DOES THE CURRENT SUSTAINABILITY REPORTING OF THE SOFTWARE COMPANY MEET THE REQUIREMENTS OF EUROPEAN SUSTAINABILITY REPORTING STANDARDS: A CASE STUDY

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ABSTRACT

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Abstract

The environment in which organizations operate is changing and with sustainability reporting they can transparently address the economic, environmental, social, and governance impacts of the company's processes. The importance of corporate social responsibility is increasing internationally, and European Union has responded to this with a new regulation. The European Sustainability Reporting Standard (ESRS) defines a standardized framework for evaluating material negative and positive impacts as well as risk and opportunities regarding the undertaking's sustainability. The purpose of this study was to analyze the current sustainability reporting model of software company Pinja Group Oy and define if it meets the requirements of European Sustainability Reporting Standards. To evaluate the company's current sustainability report, Global Reporting Initiative (GRI) indicators and metrics were compared to the new ESRS requirements. The comparability with ESRS was analyzed with gathering both qualitative and quantitative data regarding sustainability reporting frameworks from EU legislation, global frameworks, and from the company data. The sustainability reporting of Pinja Group was evaluated to meet the minimum ESRS requirements of financial reporting. The current GRI-based reporting met climate change, own workforce, and consumer as well as business conduct ESRS requirements which were material. To present an extensive picture of their sustainability impacts in the future, the organization should conduct double materiality assessment as a first step to meet the requirements of ESRS.

Key words
CSRD, GRI, material impacts, Sustainability reporting framework

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Tiivistelmä Ympäristö, jossa organisaatiot toimivat, on muuttumassa, ja kestävän kehityksen raportoinnin avulla yritykset voivat läpinäkyvästi käsitellä toimintansa taloudellisia, ympäristöllisiä, hallinnollisia ja sosiaalisia vaikutuksia. Organisaatioiden yhteiskuntavastuun merkitys kasvaa jatkuvasti maailmanlaajuisella tasolla ja Euroopan Unioni on vastannut tähän. Eurooppalaiset kestävyysraportointistandardit (ESRS) määrittävät standardoidun kehyksen organisaatioiden olennaisten negatiivisten ja positiivisten vaikutusten sekä riskien ja mahdollisuuksien määrittämiseen yrityksen toiminnan kestävyyden näkökulmasta. Tämän tutkielman tarkoituksena oli arvioida täyttääkö ohjelmistoyritys Pinja Group Oy:n tämänhetkinen kestävyysraportointimalli Eurooppalaisen kestävyysraportointistandardien vaatimukset. Organisaation kestävyysraportoinnin tiedon riittävyyden analysoinnissa Global Reporting Initiative (GRI) raportointityökalun kestävyysindikaattoreita sekä yksiköitä verrattiin uusiin ESRS standardeihin. Kestävyysraportoinnin prosessin riittävyyden määrittämiseksi kerättiin kvantitatiivista sekä kvalitatiivista dataa kestävyysraportointikehyksien vaatimuksista niin EU lainsäädännöstä, globaaