obligation to investigate the harmful impacts of their operations on human rights and the environment (European Commission, 2024). In addition, for example, a directive on green claims has been in the public debate recently. Consequently, Diwan and Amarayil Sreeraman (2023) summarized in their research that currently sustainability reporting is determined by environmental focus, of course without forgetting the social and governmental dimension.

2.2 Corporate Sustainability Reporting Directive (CSRD)

The Corporate Sustainability Reporting Directive (CSRD) is a regulatory framework established by the European Commission aimed at enhancing corporate transparency and accountability regarding sustainability matters (Directive 2022/2464). Niskala and Palmuaro (2023) describe that the directive aims to take sustainability reporting to the same level as financial statements, improving the quality and comparability of sustainability reporting among organizations operating in the EU.

In practice, CSRD is a legislative instrument designed to mandate certain organizations to disclose non-financial and sustainability-related information annually (Directive 2022/2464). The directive sets out specific requirements for the disclosure of environmental, social, and governance (ESG) information by large public-interest entities operating within the EU. More precisely, listed organizations with over 500 employees are mandated to start preparing reporting according to CSRD already in 2024 and the reports must be published in 2025 (Directive 2022/2464). Large non-listed organizations' obligations begin a year later, while the last group are listed Small and Medium sized Enterprises (SMEs), whose reporting obligations begin in 2026, i.e., the first reports in accordance with the directive must be published in 2027. (Directive 2022/2464). Additionally, small, and medium-sized organizations, small non-complex institutions and captive insurance and reinsurance undertakings are allowed to carry out reporting with slightly reduced obligations.

Whether considering full or limited obligation, CSRD is divided into several types of requirements and instructions (Directive 2022/2464). The requirements and content of the reports in general are discussed mostly in Sustainability reporting and Sustainability reporting standards -section. Since this thesis focuses on the content of sustainability reporting, only those relevant aspects are examined in detail. Excluded from the review are for instance amendments to other directives than NFRD and reporting format, which are not as relevant for this thesis.

According to CSRD's sustainability reporting section (Directive 2022/2464), sustainability reporting begins with a management report that includes for example a description of the reporting unit's business model and strategy. Already in this phase, sustainability matters must be considered from many angles – such as consistency of the strategy with the Paris Agreement, resilience to risks and opportunities related to sustainability matters, as well as consideration of stakeholders in the strategy. Time-bound sustainability goals must also be reported, and they must include GHG emission reduction goals for 2030 and 2050 (Directive 2022/2464). In addition, CSRD (Directive 2022/2464) has several obligations regarding reporting about the process itself and the competence of its implementers and whole management team. However, organizations that adhere to lighter obligations can omit many detailed points in their reports, such as explanations regarding the implementation of the reporting process. In addition, parent companies have their own obligations in CSRD, called "Consolidated sustainability reporting", which, in turn, demands the most detailed reporting, as the parent company is responsible for the sustainability reporting of the entire group. The sustainability reporting section is complemented by the sustainability reporting standards, the factors of which are defined as the following:

Table 1: Sustainability reporting standards' sustainability factors:

Environmental factors:	Social and human rights factors:	Governance factors:
• Climate change mitigation • Climate change adaptation • Water and marine resources • Resource use and circular economy • Pollution • Biodiversity and ecosystems	• Equal treatment and opportunities for all • Working conditions • Respect for the human rights	• The role of the undertaking's administrative, management and supervisory bodies • The main features of undertakings internal control and risk management systems • Business ethics and corporate culture • Political influence • The management and quality of relationships with customers, suppliers and affected communities

Based on above presented sustainability reporting standard requirements, EFRAG has created the European Sustainability Reporting Standards (ESRS),

which define more precisely what issues should be reported on each of the topics presented above and how (European Commission, 2023). According to European Commission (2023) ESRS standards are mandatory for all CSRD reporting organizations as defined in CSRD. The ESRS standards are such a large entity that they are discussed in more detail in the next section 2.3 Sustainability Reporting Standards.

In addition to the general issues presented above, the Sustainability reporting section, as well as the entire directive, builds upon the earlier existing Non-Financial Reporting Directive (NFRD) and contribute to the European Green Deal (Directive 2022/2464). Compared to NFRD there are a few major differences. First, The NFRD primarily focused on large public-interest entities with over 500 employees, while the CSRD expands the scope to cover a broader range of organizations, including large, listed organizations, as well as large non-listed organizations and all small and medium-sized enterprises (SMEs) that are subject to the EU Accounting Directive, as presented earlier (Directive 2022/2464; Directive 2014/95). Secondly, as it is expected, the reporting requirements have expanded remarkably with CSRD. The NFRD required undertakings disclose non-financial information related to environmental, social, and employee matters, as well as respect for human rights, anti-corruption, and bribery issues in their management reports or separate non-financial reports (Directive 2014/95). The CSRD introduces more standardized reporting requirements, including the use of digital reporting formats and structured data to enhance comparability and accessibility of sustainability information (Directive 2022/2464). It also mandates specific disclosures related to sustainability matters while in NFRD only the topics were mandated (Directive 2014/95; Directive 2022/2464). Thirdly, the NFRD (Directive 2014/95) did not require mandatory external assurance of the reported non-financial information, but it allowed member states to adopt national legislation on assurance. The CSRD (Directive 2022/2464) introduces mandatory external assurance for the whole suitability report, which also leads to the obligation to document the report creation phase more precisely than before. This aims to enhance the reliability and credibility of reported sustainability data. Fourth, the CSRD introduced specific enforcement measures and penalties for non-compliance at the EU level, including fines and penalties for companies that fail to comply with the reporting requirement, while during the NFRD, there were no such punishments (Directive 2022/2464). Fifth, unlike the NFRD, the CSRD is closely aligned with the EU's sustainable finance initiatives, such as the EU Taxonomy Regulation and the Sustainable Finance Disclosure Regulation (SFDR) (Directive 2022/2464). Therefore, it aims to contribute to the EU's broader sustainability agenda and transition to a greener and more sustainable economy. In addition to the differences mentioned above, the new comprehensive directive also brings with it other changes, such as the transition to double materiality-based reporting, which will be discussed more in the section 2.4 Double materiality assessment (Directive 2022/2464. In terms of climate change mitigation, a significant change compared to the NFRD is limiting global warming to 1.5 degrees instead of 2.0 degrees (Directive 2014/95;

Directive 2022/2464). This change is a result of the targets established in the Paris Agreement, a legally binding treaty that was introduced after the implementation of the NFRD (United Nations. (n.d.a).

2.3 Sustainability Reporting Standards

As mentioned earlier, in the sustainability reporting field, there have been a need for standardised information. Reporting practices have varied greatly depending on the reporter, and even the directives have not succeeded in directing reporting to a uniform format (Ottenstein et al., 2021). As in sustainability reporting in general, progress in sustainability reporting standards has also started on a voluntary basis (Christensen et al., 2021). Different organizations have offered their own standards and frameworks to support voluntary reporting. Perhaps the most well-known and applied standards are Global Reporting Initiative (GRI) standards, which guide companies, regardless of size, to report on their impacts on people, the environment and economy (Global Reporting Initiative, n.d.).

Increasing regulation has also increased the need for new and more precise standards, which would serve precisely the objectives of the directives. For example, even after NFRD, the reporting practices have not followed a uniform form at the EU level (Ottenstein et al., 2021). NFRD includes only general-level requirements on topics that organizations must report on, and it does not direct companies to follow voluntary sustainability reporting standards (Directive 2014/95. Later, the need for mandatory sustainability reporting standards has been answered by both International Sustainability Standards Board (ISSB) with International Financial Reporting Standards (IFRS) including Standard 1 (S1) and Standard 2 (S2) and by European Financial Reporting Advisory Group (EFRAG) with European Sustainability Reporting Standards (ESRS) (EFRAG, 2023; IFRS, n.d.).

Both set of obligatory standards entered into force at the beginning of this year (2024), and they are intended for different audiences, which explains why two different international actors have created their own standards. Another important difference is that IFRS consider organizations internationally while ESRS focuses on European organizations and organizations whose securities are traded within the EU (European Commission, 2023; IFRS, n.d.). In addition, ESRS includes also effects on organizations that are part of the value chain of the organizations covered by the regulation.

The IFRS Standards are intended for the financial sector, in which case the starting point of the standards is financial materiality (IFRS, n.d.). According to IFRS (n.d.) the first standard, S1 is called General Requirements for Disclosure of Sustainability-related Financial Information while S2 focuses on climate-related disclosures. However, IFRS are not further discussed in this thesis as the focus is on the European operating environment and CSRD, to which IFRS are not affiliated with the same way as ESRS.

The ESRS has been formed specifically to clarify CSRD requirements for reporting organizations in the form of needed disclosures, and to assist them in implementing the directive (European Commission, 2023). Even though CSRD provides guidelines on what themes to report about, standards are needed to give more specific guidance on what information is needed and how to report about it (European Commission, 2023). According to the European Commission (2023), a sustainability report must describe the key components of the organization's overall strategy that pertain to sustainability issues, along with the critical aspects of its business model and value chain. In the focus are also insights into the organization's exposure to impacts, risks, and opportunities and their origins (European Commission, 2023). Therefore, ESRS standards are divided into cross-cutting- and topical standards (see Figure 1), which aim for broad coverage.

Cross-cutting standards cover general guidelines for reporting that every reporting entity must follow (European Commission, 2023). ESRS 1 instructs e.g., how the double materiality assessment should be implemented as a basis for reporting, what the duo diligence process should be like and how the stakeholders should be considered (European Commission, 2023). ESRS 2, on the other hand, contains disclosure requirements that are mandatory for all reporting entities (European Commission, 2023). These disclosure requirements concern e.g., governance and supervisory bodies and strategy and impact, risk and opportunity management (European Commission, 2023).

Topical standards differ from cross-cutting standards in that reporting on them is not unequivocally mandatory. The double materiality assessment, presented in more detail in the next section (2.4.), determines the material sustainability topics, which the reporter must report on. Therefore, not all sustainability topics of topical standards will necessarily be mandatory to report about (Directive 2022/2464).

Figure 1: European Sustainability Reporting Standards (ESRS) (Adapted from EFRAG 2022).

The topical standards are following a sustainability field's typical division into Environmental, Social and Governance (ESG) matters. The standards are presented in the Figure 1, which is adapted from EFRAG (2022). As their name implies, topical standards provide a structured framework for reporting within the corresponding topic area (European Commission, 2023). They contain a topic according to the name of the standard, under which sub-topics and sub-sub-topics are also listed. Although not all of the topics, sub-topics or sub-sub-topics have to be reported, they must be taken into account in the double materiality assessment. Additionally, organizations may also have specific sustainability issues that should be taken into account regardless of obligations (European Commission, 2023).

As presented in the Figure 1, the first standard of the environmental standards is E1, Climate Change. According to ESRS 1 (European Commission, 2023) the standard includes sub-topics climate change mitigation, climate change adaptation and energy. In relation with them, reporting entities are required to disclose information about transition plan for climate change mitigation, targets related to climate change and their energy consumption (European Commission, 2023). The standard in question is also strongly linked to the Greenhouse Gas (GHG) Protocol, an initiative founded in 1990s to standardize greenhouse gas reporting (European Commission, 2023). The S1 requires reporting organizations to declare their emissions in relation to Scope 1, 2 and 3 (Greenhouse Gas Protocol, n.d.; European Commission, 2023). Therefore, GHG emissions must be calculated separately from own operations, purchased energy, and indirectly caused emissions (Greenhouse Gas Protocol, n.d.).

The second environmental standard E2 Pollution contains several sub-topics, which are pollution of air, water, soil, living organism and food resources (European Commission, 2023). In addition, it includes substances of concern and very high concern and microplastics. According to the European Commission (2023), the E2 standard directs the reporter to list different types of pollution it causes, to understand risks, impacts and opportunities as well as to set goals for reducing pollution.

Third environmental standard is ESRS E3 Water and Marine resources (see Figure 1). For the standard in question, the European Commission (2023) also lists subsections, which are water consumption, -withdrawals, -discharges and extraction and use of marine resources. Like the standards presented earlier, E3 (European Commission, 2023) also requires e.g., listing related policies and targets. In addition, according to the standard (European Commission, 2023), the reporting entity must also disclose, for example, their water consumption, where water consumption in high-water stress areas must be specified.

The fourth environmental standard, E4 Biodiversity and ecosystems contains the most sub-topics and sub-sub-topics of the environmental standards. The sub-sub-topics are divided into four sub-topics – Direct impact drivers of biodiversity loss, impacts on the state of species, impacts on the extent and condition of ecosystems and impacts and dependencies on ecosystem services (European Commission, 2023). Those have been clarified with examples, as well as specifications in the listing of sub-sub-topics. For example, changes in land use and the risk of species becoming extinct arise from the sub-sub-topic listing (European Commission, 2023). Also, the matters to be disclosed related to biodiversity and ecosystems are similar to the previously presented environmental standards.

The fifth and last environmental standard is E5 Resource use and circular economy (see Figure 1). According to the European Commission (2023) sub-topics related to the standard are resources inflows including resource use, resource outflows related to products and services and waste. Again, the reporting requirements are similar to previous environmental standards, adapted to the topic. Measurable matters that are required to be reported in

addition to inflows and outflows of resources are e.g., circular material use rate and waste management (European Commission, 2023).

The first and broadest social standard is ESRS S1 Own workforce (see Figure 1). According to the European commission (2023) there are three sub-topics under the S1 standard, of which the first is working conditions. Working conditions include sub-sub-topics such as secure employment, adequate wages and health and safety (European Commission, 2023). The second sub-topic in the directive in question is equal treatment and opportunities for all, which includes sub-sub-topics like training and skills development, gender equality and diversity. Last sub-topic which in turn includes e.g., child- and forced labour and privacy is other work-related rights (European Commission, 2023). As the standard in question considers social issues, many of the disclosure requirements are narrative rather than numerical. For example, the standard requires reporting entity to disclose on compliance with human rights, and other policies related to own workforce (European Commission, 2023). However, numerical data is also required by the European Commission (2023), as for example employee headcount and headcount by gender and type of employment must be reported.

The second social standard ESRS S2 Workers in the value chain (see Figure 1) mainly follows the standard of its own workforce in terms of content. As presented in the ESRS 1 (European Commission, 2023) the sub-topics are similar and there are only a few differences. According to the European Commission, (2023) In case of own employees, the participation of workers and rate of employees covered by collective bargaining must be taken into account, while in the value chain it is not required. However, in the case of employees of the value chain, the extent of the value chains to different areas is clearly taken into account (European Commission, 2023). Compared to S1 disclosures about water and sanitation has been added to the sub-sub-topic list (European Commission, 2023). Another difference is that numerical data is not required for workers in the value chain, as in the case of own employees, but goals must still be set. European Commission (2023) represents for example targets related to positive and negative impacts on the workforce of value chain.

Third social standard is ESRS S3 Affected communities, which is narrower than the earlier ones. It includes sup-topics Communities' economic, social and cultural rights, Communities' civil and political rights and rights of indigenous people (European Commission, 2023). Related to them, the standard lists sub-sub-topics such as adequate housing and food, freedom of expression and cultural rights (European Commission, 2023). More precisely, the standard S3 obliges to report on policies related to affected communities, as well as processes for involving these communities, for instance.

Last social standard is Consumers and end-users (See Figure 1). According to the European Commission (2023) the sub-topics under it are information-related impacts, safety, and social inclusion. Sub-sub-topics under those are for example related to privacy, health and safety and responsible marketing (European Commission, 2023). Like S3 Affected communities, the disclosure

requirements are related to policies, engagement processes and remedy processes.

The last of all standards is the only governance standard G1 Business conduct (see Figure 1). According to European Commission (2023) sub-topics such as corporate culture, political engagement, corruption, and relationships with suppliers are linked to the standard. The directive in question obliges the reporter to publish information, e.g., about corruption cases, policies, participation in politics, and payment practices. Hence, as Niskala and Palmuaro (2023) summarize, G1 aims to open the ethical business principles of organizations and their supervision.

All in all, the 12 ESRS standards present a total of 38 sub-topics and 73 sub-sub-topics, on the basis of which the reporting entities can carry out their double materiality assessment, and report on its impacts, risks and opportunities. In addition, the standards contain data points from which organizations can choose suitable metrics (European Commission, 2023), but due to the large number, they are not presented in more detail here.

2.4 Double Materiality Assessment

As mentioned earlier, double materiality assessment (DMA) is a phase in the implementation of CSRD-compliant reporting, which is used to map sustainability matters the reporting entity must include in its report (European Commission, 2023). Double materiality assessment is therefore the first step when conducting CSRD compliant sustainability reporting. Although double materiality assessment is an essential part of current CSRD reporting, it is nevertheless an older concept.

As a concept double materiality goes back to accounting in particular. According to Baumüller and Sopp (2021), materiality refers to the usefulness of different aspects in decision-making from the perspective of the target audience, which has earlier referred mostly to investors. In sustainability reporting, materiality has traditionally been seen through the organization's impact on economy, environment, and society, as for example GRI (Global Reporting Initiative, n.d.) standards instruct. In financial statements, materiality is used to be seen as financial materiality (Niskala & Palmuaro, 2023, p.48). Double materiality, however, considers both two approaches as division into impact materiality and financial materiality (European Commission, 2023; Directive 2014/95). According to Baumüller and Sopp (2021), the term "double materiality" was first introduced in the NFRD in 2019, emphasizing the difference between impact materiality and financial materiality. More precisely, according to European Commission (2023) impact materiality refers to the impacts an organization has towards economy, society, and the environment, while financial materiality refers to impacts those three dimensions may have towards the organization from financial perspective.

However, the definition of double materiality has been refined since the NFRD, and more details have been added. European Commission (2023) states that the two dimensions are linked to each other and the relationships between them must be examined as well. This relationship between the dimensions has been neglected in the NFRD (Directive 2014/95). Baumüller and Sopp (2021) also add that outside-in approach has been supplemented with inside-out approach due to CSRD. According to Niskala and Palmuaro (2023) combination of inside-out and outside-in thinking is applied both in impact materiality and financial materiality, as well as in the relationship between them. In other words, double materiality encourages taking into account both the external impacts of the organization and the impacts of the operating environment on the organization's business.

In addition, Niskala and Palmuaro (2023) emphasize the stakeholder engagement in comparison to NFRD. In the NFRD (Directive 2014/95), there is no mention of taking stakeholders' perceptions into account in the double materiality assessment, although transparency is emphasized. On the other hand, the European Commission (2017) published non-binding guidelines on non-financial reporting, which guide organizations to map the views of their stakeholders on sustainability matters. Later, it has been noticed that the involvement of stakeholders has increased as part of the double materiality assessment (Baumüller and Sopp, 2021). However, even today CSRD does not oblige to include the stakeholder dialogue in the double materiality assessment, but in sustainability reporting in general (Directive 2022/2464). In ESRS 1 General requirements, stakeholder dialogue is s mentioned as part of the double materiality assessment, although it is not a mandatory phase of the assessment (European Commission, 2023). In other words, the role of stakeholders in double materiality is more highlighted after NFRD and especially after CSRD, but stakeholder dialogue is not mandatory in the double materiality assessment. However, the reporter must indicate in the sustainability report whether stakeholders have been taken into account in the double materiality assessment or not. It could also be added that stakeholder thinking has shifted to looking at what issues stakeholders consider essential for organisations from different perspectives, instead of asking what stakeholders want organizations to report.

According to Baumüller and Sopp (2021), the double materiality assessment has also undergone a clear change in terms of the time horizon in between the directives. In CSRD, reporters are obliged to take into account the short-term, medium-term and long-term when mapping impacts, risks and opportunities, while NFRD did not require such approach (Directive 2022/2464; Directive 2014/95). All in all, CSRD has brought considerable refinements to the implementation of the entire double materiality assessment process, but the obligations still cannot be described as strict.

The process itself is not precisely defined in the CSRD or ESRS standards either. Only the concept of double materiality assessment is clearly defined in the ESRS 1 (European Commission, 2023). In addition, the ESRS standards set requirements for the double materiality assessment, which guide the process

more precisely than at the time of the NFRD (European Commission, 2023; Directive 2024/95). However, reporting entities and consulting companies conducting double materiality assessments can make their own interpretation of how the assessment should be carried out based on the criteria.

The criteria set for double materiality assessment mandated by the CSRD is listed in ESRS 1 General requirements, Objective 3 (European Commission, 2023), and they are as follows. To determine assessable sustainability matters, the reporting entity must concentrate on the parts of its operations where impacts, risks, and opportunities are most likely to occur, which should be guided by factors like the type of activities, business connections, locations, and other relevant risk elements. In addition, ESRS 1 requires considerations how the dependencies of the availability of social and natural resources affect the reporting entity. It must be also clarified, how the reporting entity applies the requirements of the standard in the double materiality assessment, and what threshold values have been used to assess whether a matter is material or not. In the assessment phase itself, the requirements are different when evaluating the impact materiality and financial materiality. When assessing negative impact materiality, the materiality is evaluated through the likelihood and severity. As in the entire standard, it is the reporter's responsibility to choose how to value these factors. However, the directive specifies that severity includes scope, scale and irremediability, and when the impact involves human rights impacts, only the severity should be assessed. Actual positive impacts are evaluated through scope and scale, while potential ones are also evaluated in terms of likelihood. In turn, when financial risks and opportunities are assessed, materiality is assessed on the basis of likelihood and possible economic impacts. (European Commission,

Figure 2: Double Materiality Assessment process (Adapted from EFRAG, 2023).

2023).

Through the criteria, it can be difficult to understand the course of the process itself, so Figure 2 shows one view of the stages of the process according to the view of EFRAG (2023). The process therefore starts with the context, i.e., by understanding the organization's operating environment and related sustainability matters. In the next step, potentially material sustainability matters are listed, the relevance of which will be assessed using the criteria presented above in the third step. Based on the evaluation, the results of the material sustainability issues are obtained, which are reported in the last step. (EFRAG, 2023)

Hence, it could be said that the requirements are somewhat precise, but the guidance is lacking, leaving room for interpretation during the process. EFRAG

(2023) even states themselves that the process is not really defined. However, EFRAG (2023) has answered the need for better guidance, and as a result they have published two draft guidance papers to support the implementation of the double materiality assessment. The latter one was open for public feedback from December 2023 to the end of February 2024 (EFRAG, 2023). Therefore, the final guidelines are still awaited. However, as EFRAG (2023) also reminds, the final guidelines will also only provide instructions for implementing the double materiality assessment, but do not tighten the obligations. Therefore, it remains to be seen whether the assessment practices will become unified as a result.

2.5 Stakeholder engagement in sustainability reporting

This sub-section delves into stakeholder engagement in sustainability reporting. Although no research can be found on the topic of this thesis as such, this section presents closely related research topics and examine the matter also in the light of CSRD.

As presented earlier, sustainability reporting has evolved from the need to provide stakeholders information to support their decision-making (Niskala & Palmuaro, 2023). Even today, the expectations of stakeholders are seen as a significant driver for sustainability reporting (So and Lafortezza, 2022). Due to CSRD, dialogue with stakeholders as a foundation for sustainability reporting has even become mandatory for large organizations (Niskala & Palmuaro, 2023), although in terms of double materiality it is not necessary as earlier stated. According to Khatri and Kjærland (2023) also research around the topic has increased in recent years, focusing on the forms of stakeholder engagement in sustainability reporting, as well as stakeholders' views on the sustainability of products and services, which will be discussed in more detail in latter sections.

Ferrero-Ferrero, Fernández-Izquierdo, Muñoz-Torres and Bellés-Colomer (2018) and Lodhia, Kaur and Stone (2020) have found that stakeholder engagement is most commonly conducted through surveys, interviews, panels, social media and workshops. Sometimes stakeholders are heard more through a one-way flow of information and sometimes organizations engage in dialogue with their stakeholders (Ferrero-Ferrero et al., 2018). Bellucci, Simoni, Acuti and Manetti (2019) have noticed in their study that stakeholder engagement especially through dialogue is more likely to occur in companies that already report on their sustainability. Freudenreich, Lüdeke-Freund and Schaltegger (2020) also have similar findings, even though they approached stakeholder dialogue in terms of value creation. According to their article, effective dialogue between stakeholders and the organization increases the organization's sustainability, not only from the point of view of reporting, but also in all activities, showing, for example, the humane encounter of employees (Freudenreich et al.,2020). Torelli, Balluchi and Furlotti (2019) study had a slightly opposite finding that companies do not necessarily feel it is necessary to include stakeholders as the basis of their report, if the pressure from the

stakeholders is already strong. Such a situation can occur, for example, with energy companies in relation to their generally known environmental impacts (Torelli et al., 2019). On the other hand, their research also saw benefits from engaging stakeholders, such as supporting materiality assessment.

In addition, both Torelli et al.'s (2019) and Bellucci et al.'s (2019) research showed, that most of the time, companies engage stakeholders only in relation to certain topics, and not sustainability as a whole. Organizations therefore have the power to choose which issues stakeholders have the opportunity to give their opinions on. Similarly, Lodhia, Kaur and Stone (2020) noticed that companies have a strong desire to define themselves which issues are discussed with stakeholders. Furthermore, the study observed that these companies particularly emphasized social issues on social media platforms, leaving other dimensions of sustainability to a secondary position (Lodhia, et al., 2020). While Lodhia et al. (2020) observed that social media dialogue effectively showcases stakeholder perspectives, the study refrains from taking a definitive stance on the approach's efficacy in practical sustainability reporting.

Ferrero-Ferrero et al. (2018) had a different approach to the topic as they studied stakeholder engagement in sustainability reporting in higher education institutions. However, their results also had interesting insights for the business world. As if following Bellucci et al.'s (2019) and Lodhia et al.'s (2020) findings, Ferrero-Ferrero et al.'s (2018) research highlighted e.g., that the stakeholders themselves should have the opportunity to raise problematic issues independently instead of the dialogue guided by the organization. In addition, they suggested in their research that the stakeholder engagement process should be explained in the sustainability report in order to make it as unbiased as possible. Now six years later CSRD has subsequently responded to the problem in question through transparent reporting requirements (Directive 2022/2464).

Some research has also been conducted on stakeholders' perceptions on sustainability reporting, although significantly less than on stakeholder engagement in general. Belal and Roberts' (2010) study revealed a very skeptical attitude towards sustainability reporting. The respondents were particularly suspicious of the companies' motivation to report on sustainability. According to Belal and Roberts (2010), the respondents believed that companies report on sustainability mainly to take care of their public relations, and when forced by regulations. Of course, the study in question is more than ten years old, and since then the field of sustainability reporting has changed significantly as it has become clear from the previous sections. Herremans et al. (2016) obtained very different results in their study than Belal and Roberts (2010). Herremans et al. (2016) for example, highlight, that investors perceived sustainability reports as a reliable source of information from which they looked for companies' real impacts. The employees also experienced the sustainability reports as useful sources of information for themselves and as an opportunity to develop themselves as employees (Herremans et al. 2016).

2.6 Sustainability in wood processing industry

Next, an overview of the target organization's industry is presented from the perspective of sustainability. The purpose of this sub-section is to present the sustainability aspects that are commonly found in research of the wood processing industry, with which the results of this study can also be compared.

Due to its roots, as also mentioned earlier, sustainability is still often linked to mainly environmental issues, and the same phenomenon is visible in the scientific literature of the wood processing sector. Wood, as a bio-based natural resource, also certainly plays its part in highlighting the environmental dimension of sustainability in the field. The same message is also conveyed for example by Husgafvel, Watkins, Linkosalmi & Dahl's (2013) survey, where all interviewed company representatives agreed that sustainable wood processing is based on sustainable forest management. Several other studies have also focused on the environmental dimension of the wood processing industry, highlighting matters such as Life Cycle Assessment (LCA), circular economy, climate change, and energy and resource efficiency (Husgafvel et al, 2013; Wolfslehner, Huber & Lexer, 2013; Schaubroeck, Alvarenga, Verheyen, Muys & Dewulf, 2013).

Husgafvel et al. (2013) have identified in their multi-method study life cycle thinking, energy, material and carbon efficiency and circular economy practices as the most important matters related to the environmental sustainability of the industry. In addition, they emphasize the importance of sustainable forest management at the beginning of the value chain of wood products (Husgafvel et al., 2013). Räty, Toppinen, Roos, Riala and Nyrud (2016) also rise efficiency and climate matters relevant when discussing the environmental impact of the industry. In addition, the research by Husgafvel et al. (2013) and others revealed that the sustainability issues mentioned above are not yet well covered by companies, but there is potential for development in sustainability issues. According to them, even at the EU level, more guidance would be needed, so that, for example, the circular economy could be made to work more efficiently, and low-carbon alternatives would become better known. In other words, they believe that companies could also benefit significantly from sustainability improvements (Husgafvel et al., 2013). According to Räty et al.'s (2016) study, a bigger problem than issues with sustainability practice implementation is the lack of communication on the matters. They highlight for example that more communication about sustainability is needed in the industry, and in addition, communication should include more qualitative data, as well as encouragement for more sustainable choices.

Schaubroeck et al. (2013), in turn, approach the environmental sustainability of the wood industry through an LCA assessment. Regarding LCA studies, there is a lot of literature also related to the carbon footprint. According to Schaubroeck et al.'s (2013) research, the environmental effects of harmful substances in the wood industry were particularly related to climate change, the eutrophication of water bodies, and in general the increase in environmental

ecotoxicity. On the other hand, the study also revealed clear positive effects on, for example, the reduction of ionizing radiation related to the industry (Schaubroeck et al., 2013). The positive approach in question wasrather unusual in the field's literature, as research on sustainability issues mainly focused on negative effects.

Wolfslehner, Huber and Lexer's (2012) in contrast to Husgafvel et al. (2013) and Schaubroeck et al. (2013), focused more in their research on looking for concrete sustainability development opportunities in the field. They describe that, for example, forest management, logistics, waste management and sawing technology should develop, increasing the availability of material and thereby make operations more efficient in many areas. Wolfslehner et al. (2013), also see the potential of the wood industry as carbon storage, as well as in cascade use. In other words, for example, side flows and surplus should be used more efficiently in the wood industry. However, it's important to bear in mind that the studies presented above are around a decade old, implying that significant changes may have occurred within the industry since then.

In later studies, it has been noticed, among other things, that a lot of potential is still seen but not used in the field of the above-mentioned sustainability aspects, for example in circular economy practices (De Vass et al., 2023). De Vass et al. (2023) have observed in their research that the transition towards circular economy is gradual, yet increasingly evident. Palander, Haavikko, Kortelainen, Kärhä and Borz (2020) studied logistics emissions from the wood sector and concluded that carbon-neutral transport is already possible. In addition, they mentioned that carbon-neutral transport is an essential part of the development of forest carbon sinks. Palander et al. (2020) also found that although it is difficult to collect carbon neutrality data, the efficiency of transport has clearly improved in recent years.

Although the environmental perspective is downright dominant in the field's research, social and economic dimensions have also been mentioned in some extent. Husgafvel et al. (2013) see the role of stakeholders as a pusher, i.e., due to the pressure caused by stakeholders, companies in the sector must develop their sustainability. Hyytiä (2022), on the other hand, recognizes the wider role of stakeholders both in creation of policies and in sustainability communication. According to her, sustainability and listening to customers go hand in hand. Although Hyytiä's (2022) view emphasizes cooperation, and Husgafvel et al. (2013) emphasize unilateral influence, both see consideration of stakeholders in sustainability work as a source of competitive advantage in the wood processing industry.

In relation to stakeholders, Hyytiä (2022) also mentions in her research that the wood processing sector, like other sectors, has opportunities to participate in supporting decent work. On the contrary, Harju and Lähtinen (2022) found that consumers do not value working conditions in the value chain much when buying wood products. However, So and Lafortezza (2022) summarize the findings of Hyytiä (2022) and Harju and Lähtinen (2022) well in their article by

stating that in the wood processing sector, especially end-users and justice are a key part of social sustainability.

All dimensions of sustainability are also affected by various laws and regulations, which are often set by the EU, when looking at the European frame of reference. Husgafvel et al. (2013) highlight the effects of EU restrictions and regulations on the operating environment. According to them, EU regulation, similarly like stakeholders, acts as a pushing force in the development of sustainability in the field. Further, both Husgafvel et al. (2013) and Hyytiä (2022) also identify policy making as an important part of the sustainable development of the industry. In other words, different non-regulatory policies also have an impact on the wood processing industry's sustainability. Husgafvel et al. (2013) have raised for example Integrated Product Policy (IPP) in their research into a significant industry policy, which at best reduces the burden of products on the environment. Hyytiä in turn emphasizes e.g., Finnish National Forest Strategy of 2025, whose purpose is to strengthen the forest sector in all areas of sustainability.

According to several sources (see e.g., Tuppura, Toppinen & Puumalainen, 2016; So & Lafortezza, 2022), in addition to laws and regulations, environmental labels have shaped the industry's sustainability practices in recent decades as well. Two commonly used environmental labels in the industry are the forest certificates FSC and PEFC (Tuppura et al., 2016). For both PEFC and FSC, at the beginning of the process both forest management measures and practices are certified, after which products made from wood from certified forests can receive the PEFC or FSC label if the origin of the products' wood can be verified So & Lafortezza, 2022). All Tuppura et al. (2016), Hyytiä (2022), and So and Lafortezza (2022) identify forest certification as a particularly market-oriented activity. In other words, motivation for the certification was seen as coming strongly from the outside. In the wood processing industry, certified wood is a desired raw material, as customers' expectations for more sustainable wood products are increasing (Tuppura et al., 2016). Therefore, e.g., Hyytiä (2022) sees certification as bringing financial benefits to both forest owners and wood processors. On the other hand, forest certification also has significant problems, especially from the ecological perspective, because, for example, the practices of biodiversity protection and area restoration are still deficient despite the certification (So & Lafortezza, 2022).

Although in this sub-section the different aspects of sustainability are clearly separated from each other, Husgafvel et al. (2013) reminds that in order to make sustainability a competitive advantage, all aspects of sustainability must be considered together. And the wood processing industry is no exception.

2.7 Stakeholder perceptions on sustainability of wood processing industry

Now that stakeholder engagement and overarching sustainability themes within the wood processing industry are introduced, it is time to integrate them.

Stakeholder perceptions on the sustainability of wood products have been under research, as has sustainability of energy wood. In their research, Harju and Lähtinen (2022) studied customers' sustainability awareness through quality of wooden building products. First of all, they found that the respondents' views on the importance of social, economic and environmental sustainability in the purchase decision varied significantly. It is worth noting that even though averages are often looked at, even within stakeholder groups, views can differ significantly from each other. However, Harju and Lähtinen (2022) found that most consumers nevertheless valued the economic aspect over other dimensions of sustainability. The consumers valued greatly aspects such as product quality and durability, whereas factors such as the use of recycled materials or working conditions in the value chain were deemed less significant (Harju & Lähtinen, 2022). In addition, one theme related to social sustainability emerged in the research. Consumers valued the health effects of wood as a building material (Harju & Lähtinen, 2022). Thus, they were indirectly interested in their own health. Surprisingly, according to Harju and Lähtinen's (2022) results, consumers did not value certificates, although in other studies they can even be seen as a guarantee of quality (see e.g., Tuppura et al., 2016). All in all, the results of Harju and Lähtinen's (2022) study could be summarized as consumers perceived their own interests, both financial and social, as of primary importance, in which case other aspects of sustainability were not of great importance.

Unlike Harju and Lähtinen (2022), Peters et al. (2015) found that within the stakeholder groups, the views were similar, while there were clear differences between different nationalities. According to Peters et al. (2015) Scandinavian stakeholders viewed combining the production of energy wood with sustainable forest management more difficult than the production of roundwood. In particular Finnish stakeholders considered the production of energy wood harmful to the environment, but on the other hand, they felt that roundwood and energy wood production could be combined to achieve better practices (Peters et al., 2015). In other words, utilizing the side streams of wood production as energy seemed to be important. The only theme concerning social sustainability that emerged in Peters et al.'s (2015) study was secure jobs. Utilization of wood directly as energy was seen causing temporary jobs, while the manufacture of high-quality wood products was seen as a business that supports employment. When thinking about economic sustainability, the interviewees in Peters et al.'s study highlighted the positive effects on rural areas. According to Peters et al.'s (2015) study, production of energy wood ensures jobs in rural areas and maintains the income of such areas.

In the comparison, however, it should be noted that the differences between the studies can be explained by the different focus of the studies. Peter et al. studied views related to energy wood, while Harju and Lähtinen examined products that will most likely be in use for decades. Hence, the end of the value chains is quite different. Toppinen, Toivonen, Valkeapää and Rämö (2013) found in their research that consumers highly valued sustainability in general.

Furthermore, stakeholders are not only seen as one mass, but can be divided into groups based on their relationship to the organization. Stakeholders can be divided for example into groups such as customers, employees, managers and so on or into types as Herremans, Nazari and Mahmoudian suggest (2016). The types they refer are primary stakeholders, who are directly connected with the organization, and secondary stakeholders, who are only indirectly connected (Herremans et al. 2016). In addition, many studies divide stakeholders into external and internal stakeholders (see e.g., Ferrero-Ferrero, Fernández-Izquierdo, Muñoz-Torres, & Bellés-Colomer, 2018).

2.8 Theoretical framework summary

In the first sub-section of the section, the history, including the regulations that have shaped the sustainability industry in general were introduced. The purpose was to acquaint the reader with the context in which this thesis was carried out. Since CSRD has played a significant role in generating the topic of this study, related concepts were opened up quite extensively in this section. The CSRD itself directs to a double materiality assessment, which this study is a part of, so it was necessary reviewing both topics. The ESRS standards, in turn, guided the survey, which was used for data collection in this research. Finally, previous research related to the topic of this thesis was explored in depth, covering the stakeholder groups under study, the industry of the target organization, and the combination of both. With the help of previous research, the reader was also enabled to understand the research gap, which this research aims to answer.

In terms of the implementation of this research, the key takeaways of the theory section were divided into the considerations of the stakeholder research, as well as the matters of sustainability that were highlighted as important, which were identified from previous research in the field.

When carrying out this research, it was important to take into account the observation raised in earlier research that stakeholders should not be combined into one mass, because it is not a homogeneous group. In addition, it must be kept in mind, e.g., Harju and Lähtinen's (2022) study pointed out that the views of stakeholders can vary around mean values, which should also be considered in this study.

When examining the previous research of the wood processing industry, it became clear that certain themes are emphasized when reviewing sustainability of the industry. Research around such themes was presented in subsections 2.6 and 2.7. Based on the themes in question, the issues presented below came to the fore, so it is interesting to compare the results of this study with them. Sustainability issues highlighted in the industry research were (not an exhaustive list):

- Life Cycle Assessment (LCA)
- circular economy

- climate change
- carbon sinks
- energy efficiency
- resource efficiency
- stakeholder engagement
- sustainability communication
- end-user safety
- decent work
- jobs in rural areas
- regulations
- certificates

3 DATA AND METHODOLOGY

3.1 Research methodology

This research has been carried out using mainly quantitative research methods, although the research questions may provide indications of qualitative research referring to the understanding of the phenomenon. The data was collected using an online survey, resulting in primarily numerical responses, with the exception of one open question. Questionnaire research is the most common method of collecting data for quantitative research (Vilkka, 2021), so this research is in that sense a rather classic example of quantitative research. The numerical data obtained from the survey naturally guided to choose quantitative analysis methods as well.

Since the research aimed in particular to study the differences in the answers between different stakeholder groups, measures of tendency and frequency tables were used in the analysis. Visual figures were especially used in the comparison of mean values. In addition, two different t-tests were used for statistical analysis. T-tests were used to investigate whether the answers of different stakeholder groups differed statistically significantly from each other. Finally, the results were compared to the sustainability issues raised in the previous study using content analysis.

Next, the target organization, whose stakeholders were examined, will be presented in more detail, as well as the creation of the survey and analysis methods.

3.2 Case organization

Kurikka Timber is a Finnish wood processing company, which focuses on producing timber products used especially in construction. It is a medium-sized company with turnover of 29 million euros (2023) (Asiakastieto, 2024). Kurikka Timber employs around 100 people at their site. The production and all operations are located in Äänekoski, a 18 000 inhabitants city in the middle of Finland (Kallioinen, n.d.). According to the website, Kurikka Timber is a trusted partner in the window and door industry. The product portfolio consists of various glulam components, from which, for example, window and door frames

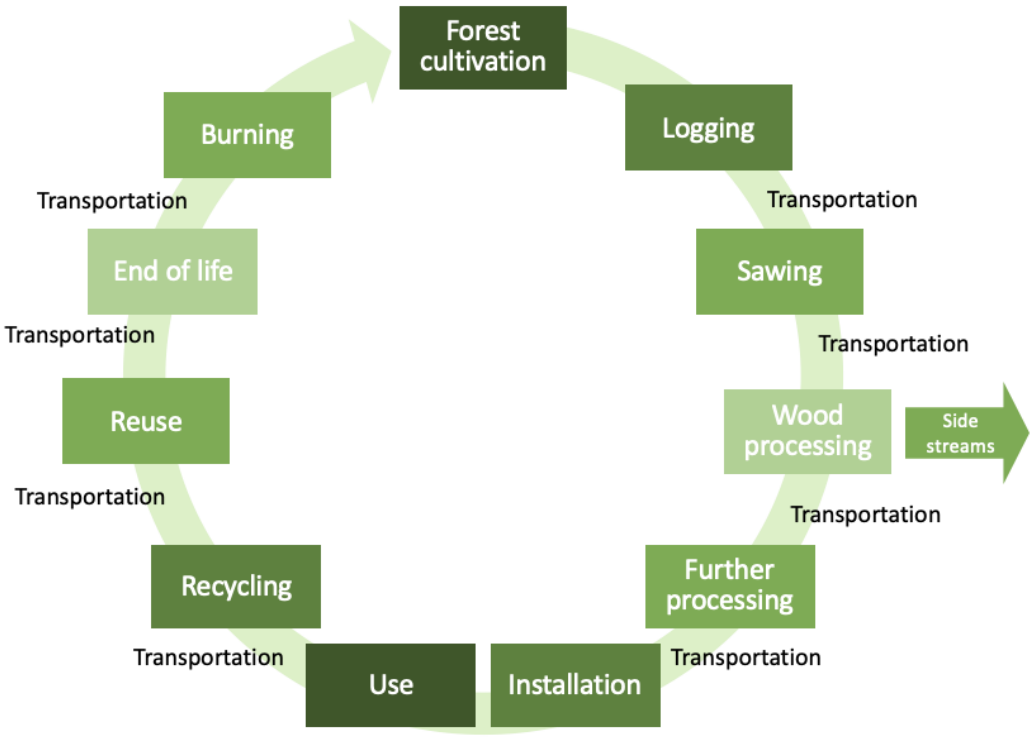

Figure 3: Value chain of the case organization.

are made. In addition, the product portfolio includes, as a side stream, pellets that are sold to both heating plants and households. Kurikka Timber also utilizes the side streams e.g., the pellets, wood chips and sawdust for their own heat production as well. (Kurikka Timber, n.d.)

Kurikka Timber's value chain is shown in Figure 3. As wood serves as the main raw material, its cultivation and forest management already play a large part in the value chain. The next step is the felling of wood, from where the wood is transported to the sawmill. Sawn timber is transported as lumber to Kurikka Timber's site. In Kurikka Timber's own processing plant, lumber is used to produce various glulam components for customer needs. Components are delivered all over Finland, Norway Sweden, Poland and Denmark (Kurikka

Timber, n.d.). The components are frequently further processed by customers into other products, such as window frames. Prior to their use phase, products made from the components are often installed. For example, window frames are installed in the house before their actual use. In some cases, the glulam components are used as such, for example in assembly. When it comes to a wooden element, it can usually be recycled and reused after the original use. For example, the expected life of window frames is about 40 years, after which the frames can be used, for example, as material for small construction and decoration projects. Wood can also be recycled at recycling stations, and eventually being repurposed for use in another form. When the wood reaches the end of its life, it can finally be burned for energy.

Sustainability has been a visible value at Kurikka Timber for several years, and its focus has been e.g., on employee safety and well-being, as well as on renewable raw materials. Last year, Kurikka Timber's sustainability work took a new direction towards a more accurate mapping of its impacts, and more open and visible reporting of sustainability matters. At the end of last year and the beginning of this year, the work continued by forming Kurikka Timber's first sustainability report. As background information for the report, we wanted to map perceptions of key stakeholders on sustainability issues related to Kurikka Timber. More precisely, we implemented a simplified double materiality assessment in line with CSRD. The simplified version means that no log has been kept of the materiality process. However, to support the double materiality assessment, we collected stakeholders' views using an online survey, which is analyzed in this thesis.

3.3 Data collection

As mentioned, the answers to the stakeholder survey of a wood processing company were used as data for this thesis. The survey was selected as the data collection method, as the purpose was to collect the views of the stakeholders as a background for the simplified double materiality assessment. The survey has therefore been carried out as part of the target organization's sustainability reporting. It should also be mentioned that the survey examined both the impact materiality and the financial materiality, but the results of the financial dimension are not examined in this thesis.

The survey was conducted as an internet survey through Webropol, which means that the form of the questionnaire is standard, and all respondents are asked the same questions (Hirsjärvi, Remes & Sajavaara, 2005). On the other hand, this survey deviates from the standard format because one stakeholder group was not required to respond to questions about financial impacts, as it was deemed unnecessary due to the double materiality assessment (see 2.4. Double Materiality Assessment).

All answers have been collected from Kurikka Timber's stakeholders. The survey was initially planned for all stakeholders, but it was ultimately sent only

to the most relevant ones, i.e., own workforce, as well as to the most important customers. Within the own workforce, stakeholder groups were production workers, office workers, owners, and customers. The survey was sent electronically to approx. 70 production workers, a total of 11 white-collar workers and owners, and seven customers. To guarantee anonymity, the management team was not separated from other office workers, as the target organization is small. In addition, in the analysis phase, the owners and office workers were combined to maintain anonymity. Also, all office workers work in responsible positions in the organization in question, so concealing anonymity was not assessed to have a significant disadvantage in terms of the results of the survey.

We estimated that it was not reasonable, or even necessary aiming to study the entire population i.e., all individual stakeholders, so some kind of sampling needed to be utilized. Sampling is used when it is not possible to get answers from the total sample, yet a sample may still give a rather good image of the overall perceptions of the group (Hirsjärvi et al., 2005). From the research perspective, it was sensible to use a total sample of internal personnel to ensure their opinions were comprehensively represented. For external stakeholders, purposive sampling was employed to narrow the participants down to only the most relevant ones. According to Campbell et al. (2020) purposive sampling refers to a situation where researchers want to ensure that certain cases are included in the final sample, which describes well the starting point of this survey. In the end, the sample was limited to about half of each population, as was to be expected, because for example Vilkka (2021) has raised the challenges of obtaining answers as the biggest problem of surveys.

The survey itself began with the selection of the answer language, as the survey was conducted in both English and Finnish. Before the actual survey, respondents were asked, as background information, to select the stakeholder group they represent and the country where they work. If the respondent chose a production worker as the stakeholder group to represent, the survey was directed to questions dealing with the impact materiality, while representatives of other stakeholders answered all questions.

The survey questions directly followed the ESRS 1 (European Commission, 2023) listing of sustainability matters. As double materiality assessment allows, the topics, sub-topics and sub-sub-topics were internally discussed, before the survey was carried out. As a result of the discussions, it was decided to summarize the environmental issues into one battery of questions, and not separate them according to the topical standards. In addition, animal rights were excluded from the survey, because the activities of the target organization do not concern animals. In this way, matters considered irrelevant did not enter the stakeholder evaluation, as instructed by the ESRS (European Commission, 2023), and additionally, the approach helped limit the length of the survey. Thus, the survey was divided into six topics according to topical standards, which are own workforce, workers in the value chain, affected communities, consumers & end-users, business conduct and the environment. Under the topics, there is a total of 41 questions under them. Each question refers to one of the sustainability matters

listed in ESRS 1 (European Commission, 2023), i.e., so called sub-topic or sub-sub-topic. In each question, respondents evaluate the importance of different sustainability matter for Kurikka Timber according to a Likert scale, i.e., on a scale of 1-5, where 1 corresponds to not important and 5 to very important. The survey is not available as an appendix in this thesis, as there were many parts of the survey that were outside the scope of this study. The questions are listed in the results, for example in Table 3. In addition, the survey is described above, so a long appendix would not have added value to the thesis.

After closing the survey, it was reviewed that the questionnaires had been filled in appropriately, as, for example, Vilkka (2007) instructs. For example, if most of the answers had focused on the answer "neutral", the survey could have been considered a failure (Vilkka, 2007). The open question of the survey only received feedback from the survey, the majority of which was positive, so it is not analysed in this thesis.

3.4 Data analysis

The quantitative research method was continued in the analysis section as mentioned earlier. However, the analysis methods have been selected specifically to address the research questions, which should be the primary basis for their selection (Vilkka, 2007).

The aim of the analysis is to understand, what matters stakeholders see important and what matters are rated less important. Additionally, the analysis methods were selected to enable the comparison of differences among stakeholder groups answers. The goal was to compare both the differences between external and internal stakeholders and the differences among all stakeholder groups. Thus, it is both an examination of one variable and a comparison of the relationship between two variables, in which case there is a need for different analysis methods (Vilkka, 2007). In general, it could be said that a descriptive analysis is used thorough, because the aim is specially to describe the phenomenon through statistics, which is typical of descriptive analysis (Olson & Lauhoff, 2019). According to Alson and Lauhoff (2019), for example, tables and figures, used in this thesis as well, are a common way of conducting descriptive analysis.

Next, the analysis process is presented step by step. At the beginning of the analysis, the measures of central tendency, i.e., mean, median and mode were calculated for each topic by respondent group. The method of analysis in question was selected because, according to Vilkka (2007), measures of tendency are a good way to present numerical information about stakeholders' opinions. Comparing differences between stakeholder responses' mean, mode and median, it was possible to analyze the differences in emphasis between stakeholder groups, both question-specific and topic-specific. In particular, the mode and mean were interesting statistics in this analysis, because the mode describes which answer is the most common among the responses of each stakeholder

group. Mean, as the name suggests, describes the mean values of the answers (Vilkka, 2007). While the comparison between the stakeholders was made with the help of measures of tendency, it was also analyzed which topics and sustainability matters the stakeholders felt were the most important for the case organization.

To complement the analysis of measures of tendency, frequency tables were formed as well. The frequency tables were created both by question and by topic to describe the differences in emphasis between the responses of the stakeholder groups. In addition, the frequency tables gave an indication of the sustainability aspects that the stakeholders considered important. Thus, it was possible to analyze question-by-question how large a percentage of each stakeholder group evaluated the question in the same way. In addition, the tabulation revealed which questions highlighted different extremes in the answers.

When describing the analysis of the measures of tendency, it should be mentioned that when the entire sample was examined, a weighted mean was used. Thus, all stakeholders were given equal weight, regardless of how many representatives each stakeholder group had. Consequently, the mean of the entire sample did not reflect the view of the largest stakeholder group, but evenly of all stakeholders' perspective.

Although the data can be analyzed using only measures of central tendency and frequency tables, the methods were chosen to complement with hypothesis testing. In addition, measures of central tendency and frequency tables indicate results that I wanted to test using statistical tests. Moreover, forming hypotheses was a natural continuation of the previous analysis. Through hypotheses, both the differences between internal and external stakeholders' responses as well as the differences among all stakeholders' responses were examined. Thus, the purpose of the hypotheses was not to cover all the research questions, but the assessment of the most important aspects of sustainability was left to other analysis methods. Therefore, the hypotheses were following:

H1: The responses of external and internal stakeholders do not differ significantly from each other in the majority of the questions.

H2: The answers of the stakeholder groups do not differ significantly from each other in the majority of the questions.

Null hypothesis: Responses of internal and external stakeholders differ significantly on all questions.

According to Ruxton (2006), t-test is suitable for comparing two independent variables. Hence, it was a clear choice for hypothesis testing as the answers of each stakeholder group can be seen as independent variables. T-tests are used to measure the difference of mean values between variables (Opinkirjo, n.d.), which also supports the applicability of the t-test to this study.

Before doing the t-tests, it was necessary to unravel whether the data follows normal distribution, as it determines which t-test can be used (Ruxton, 2006). The normal distribution was assessed using the previously mentioned frequency tables, which indicated that the responses to at least some of the questions do not follow a normal distribution. However, I still wanted to verify the indication using statistical methods. For each question, the skewness of the distribution was calculated. Skewness measures the symmetry of the distribution around zero, i.e., for negative values the distribution is biased to the left and for positive values to the right (Vilkka, 2007).

Based on the skewness of the distribution, the majority of t-tests were performed with Welch's test, also called unequal variance t-test (Ruxton, 2006). According to Ruxton (2006), Welch's t-test is particularly suitable for studies where the sample size is not large enough to reliably assume a normal distribution and in cases where the population variances differ significantly (Ruxton, 2006). Thus, Welch's t-test was selected for questions whose data did not follow a normal distribution. The t-tests for data following a normal distribution, were performed, according to Ruxton (2006), with the more common Student's t-test. Student's t-test has been commonly used, because when the sample is large, it is often assumed to follow a normal distribution, in which case Student's test is suitable (Ruxton, 2006).

In both t-tests, the two-tailed calculation method was chosen because it was more important to determine the existence of differences rather than their direction in this study. According to Leventhal and Huynh (1996), one-tailed tests give the result of whether the effect is in the same direction as the researcher's prediction, i.e., for example whether the studied data differs from the mean value negatively or positively. The two-tailed test, in contrast, indicates whether a significant difference exists at all (Leventhal & Huynh, 1996). According to Leventhal and Huynh (1996), it is common that after the two-tailed test results, the directions of the differences are examined with the help of visual graphs, which is also possible in this study. In addition, the unequal variances calculation method was used in the t-tests, because the variance of the samples could not be assumed to be equal.

Using t-tests, it was determined whether the data supports the hypotheses. The p-value obtained from the t-test indicates the likelihood of obtaining a result corresponding to the null hypothesis, i.e., a so-called incorrect result (Opinkirjo, n.d.). In this study, a threshold value of 0.05 was used, because the 5% significance level in question is considered statistically significant (Opinkirjo, n.d.). In other words, a difference is considered significant if there is at least a 95% probability.

In the last step of the analysis, qualitative content analysis was used. Therefore, the study was not fully quantitative. With content analysis, the researcher identifies the most important contents of the data (Tuomi & Sarajärvi, 2018). Content analysis was used in this thesis to compare the sustainability issues raised in research and literature. According to Tuomi and Sarajärvi (2018), it is important that the phenomenon under study can be expressed clearly. The

phenomenon can be expressed both abstractly and by describing, for example, what a photograph contains (Tuomi & Sarajärvi, 2018). In the case of this study, it is a case like the latter, as the materials were searched for repeated words that are linked to the sustainability of the wood processing industry. Finally, the themes that emerged from the articles are compared to the topics highlighted in this study.

4 RESULTS

This section presents the results obtained based on the analyses presented in more detail in the previous section. The section proceeds similarly to the analysis, starting with general findings. After the general findings, we move on to look at stakeholder-specific differences, and finally, through hypotheses, we examine whether the results can be summarized in terms of differences between internal and external stakeholders.

As already mentioned earlier, the analyses were selected based on that the research aimed to find out the differences between stakeholder groups as well as stakeholder views on the relevance of different aspects of sustainability in wood processing. The results have also been examined especially through the respective approaches.

4.1 General findings

In total, 52 responses were received to the survey, of which nine were office workers, 40 production workers and three customers. All own employees work at the Äänekoski site, but the customers who responded to the survey all worked in other European countries. The countries are not discussed in more detail, because the sample is too small to generalize and, in addition, it would harm the anonymity of the survey.

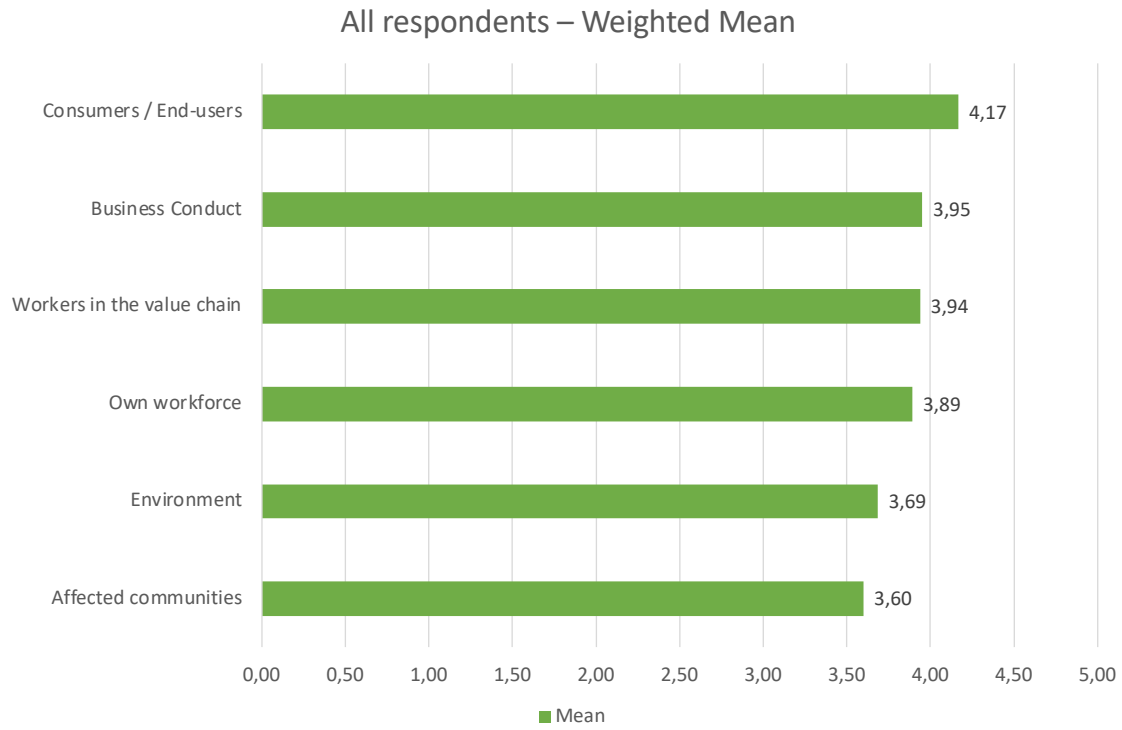

Figure 4: Weighted mean values of all respondents by topic.

On a general level, both the weighted mean values (Figure 4) and the measures of tendency (Table 2) show that stakeholders value all sustainability issues rather highly, as the mean of all topics is well above the midpoint (3) of the scale. The observation is also supported by Table 2, which shows that the majority of modes and medians are also more than three, so the answers are concentrated on four and five. Additionally, it is worth noting that although topic-specific differences are noticeable, they are quite small, with all means differing with a maximum difference of less than 0.6 decimals. Therefore, it cannot be said that some aspect of responsibility was not considered important.

However, some level of order of importance was noticeable based on the mean values, as can be seen from the Figure 4. According to the Figure 4, the consumers and end-users was a topic rated the highest. Also, medians (see Table 2), are in line with the mean. On the other hand, the result is certainly not completely unanimous, as the mode of production workers' answers is only three, while for the other stakeholder groups it is five. Another topic rated almost as highly is business conduct, the mean of which is also close to four. In this case as well, the medians follow the same line and are as high as for customers and end-users. The modes also indicate high importance as they are all from four to five. The third most important topic, according to the mean, is the workers in the value chain, whose mean is almost the same as that of business conduct. Similarly, to the mean, the mode and the median are also very close to those of business conduct. It could be summarized that the top three according to the mean are consumers/end-users, business conduct and workers in the value chain, while

when considering mode, the order is reversed. In addition, according to mode, own workforce shares third place with consumers/end-users. Viewed through the median, the top spot is shared by business conduct and consumers/end-users.

Affected communities are rated as the least important area according to the mean. The medians also give the same conclusion, although the difference in them compared to other topics is very small. When looking at the matter through mode, the environment has smaller modes than affected communities in the responses of both office workers and customers. All in all, it could therefore be said that the order of importance presented in Figure 4 is very indicative, but depending on the way of looking at it, the order may vary slightly.

With regard to the finding in question, it should be noted that the mean values have been calculated using a weighted mean e, i.e., each stakeholder group has the same weight despite the size of stakeholder groups. In addition, under the different topics, there is a different number of sustainability matters brought up for evaluation. Therefore, if there are only a few questions under a topic, the value of a single question is higher.

Table 2: Measures of tendency – All stakeholder groups by question.

Topics	Stakeholder group	Mean	Median	Mode
Business conduct	Office workers	3,78	4	4
	Production workers	3,50	4	5
	Customers	4,58	5	5
Own workforce	Office workers	4,00	4	4
	Production workers	3,68	4	5
	Customers	4,00	4	4
Workers in the value chain	Office workers	4,03	4	5
	Production workers	3,71	4	5
	Customers	4,08	4	5
Affected communitites	Office workers	3,44	4	4
	Production workers	3,36	3,5	4
	Customers	4,00	4	4
Consumers and end-users	Office workers	4,14	4	5
	Production workers	3,53	4	3
	Customers	4,83	5	5
Environment	Office workers	3,81	4	3
	Production workers	3,41	4	4
	Customers	3,83	4	3

Table 3: Mean values of responses by question.

Topics	Sub-topics & sub-sub-topics	Office workers - Mean values	Production workers - Mean values	Customers - Mean values	All respondents - Weighted mean values
Business conduct	Prevention of corruption and bribery	3,67	3,35	5,00	3,50
	Responsible tax payment	4,33	3,88	4,67	4,00
	Protection of whistleblowers	3,22	3,35	4,67	3,40
	Political activity and lobbying activities	2,67	2,85	4,00	2,88
	Management of supplier and subcontractor relationships and payment practices	4,33	3,85	5,00	4,00
	Data protection	3,78	3,48	4,33	3,58
	Organizational culture	4,33	3,53	4,33	3,71
	Ethical leadership	3,89	3,70	4,67	3,79
Own workforce	Safe/reliable job	4,56	3,40	4,00	3,63
	Adequate salary / compensation	4,00	4,05	4,33	4,06
	Collective bargaining	4,00	3,98	3,67	3,96
	Balance of work and family life	3,89	3,83	3,67	3,83
	Occupational health and safety	4,33	4,00	4,33	4,08
	Privacy at work	3,89	3,83	3,33	3,81
	Gender equality and equal pay	4,22	3,63	4,00	3,75
	Education and skills development	4,44	3,83	4,33	3,96
	Inclusion and diversity	3,78	3,35	4,33	3,48
	Employment of the disabled	2,22	2,70	4,00	2,69
	Violence and harassment prevention	4,56	3,88	4,00	4,00
	Prevention of discrimination in the workplace and recruitment	4,11	3,68	4,00	3,77
Workers in the value chain	Good working conditions in the supply chain	4,33	3,75	4,00	3,87
	Adequate salary in the supply chain	3,22	3,73	3,67	3,63
	No forced labor in the supply chain	4,11	3,63	4,33	3,75
	No child labor in the supply chain	4,44	3,73	4,33	3,88
Affected communitites	Active role in local communities	3,67	3,58	4,00	3,62
	Involvement of relevant stakeholders	3,67	3,38	4,00	3,46
	Human rights of relevant stakeholders	3,89	3,48	4,00	3,58
	Indigenous people	2,56	3,00	4,00	2,98
Consumers and end-users	Involvement of customers, consumers and end-users	4,11	3,25	5,00	3,50
	Security of customers, consumers and end-users	4,56	3,70	5,00	3,92
	Accessibility of products and services	4,44	3,73	4,33	3,88
	Non-discrimination of customers, consumers and end-users	3,44	3,45	5,00	3,54
Environment	Climate change	3,89	3,18	4,00	3,35
	Energy consumption	4,22	3,48	4,00	3,63
	Usage of water	3,56	3,25	3,67	3,33
	Land use	2,89	3,25	3,67	3,21
	Pollution of air, water or soil	3,89	3,45	4,00	3,56
	Biodiversity and ecosystems	4,22	3,38	3,67	3,54
	Circular economy and efficient use of resources	4,44	3,55	4,00	3,73
	Substances of high concern and harmful substances	3,56	3,60	4,00	3,62
	Waste and hazardous waste	3,67	3,60	4,33	3,65

Note: The table shows the mean values of each respondent group's answers by question, i.e., by sub-topics and sub-sub-topics. Lighter green cells refer to a mean of at least four, and darker green indicates means above 4.5.

The survey data is presented in more detail in Table 3, which lists all the questions of the survey in the Sub-topics & sub-sub-topics column, as well as the mean answers to them from each stakeholder group. In addition, the rightmost column also shows the weighted average of each question.

When looking at the mean values of all respondents, five questions that received the highest values are highlighted, i.e., matters that have exceeded the threshold value of four. All of these matters rated as the most important fall under either business conduct or own workforce. Based on the average values, the most important aspects of sustainability are therefore:

- Occupational health and safety (4.08)
- Adequate salary / compensation (4.06)
- Responsible tax payment (4.00)
- Management of supplier and subcontractor relationships and payment practices (4,00)
- Violence and harassment prevention (4.00)

Other matters also have high mean values; for example, collective bargaining and education and skills development have means of 3.96, and the security of customers, consumers, and end-users has a mean of 3.92. Therefore, the difference compared to these matters is not significant. It is interesting, however, that security of customers, consumers is the only matter exceeding the average of 3.9 that is not related to business conduct or own workforce. Based on the means of individual questions, business conduct and own workforce seem to be the most important topics.

Another notable finding in Table 3 is the difference of the means of customers' responses compared to other stakeholders' answers' means. There are significantly more values exceeding 4.5 in customers means, as there are eight of them, while office workers have three, and there are no values exceeding 4.5 in the averages of production workers. In addition, only seven of the mean values of the customer are below four, while, for example, most of the means of the production employees are below four. Based on the means of the individual answers, it seems that customers have valued sustainability matters the most, office workers the second most, and production workers the least.

It is also interesting that the questions rated the highest by customers are related to business conduct and consumers and end-users, while the highest mean values of production workers are found in matters related to own workforce. In addition, the highest means of office workers' answers are under the topics of own workforce and consumers and end-users. In light of these results, the means of office workers have the most similarities with other stakeholder groups, and the views of production workers and customers seem to differ the most from each other.

4.2 Findings – Customers

Figure 5: Mean values of customers' answers by topic.

The next closer look is on the averages of customer responses by topic. As was noticed earlier when looking at Table 3, consumers/end-users and business conduct emerged as the topics most valued by customers. The same conclusion can also be seen in Figure 5, which presents the means of customer responses by topic. Consumers and end users have the highest mean of customer responses, with value of 4.83, i.e., very close to the scale's maximum value of five. Business conduct is also rated high with an average of 4.58.

The environment has the lowest mean, which is exactly one less than the mean of the highest subject. On the other hand, the mean of the environment is close to four, i.e., 3.83, which is a comparatively high result. All in all, based on the mean values, customers value sustainability matters in general more highly than other stakeholder groups.

When comparing the customer's question-specific means (Table 3), it becomes clear that not one topic rises above the others, but the first place is shared by five matters that have been rated with the maximum value. According to the customers, the most important topics are:

- Prevention of corruption and bribery
- Management of supplier and subcontractor relationships and payment practices
- Involvement of customers, consumers and end users
- Security of customers, consumers and end users
- Non-discrimination of customers, consumers and end users

Collective bargaining, balance of work and family life, privacy at work, adequate salary in the supply chain, usage of water and land use and biodiversity and ecosystems were ranked as the least important. However, it must be remembered that all the customers' means were clearly above three, so there was not a big difference between the sustainability matters.

4.3 Findings – Office workers

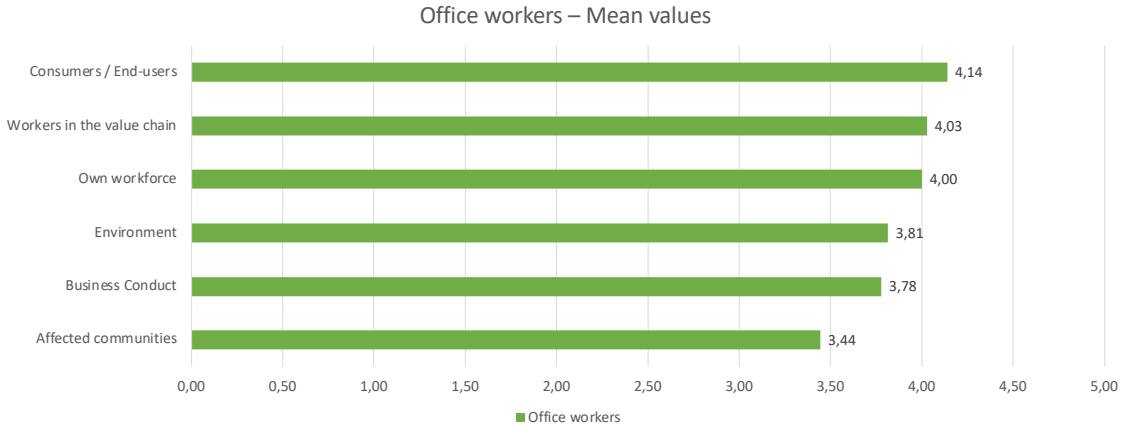

Figure 6: Mean values of office workers' answers by topic.

Unlike in the case of customers, the highest question-specific means shown in Table 3 do not reflect as strongly on the means of office workers' topics in Figure 6. Based on Table 3, the highest means of office workers were related to own workforce and consumers and end-users. When looking at topic-specific means (Figure 6), office workers have rated consumers and end-users the highest, and on the second place are workers in the value chain.

The lowest means is given to affected communities, although its mean 3.44 is only 0.7 lower than the mean of the first rated consumers/end-users. 3.44 is also clearly on the "better side" of the scale, which means that also for office workers, it cannot be said that some topic of sustainability is not considered important at all.

When looking at the office worker's question-specific means (Table 3), 17 sustainability matters have a mean value between 4.00 and 4.5, and three matters share the first place, i.e., they have the highest mean per question (4.56). Hence, the office workers have rated about half of the questions more than four, i.e., as either important or very important. The three most valued sustainability matters are:

- Safe / reliable job
- Violence and harassment prevention
- Security of customers, consumers and end-users

As can be concluded, about half of the questions received a mean value of less than four from the office workers. Among them, there are four sustainability matters that have received a mean of less than three, i.e., they have been seen as clearly less important than other issues. Based on the question-specific mean values (see Figure 3), the less important topics are employment of disabled, indigenous people, political activity and lobbying activities and land-use.

4.4 Findings – Production workers

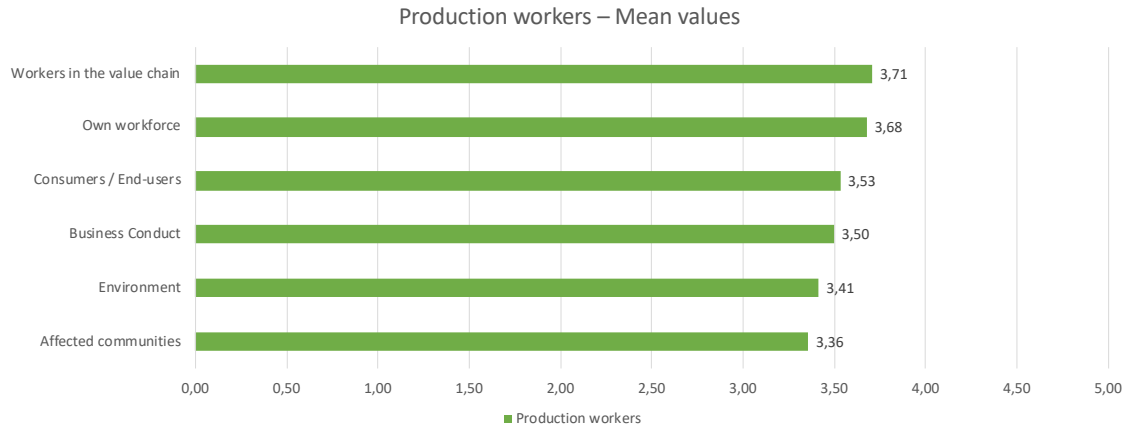

Figure 7: Mean values of production workers' answers by topic.

Contrary to what could have been concluded from the high means concerning own workforce in the question-specific means (Table 3), according to the topic-specific means, the production workers rated value chain workforce as the most important topic (see Figure 7). On the other hand, own labor force is in the second highest place, with a small difference to workers in the value chain in Figure 7, so in that sense the findings of the question-specific averages are understandable. The largest number of questions are under own workforce, so it is natural that there is a dispersion between the questions within the topic, which affects the topic-specific mean.

When looking at the more detailed question-specific means (see Table 3), it can be noticed that in the answers of production workers, the mean value four is exceeded remarkably less often than in the case of other stakeholder groups. However, two matters have a mean value of four or more and one matter is very close to them, so it is considered in the top three matters:

- Adequate salary / compensation
- Occupational health
- Collective bargaining (3.98)

The lowest question-specific means followed very much the same line as in the case of office workers. There was a mean of less than three or equal to three in three sustainability matters, which were employment of disabled, political activity and lobbying, indigenous people.

4.5 Findings - Frequency tables

Next in the review are the frequency tables, which support the previous analysis, bringing one more way of looking at it. The frequency tables especially bring added value by showing where the answers have been weighted, as well as what the dispersion has been between the different answer options.

First, the Table 4 shows, which values the answers are weighted towards. The approach in question differs from the mode in that the frequencies of each value of the scale are now visible. Table 4 describes the frequencies by topic, but Appendix 1 also lists the frequency tables by question. The sum row describes the number of observations, i.e., the number of answers to the questions, but in the topic-specific tables (Table 4) it does not mean the population size, because there is a different number of questions under the topics.

Table 4: Topic-specific frequency tables.

	Business conduct	Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	1	1 %	41	13 %	0	0 %
2	Somewhat unimportant	8	11 %	22	7 %	0	0 %
3	Neutral	16	22 %	90	28 %	1	4 %
4	Somewhat important	28	39 %	71	22 %	8	33 %
5	Very important	19	26 %	96	30 %	15	63 %
		0		0		0	
	Sum	72		320		24	
	Mean	3,78		3,50		4,58	

	Own workforce	Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	2	2 %	56	12 %	0	0 %
2	Somewhat unimportant	4	4 %	21	4 %	0	0 %
3	Neutral	14	13 %	113	24 %	12	33 %
4	Somewhat important	60	56 %	122	25 %	12	33 %
5	Very important	28	26 %	168	35 %	12	33 %
		0		0		0	
	Sum	108		480		36	
	Mean	4,07		3,81		4,00	

	Workers in the value chain	Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	15	9 %	0	0 %
2	Somewhat unimportant	3	8 %	6	4 %	0	0 %
3	Neutral	8	22 %	43	27 %	4	33 %
4	Somewhat important	10	28 %	43	27 %	3	25 %
5	Very important	15	42 %	53	33 %	5	42 %
		0		0		0	
	Sum	36		160		12	
	Mean	4,01		3,67		4,04	

	Affected communities	Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	2	6 %	23	14 %	0	0 %
2	Somewhat unimportant	4	11 %	7	4 %	0	0 %
3	Neutral	10	28 %	50	31 %	4	33 %
4	Somewhat important	16	44 %	50	31 %	4	33 %
5	Very important	4	11 %	30	19 %	4	33 %
		0		0		0	
	Sum	36		160		12	
	Mean	3,85		3,38		4,38	

	Consumers and end-users	Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	19	12 %	0	0 %
2	Somewhat unimportant	2	6 %	3	2 %	0	0 %
3	Neutral	6	17 %	54	34 %	1	8 %
4	Somewhat important	13	36 %	42	26 %	0	0 %
5	Very important	15	42 %	42	26 %	11	92 %
		0		0		0	
	Sum	36		160		12	
	Mean	3,96		3,52		4,00	

	Environment	Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	49	14 %	0	0 %
2	Somewhat unimportant	5	6 %	28	8 %	0	0 %
3	Neutral	29	36 %	95	26 %	10	37 %
4	Somewhat important	23	28 %	101	28 %	9	33 %
5	Very important	24	30 %	87	24 %	8	30 %
		0		0		0	
	Sum	81		360		27	
	Mean	3,71		3,39		10,75	

The green colour in Table 4 and Appendix 1 highlights the cases where more than half of the stakeholder's responses focused on a certain answer option. The customers have been particularly unanimous, especially for the topic consumers and end-users, where 92% of the answers are five. Similarly, for business conduct, 63% of their answers are five. It is also clear from the customers' frequencies that no customer has answered any question less than three times, which reinforces the previously mentioned notion that they see all sustainability issues as

important to some extent. When looking at the question-specific frequency tables in Appendix 1, the same observation can be made that the customers in particular have been quite unanimous in their answers, the vast majority of customers have answered the highest value, i.e., five, to questions 2, 5, 8, 10, 13, 16, 23, 24, 29, 30, 31 and 32. With customers, attention was also drawn to questions 12 and 38, to which 67% of customers had answered three, i.e. based on their answers, the response rate is high compared to the low value.

In the responses of office workers, the majority answered four to questions related to own workforce. Their answers are also clearly weighted for other topics, although not as strongly. For questions related to affected communities, 44% of the answers were four. On the other hand, responses to the topics consumers and end-users and workers in the value chain were weighted towards answer option five, with 42 percent. In the office workers' question-specific frequency tables (Appendix 1), attention is drawn to questions 2, 9, 24, 30 and 31, to which more than half of the office workers have answered 5. The office workers have also agreed on many other questions for answer options three and four.

The responses of the production workers have not focused as strongly on certain options, but it should also be noted that their sample is significantly larger than the others, which could have increased the dispersion. However, for example, 35% of the questions related to own workforce have focused on answer option of five. In questions about the value chain workforce, the answers have also been focused by 33 percent to five. From the question-specific frequencies (Appendix 1), question 10 stands out for employees in particular, to which half of the employees answered 5. In the case of a fairly large sample, the consensus in question is rare, as has already been stated before. Another question, for which more than half of the production workers answered three of the same answer, is question 29.

4.6 Findings - Hypothesis testing

After the frequencies, it was wanted to test the results through hypotheses to see if there is a statistically significant difference between the answers of different stakeholder groups. Consequently, the results of hypothesis testing will be examined next.

As mentioned in the analysis, the skewness of each group's responses was calculated before choosing a t-test. Table 5 shows a comparison between external and internal stakeholders, which shows both the skewness of the distribution, the t-test chosen based on it, and the resulting value. Dark green indicates significant skewness and light green indicates skewness. The red numbers highlight a statistically significant difference between the answers.

Majority of the questions had skew distribution, leading to usage of Welch's t-test. However, responses of twelve questions followed a normal distribution, so they were analysed using Student's t-test.

Table 5: The results of the t-tests by question – Internal vs. external stakeholders

Topic		Question / sustainability matter	Skewness	P-value Welch's	P-value Student's
Business conduct	1	Prevention of corruption and bribery	-0,347896536		2,53606E-10
	2	Responsible tax payment	-1,099425076	0,159381686	
	3	Protection of whistleblowers	-0,269195656		0,034032286
	4	Political activity and lobbying activities	0,114390526		0,167981704
	5	Management of supplier and subcontractor relationships and payment practices	-0,980508948	3,02524E-08	
	6	Data protection	-0,52826412	0,122821956	
	7	Organizational culture	-0,775854139	0,175447191	
	8	Ethical leadership	-0,646995026	0,086529541	
Own workforce	9	Safe/reliable job	-0,658540151	0,571089716	
	10	Adequate salary / compensation	-1,030131391	0,710166508	
	11	Collective bargaining	-1,109933227	0,458758265	
	12	Balance of work and family life	-0,969606602	0,680654232	
	13	Occupational health and safety	-1,151442081	0,728952124	
	14	Privacy at work	-0,796779655	0,270419257	
	15	Gender equality and equal pay	-0,781864149	0,702033862	
	16	Education and skills development	-1,099747954	0,622580075	
	17	Inclusion and diversity	-0,710430297	0,093726734	
	18	Employment of the disabled	0,189802938		0,128504374
	19	Violence and harassment prevention	-1,262787022	1	
	20	Prevention of discrimination in the workplace and recruitment	-0,903341373	0,724253272	
Workers in the value chain	21	Good working conditions in the supply chain	-0,716740912	0,8335259	
	22	Adequate salary in the supply chain	-0,418684702		0,906842577
	23	No forced labor in the supply chain	-0,748342474	0,46320391	
	24	No child labor in the supply chain	-0,961707063	0,56480586	
Affected communitites	25	Active role in local communities	-1,011161986	0,564659829	
	26	Involvement of relevant stakeholders	-0,571259324	0,438970501	
	27	Human rights of relevant stakeholders	-0,588525031	0,534749572	
	28	Considering indigenous peoples	-0,096429692		0,193419511
Consumers and end-users	29	Involvement of customers, consumers and end-users	-0,348155312		4,65926E-13
	30	Security of customers, consumers and end-users	-1,086894491	1,37658E-08	
	31	Accessibility of products and services	-0,98773044	0,559774547	
	32	Non-discrimination of customers, consumers and end-users	-0,445222033		1,52003E-11
Environment	33	Climate change	-0,379864271		0,348812641
	34	Energy consumption	-0,812958319	0,587362589	
	35	Usage of water	-0,399439808		0,398403531
	36	Land use	-0,2127973		0,28026633
	37	Pollution of air, water or soil	-0,535640316	0,520581836	
	38	Biodiversity and ecosystems	-0,680203465	0,86201399	
	39	Circular economy and efficient use of resources	-0,748342474	0,681777086	
	40	Substances of high concern and harmful substances	-0,485081083		0,547938603
	41	Waste and hazardous waste	-0,614733806	0,4058967	

Thus, according to Welch's test, only for two questions are the differences between internal and external stakeholders' answers statistically significant. According to the results of the Student's test, the answers to four questions differ significantly from each other. Therefore, it can be concluded that in the majority of questions, the differences in answers between internal and external stakeholders are not significant. However, the significantly different answers are clearly focused on two topics, business conduct and consumers and end-users.

Table 6, on the other hand, compares the responses between all different stakeholder groups. As in Table 5, also in Table 6 significantly different P-values

are marked in red. The skewness of the distributions and the tests used can be found in Appendix 2.

Table 6: T-test results - Comparison between all stakeholder groups.

Topic		Question / sustainability matter	Office vs. Customers - P-value	Office vs Production - P-value	Production vs. Customers - P-value
Business conduct	1	Prevention of corruption and bribery	0,007212278	0,485147494	2,90266E-08
	2	Responsible tax payment	0,483762894	0,217189938	0,115726515
	3	Protection of whistleblowers	0,022874191	0,675873396	0,03092765
	4	Political activity and lobbying activities	0,12707268	0,652188949	0,172848343
	5	Management of supplier and subcontractor relationships and payment practices	0,022203904	0,124538806	3,53887E-07
	6	Data protection	0,297644438	0,478857881	0,097868567
	7	Organizational culture	1	0,01521185	0,103745055
	8	Ethical leadership	0,12851237	0,565537671	0,08625298
Own workforce	9	Safe/reliable job	0,440725583	0,000312497	0,413218168
	10	Adequate salary / compensation	0,666666667	0,78543533	0,721593348
	11	Collective bargaining	0,4354966	0,922085514	0,467251069
	12	Balance of work and family life	0,601576423	0,825403096	0,706592125
	13	Occupational health and safety	1	0,183444378	0,676862768
	14	Privacy at work	0,267640873	0,863780067	0,272324179
	15	Gender equality and equal pay	0,746377398	0,055565195	0,601021713
	16	Education and skills development	0,885111078	0,020950044	0,538577993
	17	Inclusion and diversity	0,238193146	0,164153513	0,064211896
	18	Employment of the disabled	0,069476646	0,187998533	0,139773938
	19	Violence and harassment prevention	0,440725583	0,022254966	0,852960614
	20	Prevention of discrimination in the workplace and recruitment	0,872403781	0,205053807	0,632881885
Workers in the value chain	21	Good working conditions in the supply chain	0,641229143	0,10605073	0,719194734
	22	Adequate salary in the supply chain	0,351593652	0,146494761	0,886753385
	23	No forced labor in the supply chain	0,787311771	0,246200429	0,414617082
	24	No child labor in the supply chain	0,056742973	0,070260455	0,452698838
Affected communitites	25	Active role in local communities	0,630056837	0,759968302	0,554749381
	26	Involvement of relevant stakeholders	0,63377879	0,332895576	0,408910135
	27	Human rights of relevant stakeholders	0,878155665	0,324911333	0,453939729
	28	Considering indigenous peoples	0,106182837	0,328663785	0,216666341
Consumers and end-users	29	Involvement of customers, consumers and end-users	0,00920665	0,015599292	2,04461E-11
	30	Security of customers, consumers and end-users	0,035265203	0,002669988	5,22309E-08
	31	Accessibility of products and services	0,885467627	0,030347548	0,472651052
	32	Non-discrimination of customers, consumers and end-users	0,003305845	0,989898503	5,55251E-09
Environment	33	Climate change	0,872403781	0,042446698	0,285898057
	34	Energy consumption	0,746377398	0,022436661	0,456017049
	35	Usage of water	0,822115346	0,45666489	0,352866038
	36	Land use	0,124174447	0,224754444	0,352006526
	37	Pollution of air, water or soil	0,878155665	0,305235908	0,438390619
	38	Biodiversity and ecosystems	0,50270559	0,024498457	0,716410155
	39	Circular economy and efficient use of resources	0,527176271	0,001899506	0,537325276
	40	Substances of high concern and harmful substances	0,562807109	0,924199165	0,559151071
	41	Waste and hazardous waste	0,426467916	0,854234048	0,404383779

Compared to the results of Table 6 to Table 5, more significant differences were found in total. However, the differences are particularly focused on the answers between office workers and production workers. In addition, it can be noticed that the same questions are emphasized in the comparison between office workers and customers and between production workers and customers. It is

also worth noting that when comparing the answers of office workers and production workers to the answers of customers, all significant differences are focused on questions related to business conduct, as well as questions related to customers and end-users, which was expected find based on Table 5. Based on both table 5 and 6, the null hypothesis can be rejected and hypotheses 1 and 2 valid. However, the findings should be viewed critically, because even though the hypotheses are accepted, there are still significant differences for several questions.

4.7 Findings – Summary

Next is summarized the findings related to the most significant sustainability matters for the target organization, the differences in answers between different stakeholder groups, and the differences between internal and external stakeholders. In addition, the consistency of the sustainability matters rated important among stakeholders with the sustainability issues that have emerged from the literature are reviewed.

In summary, when looking at both the means of all respondent groups by question and the means per stakeholder group, 11 sustainability issues emerged that the stakeholders consider particularly important for the target organization. In this case, the threshold value was four, although for collective bargaining it was 3.98, because the difference was small. As stated earlier, choosing the threshold value is at the discretion of the reporter, so it cannot be said that matters below the threshold value are not important. Additionally, from the point of view of double materiality, there may be other matters still material for the organization to report about. However, in this study, the most important matters were wanted to be highlighted, and they are:

- Occupational health and safety (S1)
- Adequate salary / compensation (S1)
- Responsible tax payment (G1)
- Management of supplier and subcontractor relationships and payment practices (G1)
- Violence and harassment prevention (S1)
- Prevention of corruption and bribery (G1)
- Involvement of customers, consumers and end-users (S4)
- Security of customers, consumers and end-users (S4)
- Non-discrimination of customers, consumers and end-users (S4)
- Safe / reliable job (S1)
- Collective bargaining (S1)

The comparison between stakeholder groups revealed that there are differences between different stakeholder groups as well as individual answers, but the

differences are mostly not statistically significant. For example, the top three topics were very similar among different stakeholders, even though their order varied. When considering the ESG division of sustainability, the results show that no stakeholder group rated the environmental or governance dimension the highest. On the other hand, neither the environment nor the governance topics were considered the least important by any of the stakeholders. It could be concluded that the social dimension included both the most significant and the most insignificant topics or at least sub-topics, whether looking at the issue by topic or through individual questions.

Sustainability matters - Literature	Sustainability matters – Stakeholder survey
Life Cycle Assessment (LCA)	
Circular Economy	
Climate Change	
Carbon sinks	
Energy efficiency	
Resource efficiency	
Stakeholder engagement	Involvement of customers, consumers and end-users
Sustainability communication	Involvement of customers, consumers and end-users
End-user safety	Security of customers, consumers and end-users
Decent work	Prevention of corruption and bribery, Violence and harassment prevention
Jobs in rural areas	
Regulations	
Certificates	

Finally, it can be noted in Table 7 that although the questions in the stakeholder group survey contained many of the same themes as in earlier literature, the exact same matters did not appear among the most important sustainability matters. In the literature, the emphasis was largely on themes related to the environment, while the target organization's stakeholders valued social issues more. However, topics related to engaging stakeholders, sustainability communication, end-user safety and decent work also made it to the list of the survey's most important topics.

5 DISCUSSION

In the previous section, the results of the study were revealed. There were three key approaches, the sustainability issues that are significant for the target organization, the differences between stakeholder groups in the answers, and the differences between external and internal stakeholder groups. In this section, the results are examined especially in the light of the research questions and previous research.

There were three research questions in this study and all of them were answered in the results. The goal of the first research question was to find out which of the sustainability matters listed in the ESRS 1 stakeholders found important in the wood processing industry. As it was presented before, ESRS 1 sustainability matters are also called sub-topics and sub-sub-topics. In the results, the order of importance was analysed both by examining the question-specific averages of all stakeholders and the internal averages of each stakeholder group. In the end eleven sustainability matters presented in the summary of results were highlighted. As expected, matter concerning our own personnel appeared on the list, but it was somewhat surprising that not a single environmental issue made it to this list of the eleven most important matters.

Second research question considered differences between stakeholder group perceptions on the sustainability matters. Differences were explored both between all stakeholders and between external and internal stakeholders. When comparing the perceptions of all stakeholders, it was found that customers valued sustainability matters higher than other stakeholders. In addition, it was noticeable from the results that the views of customers and production workers differed the most from each other according to measures of tendency, while the views of office workers often settled in the middle ground. On the other hand, according to t-test, the responses between office workers and production workers differed the most.

Thus, it is clear that the differences were small, in which case the method of analysis significantly affected the results. Additionally, sustainability issues seemed to be generally quite important for all respondent groups because both the averages and the answers were usually weighted towards the upper end of

the scale. Based on the analyses made on the basis of means and frequencies, it also appeared that the rank orders of production workers and office workers were quite similar, even though the mean values of production workers were lower. For example, the three highest rated subject areas of both groups were the same, although in a different order.

On the other hand, when the difference between internal and external stakeholder groups was examined using t-tests, the differences were only significant for six questions, so the views of office workers and production workers did not differ significantly from the views of customers. When examining the statistical differences, however, it was interesting that significant differences arose only from questions related to business conduct and consumers and end-users. There were also similar findings when comparing all stakeholder groups. It could be therefore concluded that the topics in question appear very different depending on whether it is an internal or an external stakeholder group. In addition, it is possible that the conditions in the respondent's home country may affect the response tendency, as all representatives of internal stakeholders worked in Finland, while representatives of customers did not.

The third research question, on the other hand, sought to find out how the results of the study could be used in the double materiality assessment. As stated earlier, the matters valued as the most important can well be seen as key sustainability matters. However, setting the threshold value a little lower could also be considered, so that the number of material issues would be a little larger and thus the report would be more comprehensive. In addition, for example, an average of 3.5 is still high, so matter that exceed it can well be seen as material.

In addition to the actual research questions, the results revealed other interesting findings as well. Notably, it was surprising that the sustainability matters related to value chain workers were highly valued, given that Kurikka Timber's value chain is relatively short and simple. Therefore, it could have been assumed that sustainability matters related to the value chain would be considered less important. On the contrary, a surprising finding was that the office workers rated business conduct as the second lowest topic, even though matters related to it are their responsibility in the target organization. On the other hand, the result can be affected by the fact that Finnish law regulates many matters of business conduct, so it may be perceived as a matter of course, especially when it is a domestic company whose value chain is quite simple. In addition, it is possible that the stakeholders did not perceive sustainability issues as important from the point of view of the organization, because they are already well taken care of. If this is the case, it is particularly interesting that the employees of the value chain were seen as such a significant matter of sustainability, as compliance with the legislation concerning them can also be perceived as self-evident when it comes to a simple domestic value chain.

It was also interesting to compare stakeholders' expectations for the sustainability of products and the sustainability of companies. In their research, Harju and Lähtinen (2022) noticed that when buying products, customers do not value, for example, production conditions, while price and quality were valued.

In the stakeholder survey, the results were the opposite. In other words, the responses of the stakeholders showed a very strong tendency to value social issues.

5.1 Practical contributions

Although the results of the research cannot be generalized to the entire industry, they can nevertheless provide insights for practical contributions. There can be practical benefits both for the target organization and on a wider scale.

First of all, it was a little unclear in the survey whether the respondents understood the questions completely correctly, because, for example, production workers cannot be asked the reasons why they valued issues related to employees in the value chain higher than, for example, issues concerning themselves. Thus, based on this research, it could be recommended that companies prefer interviews conducted by a third party in order to obtain reliable views from their stakeholders.

On the other hand, the most significant practical benefit of this research is precisely for the target organization, because the results of the survey can be used in their double materiality assessment. As already stated above, the results reveal the most important matters of sustainability in the opinion of the stakeholders, but it is also possible to expand the scope. Thus, the survey gives the organization information about which topical ESRS standards they should implement a CSRD sustainability report according to. In addition, the company receives information about the views of its stakeholders to support its other operations as well. For example, information about customers' high appreciation of sustainability can be used in communication and strategy development.

Furthermore, this study showed that although differences between stakeholder responses may be small, they may still exist. One cannot be certain about the matter without finding out the views of their own stakeholders, so it can be hoped that this research will encourage other companies not obligated by CSRD to engage their stakeholders in their sustainability work.

5.2 Future research

In addition to practical contributions, the research provided many ideas for future research. First, several similar studies should be conducted in order for the results to be generalizable. Thus, it could be stated that the viewpoints of the stakeholders on the relevant responsibility topics in each sector should be studied more so that sector-specific benefits could be obtained. In addition, especially now that the CSRD is coming into force, there would be a need for stakeholder research so that sector-specific data would be available to support own stakeholder data. In addition, this study examined only a few stakeholder groups,

so it would be useful to examine the views of various wider stakeholders, i.e., to add to the study the views of, for example, activists, politicians, investors or forest owners.

Interesting further research opportunities could also be found in this study. In the future, it would be interesting to continue the research with qualitative methods and especially with interviews, because now the reasons behind the different evaluations were left to one's own guesses. It would be interesting and probably also valuable for companies to find out why, for example, customers saw environment as the least relevant area. Also, in terms of the reliability of the research, interviews could be a good addition, as they could be used to make sure that the research subjects understand the topics covered correctly. In the quantitative field a one-tailed t-test could also be an interesting research method, in order to see in which direction, the differences are. However, this would be so extensive as a study that it was not possible to include it in this thesis.

One different interesting research direction that emerged while doing this research is the engagement of stakeholders in sustainability reporting. So, especially now as a result of CSRD's requirements, it would be fruitful to find out what different ways stakeholders could be engaged and what kind of results could be achieved with these different ways.

5.3 Limitations

As with research in general, this study also has its own limitations, some of which have already been addressed in earlier sections. First of all, the survey samples were very different depending on the stakeholder group and, for example, only three respondents represented customers. Consequently, the comparison of the differences between the different stakeholders was not completely reliable, because, for example, the answers of the production personnel understandably varied more when there was a large group of respondents. However, in this organization, the response rates across all respondent groups were quite similar. This issue simply needed to be acknowledged, or interviews could be considered for future research. In addition, the research should be repeated in order to make sector-specific generalizations about the views of stakeholders.

Also, the varying number of questions under each topic must have affected the results in one way or another. When there are a small number of questions, the answers to one question are more important in terms of the overall mean of the topic. In addition, in the number of questions in the survey, the ESG division was not equal, which of course was a conscious choice. Consequently, the proportion of social issues has been emphasized in the survey, so the comparison of environmental, social and administrative themes is not completely reliable.

There were also points in the survey itself that possibly weakened the reliability of the survey and consequently the research as well. First, the vocabulary of the survey may not be familiar to the respondents, so there is no certainty that all the questions have been understood correctly. The answer

option "Neutral" may also have attracted to answer, even if the question has not been understood.

Limitations can also be identified from the research, considering the double materiality analysis. The survey has taken into account the importance of sustainability issues from the point of view of the target organization, even though the focus of impact materiality is more precisely on the impacts. Thus, the wording of the survey slightly differs from the double materiality assessment, but on the other hand, the change was aimed at increasing understandability. In addition, the survey did not examine future prospects, so they must be taken into account in the other stages of the assessment.

In addition, it is necessary to emphasize that the researcher's own subjective views are always reflected in the research in one way or another, even though the aim has been objectivity. For example, in this study, my prior expectations were that there would be some differences between the stakeholders' answers and that the responses of customers and production employees would differ the most from each other. It is therefore possible that the expectations in question have somehow influenced the interpretation of the results for instance, even though I have tried to look at them objectively. It should also be mentioned that when I used several analysis methods, the results were wide-ranging, and not all of them could be covered in this thesis. Thus, I focused on what I believe to be the most relevant issues, but another researcher could have made a different choice.

6 CONCLUSIONS

The focus of this thesis was to understand the views of stakeholders regarding the importance of different aspects of sustainability in the wood processing industry. In addition, the differences in the perceptions of different stakeholder groups were also a subject of interest. The research was carried out with a stakeholder survey based on double materiality assessment, which was sent to the target organization's own personnel and key customers. When analyzing the survey responses, measures of central tendency were compared and both Welch's and Student's t-tests were utilized.

In the results, based on the mean values, the most important topics were consumers and end-users, business conduct, workers in the value chain, and own workforce. In addition, eleven sustainability sub-topics and sub-sub-topics emerged as most significant in the views of the stakeholders. These sustainability matters considered e.g., occupational health, salary, ethical business, engagement and security of customers and end-users, as well as secure employment. Thus, the highest-rated sustainability matters were found under the topical ESRS standards S1 My workforce, G1 Business Conduct, and S4 Consumers and end-users.

In the comparison between stakeholders, it was noticed, for example, that customers valued sustainability matters higher than other stakeholders. In addition, the views of production workers and customers seemed to differ the most. Despite the differences, it turned out that the perceptions of stakeholders cannot be said to systematically differ significantly from each other. Only for six questions out of 41 questions was there a statistically significant difference between the answers of external and internal stakeholders. On the other hand, it cannot be generalized that the stakeholders agree on sustainability issues on average. Thus, the results of the study speak for the claim that in order to take into account the perceptions of stakeholders, the stakeholders must really be heard, and not rely on preconceived notions or generalizations.

From the point of view of the target organization, the thesis provides comprehensive information about their stakeholders' perceptions of CSRD-related sustainability issues, as well as supports the double materiality

assessment process. The research therefore gives one perspective on which things would be essential to include in the sustainability report. However, the wider significance of the thesis is precisely to encourage companies to find out the views of their stakeholders, because they do not necessarily comply with advance expectations. In addition, the study offers companies an opportunity to examine the benefits and weaknesses of survey research as a step in the double materiality assessment.

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REFERENCES

Abela, M. (2022). A new direction? The "mainstreaming" of sustainability reporting. *Sustainability accounting, management and policy journal (Print), 13*(6), 1261-1283. https://doi.org/10.1108/SAMPJ-06-2021-0201

Ali, I., Fukofuka, P. T., & Narayan, A. K. (2023). Critical reflections on sustainability reporting standard setting. *Sustainability accounting, management and policy journal (Print), 14*(4), 776-791. https://doi.org/10.1108/SAMPJ-01-2022-0054

Asiakastieto. (2024). *Kurikka Timber Oy*. https://www.asiakastieto.fi/yritykset/fi/kurikka-timber-oy/04607133/taloustiedot

Baumüller, J., & Sopp, K. (2022). Double materiality and the shift from non-financial to European sustainability reporting: Review, outlook and implications. *Journal of applied accounting research, 23*(1), 8-28. https://doi.org/10.1108/JAAR-04-2021-0114

Belal, A. R., & Roberts, R. W. (2010). Stakeholders' Perceptions of Corporate Social Reporting in Bangladesh. *Journal of business ethics, 97*(2), 311-324. https://doi.org/10.1007/s10551-010-0511-4

Bellucci, M., Simoni, L., Acuti, D., & Manetti, G. (2019). Stakeholder engagement and dialogic accounting: Empirical evidence in sustainability reporting. *Accounting, auditing & accountability journal, 32*(5), 1467-1499. https://doi.org/10.1108/AAAJ-09-2017-3158

Brundtland, G.H. (1987). *Our Common Future: Report of the World Commission on Environment and Development*. *UN-Dokument A/42/427*. http://www.un-documents.net/ocf-02.htm#I

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., . . . Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of research in nursing, 25*(8), 652-661. https://doi.org/10.1177/1744987120927206

Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of accounting studies, 26*(3), 1176-1248. https://doi.org/10.1007/s11142-021-09609-5

Christofi, A., Christofi, P., & Sisaye, S. (2012). Corporate sustainability: Historical development and reporting practices. *Management research news*, 35(2), 157-172. https://doi.org/10.1108/01409171211195170

De Vass, T., Nand, A. A., Bhattacharya, A., Prajogo, D., Croy, G., Sohal, A., & Rotaru, K. (2023). Transitioning to a circular economy: Lessons from the

wood industry. *The international journal of logistics management, 34*(3), 582-610. https://doi.org/10.1108/IJLM-04-2022-0200

Diwan, H., & Amarayil Sreeraman, B. (2023). From financial reporting to ESG reporting: A bibliometric analysis of the evolution in corporate sustainability disclosures. *Environment, development and sustainability*. https://doi.org/10.1007/s10668-023-03249-2

Directive 2022:2464. *Directive 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464

Directive 2014:95. *Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0095

Du Pisani, J. A. (2006). Sustainable development – historical roots of the concept. *Environmental Sciences*, *3*(2), 83–96. https://doi.org/10.1080/15693430600688831

EFRAG. (2022). *First set of draft ESRS & Basis for conclusions.* https://www.efrag.org/lab6

EFRAG. (2023). *[Draft] EFRAG IG 1: Materiality assessment implementation guidance.* https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2FDraft%2520EFRAG%2520IG%25201%2520MAIG%2520231222.pdf

European Commission. (2017). *Communication from the commission – Guidelines on non-financial reporting (methodology for reporting non-financial information).* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52017XC0705(01)

European Commission. (2019). *Communication from the commission. The European Green Deal.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN

European Commission. (2023). *Commission Delegated Regulation (EU) supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability standards*. https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2FESRS%25201%2520Delegated-act-2023-5303-annex-1_en.pdf

European Commission. (2024). *Corporate sustainability due diligence.* https://commission.europa.eu/business-economy-euro/doing-business-eu/corporate-sustainability-due-diligence_en

Ferrero-Ferrero, I., Fernández-Izquierdo, M. Á., Muñoz-Torres, M. J., & Bellés-Colomer, L. (2018). Stakeholder Engagement in Sustainability Reporting in Higher Education: An Analysis of Key Internal Stakeholders'

Expectations. *International journal of sustainability in higher education, 19*(2), 313-336. https://doi.org/10.1108/IJSHE-06-2016-0116

Freudenreich, B., Lüdeke-Freund, F., & Schaltegger, S. (2020). A Stakeholder Theory Perspective on Business Models: Value Creation for Sustainability. *Journal of business ethics, 166*(1), 3-18. https://doi.org/10.1007/s10551-019-04112-z

Global Reporting Initiative. (n.d.). *The global standards for sustainability impacts*, *GRI - Standards*. https://www.globalreporting.org/standards

Gokten, S., Ozerhan, Y., & Gokten, P. O. (2020). The historical development of sustainability reporting: A periodic approach. Zeszyty teoretyczne rachunkowości, 107(163), 99-118. https://doi.org/10.5604/01.3001.0014.2466

Greenhouse Gas Protocol. (n.d.). *About us.* https://ghgprotocol.org/about-us

Harju, C., & Lähtinen, K. (2022). Consumers' Consciousness for Sustainable Consumption and Their Perceptions of Wooden Building Product Quality. *Forest products journal, 72*(3), 155-169. https://doi.org/10.13073/FPJ-D-22-00014

Herremans, I. M., Nazari, J. A., & Mahmoudian, F. (2016). Stakeholder Relationships, Engagement, and Sustainability Reporting. *Journal of business ethics, 138*(3), 417-435. https://doi.org/10.1007/s10551-015-2634-0

Hirsjärvi, S., Remes, P. & Sajavaara, P. (2005). Tutki ja kirjoita. 11 uudistettu painos. Helsinki: Tammi.

Hummel, K., & Jobst, D. (2024). An overview of corporate sustainability reporting legislation in the European Union. *Accounting in Europe*, 1–36. https://doi.org/10.1080/17449480.2024.2312145

Husgafvel, R., Watkins, G., Linkosalmi, L., & Dahl, O. (2013). Review of sustainability management initiatives within Finnish forest products industry companies—Translating Eu level steering into proactive initiatives. *Resources, conservation and recycling, 76*, 1-11. https://doi.org/10.1016/j.resconrec.2013.04.006

Hyytiä, A. (2022). Sustainable Development- International Framework-Overview and Analysis in the Context of Forests and Forest Products-Competitiveness and Policy. *Forest Products Journal, 72*, 1-4. https://doi.org/10.13073/FPJ-D-20-00053

IFRS. (n.d.) *International Sustainability Standards board.* https://www.ifrs.org/groups/international-sustainability-standards-board/

Integrated Reporting. (n.d.) *Integrated Reporting Framework.* https://integratedreporting.ifrs.org/resource/international-ir-framework/

Kallioinen, S. (n.d.). Äänekosken kaupungin perusinfo. Äänekoski. https://www.aanekoski.fi/hallinto-ja-paatokset/tietoa-aanekoskesta/kaupungin-perusinfo

Khatri, I., & Kjærland, F. (2023). Sustainability reporting practices and environmental performance amongst nordic listed firms. *Journal of cleaner production, 418*, 138172. https://doi.org/10.1016/j.jclepro.2023.138172

KPMG. (2022). *Survey of Sustainability Reporting 2022.* https://assets.kpmg.com/content/dam/kpmg/se/pdf/komm/2022/Global-Survey-of-Sustainability-Reporting-2022.pdf

Kurikka Timber. (n.d.). *Kun materiaalina on pohjoinen puu, lopputulos on aina laadukas.* https://kurikkatimber.fi

Larrinaga, C., & Bebbington, J. (2021). The pre-history of sustainability reporting: A constructivist reading. *Accounting, auditing & accountability journal, 34*(9), 162-181. https://doi.org/10.1108/AAAJ-03-2017-2872

Leventhal, L., & Huynh, C. (1996). Directional Decisions for Two-Tailed Tests: Power, Error Rates, and Sample Size. *Psychological methods, 1*(3), 278-292. https://doi.org/10.1037/1082-989X.1.3.278

Lodhia, S., Kaur, A., & Stone, G. (2020). The use of social media as a legitimation tool for sustainability reporting: A study of the top 50 Australian Stock Exchange (ASX) listed companies. *Meditari accountancy research, 28*(4), 613-632. https://doi.org/10.1108/MEDAR-09-2019-0566

Niskala, M., & Palmuaro, S. (2023). *Uudet kestävyysraportointivaatimukset: Mitä ne tarkoittavat käytännössä?* Alma Talent.

Olson, D. L. k., & Lauhoff, G. k. (2019). *Descriptive Data Mining* (2nd ed. 2019.). Springer Singapore. https://doi.org/10.1007/978-981-13-7181-3

Opinkirjo. (n.d.). *Aineiston analysointi.* https://opinkirjo.fi/tutkimuksen-perusteet/aineiston-analysointi/

Ottenstein, P., Erben, S., Jost, S., Weuster, C. W., & Zülch, H. (2022). From voluntarism to regulation: Effects of Directive 2014/95/EU on sustainability reporting in the EU. *Journal of applied accounting research*, 23(1), 55-98. https://doi.org/10.1108/JAAR-03-2021-0075

Palander, T., Haavikko, H., Kortelainen, E., Kärhä, K., & Borz, S. A. (2020). Improving Environmental and Energy Efficiency in Wood Transportation for a Carbon-Neutral Forest Industry. *Forests, 11*(11), 1194. https://doi.org/10.3390/f11111194

Peters, D. M., Wirth, K., Böhr, B., Ferranti, F., Górriz-Mifsud, E., Kärkkäinen, L., . . . Zadnik Stirn, L. (2015). Energy wood from forests—stakeholder perceptions in five European countries. *Energy, sustainability and society, 5*(1), 1-12. https://doi.org/10.1186/s13705-015-0045-9

Ruxton, G. D. (2006). The unequal variance t-test is an underused alternative to Student's t-test and the Mann–Whitney U test. *Behavioral ecology, 17*(4), 688-690. https://doi.org/10.1093/beheco/ark016

Räty, T., Toppinen, A., Roos, A., Riala, M., & Nyrud, A. Q. (2016). Environmental Policy in the Nordic Wood Product Industry: Insights Into Firms' Strategies and Communication. *Business strategy and the environment, 25*(1), 10-27. https://doi.org/10.1002/bse.1853

Schaubroeck, T., Alvarenga, R. A. F., Verheyen, K., Muys, B., & Dewulf, J. (2013). Quantifying the Environmental Impact of an Integrated

Human/Industrial-Natural System Using Life Cycle Assessment; A Case Study on a Forest and Wood Processing Chain. Environmental science & technology, 47(23), 13578-13586. https://doi.org/10.1021/es4046633
So, H. W., & Lafortezza, R. (2022). Reviewing the impacts of eco-labelling of forest products on different dimensions of sustainability in Europe. *Forest policy and economics, 145*, 102851. https://doi.org/10.1016/j.forpol.2022.102851
Toppinen, A., Toivonen, R., Valkeapää, A., & Rämö, A. (2013). Consumer perceptions of environmental and social sustainability of wood products in the Finnish market. *Scandinavian journal of forest research, 28*(8), 775-783. https://doi.org/10.1080/02827581.2013.824021
Torelli, R., Balluchi, F., & Furlotti, K. (2020). The materiality assessment and stakeholder engagement: A content analysis of sustainability reports. *Corporate social-responsibility and environmental management, 27*(2), 470-484. https://doi.org/10.1002/csr.1813
Tuomi, J., & Sarajärvi, A. (2018). *Laadullinen tutkimus ja sisällönanalyysi* (Uudistettu laitos.). Kustannusosakeyhtiö Tammi.
Tuppura, A., Toppinen, A., & Puumalainen, K. (2016). Forest Certification and ISO 14001: Current State and Motivation in Forest Companies. *Business strategy and the environment, 25*(5), 355-368. https://doi.org/10.1002/bse.1878
United Nations. (n.d.a). *The Paris Agreement*. https://www.un.org/en/climatechange/paris-agreement
United Nations. (n.d.b) *History*. https://sdgs.un.org/goals#history
Vilkka, H. (2007). *Tutki ja mittaa: Määrällisen tutkimuksen perusteet*. Tammi.
Vilkka, H. (2021). *Tutki ja kehitä* (5., päivitetty painos.). PS-kustannus.
Wolfslehner, B., Huber, P., & Lexer, M. J. (2013). Smart use of small-diameter hardwood – A forestry-wood chain sustainability impact assessment in Austria. *Scandinavian journal of forest research, 28*(2), 184-192. https://doi.org/10.1080/02827581.2012.686626

APPENDICES

APPENDIX 1: FREQUENCY TABLES PER QUESTION

Q1		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	7	18 %	0	0 %
2	Somewhat unimportant	2	22 %	5	13 %	0	0 %
3	Neutral	1	11 %	9	23 %	0	0 %
4	Somewhat important	4	44 %	5	13 %	0	0 %
5	Very important	2	22 %	14	35 %	3	100 %
		0		0		0	
Sum		9		40		3	

Q2		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	5	13 %	0	0 %
2	Somewhat unimportant	0	0 %	0	0 %	0	0 %
3	Neutral	2	22 %	8	20 %	0	0 %
4	Somewhat important	2	22 %	9	23 %	1	33 %
5	Very important	5	56 %	18	45 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q3		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	11 %	2	25 %	0	0 %
2	Somewhat unimportant	0	33 %	2	10 %	0	0 %
3	Neutral	0	33 %	7	38 %	1	33 %
4	Somewhat important	6	22 %	12	10 %	0	33 %
5	Very important	3	0 %	17	18 %	2	33 %
		0		0		0	
Sum		9		40		3	

Q4		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	1	11 %	10	25 %	0	0 %
2	Somewhat unimportant	3	33 %	4	10 %	0	0 %
3	Neutral	3	33 %	15	38 %	1	33 %
4	Somewhat important	2	22 %	4	10 %	1	33 %
5	Very important	0	0 %	7	18 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q5		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	3	8 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	1	11 %	10	25 %	0	0 %
4	Somewhat important	4	44 %	11	28 %	0	0 %
5	Very important	4	44 %	15	38 %	3	100 %
		0		0		0	
Sum		9		40		3	

Q6		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	2	22 %	4	10 %	0	0 %
3	Neutral	0	0 %	11	28 %	0	0 %
4	Somewhat important	5	56 %	11	28 %	2	67 %
5	Very important	2	22 %	10	25 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q7		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	0	0 %	3	8 %	0	0 %
3	Neutral	1	11 %	10	25 %	0	0 %
4	Somewhat important	4	44 %	14	35 %	2	67 %
5	Very important	4	44 %	9	23 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q8		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	3	8 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
3	Neutral	3	33 %	12	30 %	0	0 %
4	Somewhat important	4	44 %	10	25 %	1	33 %
5	Very important	2	22 %	13	33 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q9		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	7	18 %	0	0 %
2	Somewhat unimportant	0	0 %	3	8 %	0	0 %
3	Neutral	0	0 %	10	25 %	1	33 %
4	Somewhat important	4	44 %	7	18 %	1	33 %
5	Very important	5	56 %	13	33 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q10		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	2	5 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	0	0 %	10	25 %	1	0 %
4	Somewhat important	9	100 %	7	18 %	0	0 %
5	Very important	0	0 %	20	50 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q11		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	3	8 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	1	11 %	8	20 %	1	33 %
4	Somewhat important	7	78 %	10	25 %	2	67 %
5	Very important	1	11 %	18	45 %	0	0 %
		0		0		0	
Sum		9		40		3	

Q12		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
3	Neutral	2	22 %	7	18 %	1	67 %
4	Somewhat important	6	67 %	11	28 %	2	67 %
5	Very important	1	11 %	16	40 %	0	0 %
		0		0		0	
Sum		9		40		3	

Q13		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
100 %	Not at all important	0	0 %	2	5 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
300 %	Neutral	0	0 %	7	18 %	1	33 %
4	Somewhat important	6	67 %	12	30 %	0	0 %
5	Very important	3	33 %	17	43 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q14		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
100 %	Not at all important	0	0 %	3	8 %	0	0 %
2	Somewhat unimportant	1	11 %	2	5 %	0	0 %
300 %	Neutral	1	11 %	10	25 %	2	67 %
4	Somewhat important	5	56 %	9	23 %	1	33 %
5	Very important	2	22 %	16	40 %	0	0 %
		0		0		0	
Sum		9		40		3	

Q15		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
100 %	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
300 %	Neutral	1	11 %	13	33 %	1	33 %
4	Somewhat important	5	56 %	10	25 %	1	33 %
5	Very important	3	33 %	12	30 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q16		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	3	8 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	0	0 %	9	23 %	1	33 %
4	Somewhat important	5	56 %	14	35 %	0	0 %
5	Very important	4	44 %	13	33 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q17		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	6	15 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	3	33 %	13	33 %	0	0 %
4	Somewhat important	5	56 %	13	33 %	2	67 %
5	Very important	1	11 %	7	18 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q18		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	2	22 %	11	28 %	0	0 %
2	Somewhat unimportant	3	33 %	6	15 %	0	0 %
3	Neutral	4	44 %	11	28 %	1	33 %
4	Somewhat important	0	0 %	8	20 %	1	33 %
5	Very important	0	0 %	4	10 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q19		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	6	15 %	0	0 %
2	Somewhat unimportant	0	0 %	0	0 %	0	0 %
3	Neutral	0	0 %	6	15 %	1	33 %
4	Somewhat important	4	44 %	9	23 %	1	33 %
5	Very important	5	56 %	19	48 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q20		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	5	13 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	2	22 %	9	23 %	1	33 %
4	Somewhat important	4	44 %	12	30 %	1	33 %
5	Very important	3	33 %	13	33 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q21		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	2	5 %	0	0 %
2	Somewhat unimportant	0	0 %	3	8 %	0	0 %
3	Neutral	2	22 %	10	25 %	1	33 %
4	Somewhat important	2	22 %	13	33 %	1	33 %
5	Very important	5	56 %	12	30 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q22		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	2	5 %	0	0 %
2	Somewhat unimportant	2	22 %	2	5 %	0	0 %
3	Neutral	3	33 %	13	33 %	1	33 %
4	Somewhat important	4	44 %	11	28 %	2	67 %
5	Very important	0	0 %	12	30 %	0	0 %
		0		0		0	
Sum		9		40		3	

Q23		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	1	11 %	1	3 %	0	0 %
3	Neutral	1	11 %	12	30 %	1	33 %
4	Somewhat important	3	33 %	12	30 %	0	0 %
5	Very important	4	44 %	11	28 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q24		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	7	18 %	0	0 %
2	Somewhat unimportant	0	0 %	0	0 %	0	0 %
3	Neutral	2	22 %	8	20 %	1	33 %
4	Somewhat important	1	11 %	7	18 %	0	0 %
5	Very important	6	67 %	18	45 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q25		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	1	11 %	1	3 %	0	0 %
3	Neutral	1	11 %	10	25 %	1	33 %
4	Somewhat important	7	78 %	18	45 %	1	33 %
5	Very important	0	0 %	7	18 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q26		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	4	44 %	17	43 %	1	33 %
4	Somewhat important	4	44 %	12	30 %	1	33 %
5	Very important	1	11 %	6	15 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q27		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	5	13 %	0	0 %
2	Somewhat unimportant	1	11 %	2	5 %	0	0 %
3	Neutral	2	22 %	12	30 %	1	33 %
4	Somewhat important	3	33 %	11	28 %	1	33 %
5	Very important	3	33 %	10	25 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q28		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	2	22 %	10	25 %	0	0 %
2	Somewhat unimportant	2	22 %	3	8 %	0	0 %
3	Neutral	3	33 %	11	28 %	1	33 %
4	Somewhat important	2	22 %	9	23 %	1	33 %
5	Very important	0	0 %	7	18 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q29		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	5	13 %	0	0 %
2	Somewhat unimportant	0	0 %	1	3 %	0	0 %
3	Neutral	2	22 %	21	53 %	0	0 %
4	Somewhat important	4	44 %	5	13 %	0	0 %
5	Very important	3	33 %	8	20 %	3	100 %
		0		0		0	
Sum		9		40		3	

Q30		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
3	Neutral	0	0 %	7	18 %	0	0 %
4	Somewhat important	4	44 %	16	40 %	0	0 %
5	Very important	5	56 %	11	28 %	3	100 %
		0		0		0	
Sum		9		40		3	

Q31		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	0	0 %	0	0 %	0	0 %
3	Neutral	1	11 %	11	28 %	1	33 %
4	Somewhat important	3	33 %	13	33 %	0	0 %
5	Very important	5	56 %	12	30 %	2	67 %
		0		0		0	
Sum		9		40		3	

Q32		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	6	15 %	0	0 %
2	Somewhat unimportant	2	22 %	0	0 %	0	0 %
3	Neutral	3	33 %	15	38 %	0	0 %
4	Somewhat important	2	22 %	8	20 %	0	0 %
5	Very important	2	22 %	11	28 %	3	100 %
		0		0		0	
Sum		9		40		3	

Q33		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	5	13 %	0	0 %
2	Somewhat unimportant	0	0 %	7	18 %	0	0 %
3	Neutral	3	33 %	10	25 %	1	33 %
4	Somewhat important	4	44 %	12	30 %	1	33 %
5	Very important	2	22 %	6	15 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q34		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	6	15 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
3	Neutral	1	11 %	9	23 %	1	33 %
4	Somewhat important	5	56 %	13	33 %	1	33 %
5	Very important	3	33 %	10	25 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q35		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	7	18 %	0	0 %
2	Somewhat unimportant	1	11 %	3	8 %	0	0 %
3	Neutral	4	44 %	11	28 %	1	33 %
4	Somewhat important	2	22 %	11	28 %	2	67 %
5	Very important	2	22 %	8	20 %	0	0 %
		0		0		0	
Sum		9		40		3	

Q36		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	6	15 %	0	0 %
2	Somewhat unimportant	2	22 %	5	13 %	0	0 %
3	Neutral	6	67 %	10	25 %	1	33 %
4	Somewhat important	1	11 %	11	28 %	2	67 %
5	Very important	0	0 %	8	20 %	0	0 %
		0		0		0	
Sum		9		40		3	

Q37		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	6	15 %	0	0 %
2	Somewhat unimportant	0	0 %	3	8 %	0	0 %
3	Neutral	5	56 %	9	23 %	1	33 %
4	Somewhat important	0	0 %	11	28 %	1	33 %
5	Very important	4	44 %	11	28 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q38		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	6	15 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
3	Neutral	2	22 %	11	28 %	2	67 %
4	Somewhat important	3	33 %	13	33 %	0	0 %
5	Very important	4	44 %	8	20 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q39		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
3	Neutral	0	0 %	13	33 %	1	33 %
4	Somewhat important	5	56 %	10	25 %	1	33 %
5	Very important	4	44 %	11	28 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q40		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	4	10 %	0	0 %
2	Somewhat unimportant	2	22 %	2	5 %	0	0 %
3	Neutral	3	33 %	12	30 %	1	33 %
4	Somewhat important	1	11 %	10	25 %	1	33 %
5	Very important	3	33 %	12	30 %	1	33 %
		0		0		0	
Sum		9		40		3	

Q41		Office workers - Frequency	Office workers - % Frequency	Production workers - Frequency	Production workers - % Frequency	Customers- Frequency	Customers- % Frequency
1	Not at all important	0	0 %	5	13 %	0	0 %
2	Somewhat unimportant	0	0 %	2	5 %	0	0 %
3	Neutral	5	56 %	10	25 %	1	33 %
4	Somewhat important	2	22 %	10	25 %	0	0 %
5	Very important	2	22 %	13	33 %	2	67 %
		0		0		0	
Sum		9		40		3	

APPENDIX 2: T-test results by variables and test methods

		Skewness - Office workers	Student's t-test - Office vs. Customers	Welch's t-test - Office vs. Customers	Student's t-test - Office vs Production	Welch's t-test - Office vs. Production	Skewness - Production workers	Student's t-test - Production vs.Customers	Welch's t-test Production vs. Customers
Q1	Prevention of corruption and bribery	-0,442718872	0,007212278		0,485147494		-0,295307407	2,90266E-08	
Q2	Responsible tax payment	-0,680413817		0,483762894		0,217189938	-1,055544085		0,115726515
Q3	Protection of whistleblowers	-0,209922326	0,022874191		0,675873396		-0,313905947	0,03092765	
Q4	Political activity and lobbying activities	-0,088388348	0,12707268		0,652188949		0,096498228	0,172848343	
Q5	Management of supplier and subcontractor relationships and payment practices	-0,5		0,022203904		0,124538806	-0,913418005		3,53887E-07
Q6	Data protection	-0,764860368		0,297644438		0,478857881	-0,487424635	0,097868567	
Q7	Organizational culture	-0,5		1		0,01521185	-0,660477472		0,103745055
Q8	Ethical leadership	0,178165795	0,12851237		0,565537671		-0,659387036		0,08625298
Q9	Safe/reliable job	-0,223606798	0,440725583		0,000312497		-0,420986028	0,413218168	
Q10	Adequate salary / compensation	1		0,666666667		0,78543533	-1,01136405		0,721593348
Q11	Collective bargaining	0	0,4354966		0,922085514		-1,098946837		0,467251069
Q12	Balance of work and family life	-0,015085857	0,601576423		0,825403096		-0,951489599		0,706592125
Q13	Occupational health and safety	0,707106781		1		0,183444378	-1,073312629		0,676862768
Q14	Privacy at work	-0,778387875		0,267640873		0,863780067	-0,812951207		0,272324179
Q15	Gender equality and equal pay	-0,209922326	0,746377398		0,055565195		-0,664833972		0,601021713
Q16	Education and skills development	0,223606798	0,885111078		0,020950044		-0,977913837		0,538577993
Q17	Inclusion and diversity	0,209922326	0,238193146		0,164153513		-0,607430956		0,064211896
Q18	Employment of the disabled	-0,41295036	0,069476646		0,187998533		0,111781905	0,139773938	
Q19	Violence and harassment prevention	-0,223606798	0,440725583		0,022254966		-1,089544885		0,852960614
Q20	Prevention of discrimination in the workplace and recruitment	-0,178165795	0,872403781		0,205053807		-0,840571056		0,632881885
Q21	Good working conditions in the supply chain	-0,680413817		0,641229143		0,10605073	-0,694630161		0,719194734
Q22	Adequate salary in the supply chain	-0,41295036	0,351593652		0,146494761		-0,582196045		0,886753385
Q23	No forced labor in the supply chain	-0,902812446		0,787311771		0,246200429	-0,732641491		0,414617082
Q24	No child labor in the supply chain	-0,983139568		0,056742973		0,070260455	-0,850792126		0,452698838
Q25	Active role in local communities	-1,75		0,630056837		0,759968302	-0,944915813		0,554749381
Q26	Involvement of relevant stakeholders	0,5	0,63377879		0,332895576		-0,550959995		0,408910135
Q27	Human rights of relevant stakeholders	-0,45559885	0,878155665		0,324911333		-0,574132272		0,453939729
Q28	Considering indigenous peoples	-0,145053505	0,106182837		0,328663785		-0,159099026	0,216666341	
Q29	Involvement of customers, consumers and end-users	-0,178165795	0,00920665		0,015599292		-0,217974347	2,04461E-11	
Q30	Security of customers, consumers and end-users	-0,223606798	0,035265203		0,002669988		-0,940409705		5,22309E-08
Q31	Accessibility of products and services	-0,836721014		0,885467627		0,030347548	-0,905959232		0,472651052
Q32	Non-discrimination of customers, consumers and end-users	0,145053505	0,003305845		0,989898503		-0,534783849		5,55251E-09
Q33	Climate change	0,178165795	0,872403781		0,042446698		-0,255911929	0,285898057	
Q34	Energy consumption	-0,209922326	0,746377398		0,022436661		-0,659104641		0,456017049
Q35	Usage of water	0,223069793	0,822115346		0,45666489		-0,400131159	0,352866038	
Q36	Land use	-0,015085857	0,124174447		0,224754444		-0,335658701	0,352006526	
Q37	Pollution of air, water or soil	0,223606798	0,878155665		0,305235908		-0,551634587		0,438390619
Q38	Biodiversity and ecosystems	-0,41295036	0,50270559		0,024498457		-0,582171683		0,716410155
Q39	Circular economy and efficient use of resources	0,223606798	0,527176271		0,001899506		-0,566021851		0,537325276
Q40	Substances of high concern and harmful substances	0,076277007	0,562807109		0,924199165		-0,621634858		0,559151071
Q41	Waste and hazardous waste	0,680413817		0,426467916		0,854234048	-0,674445846		0,404383779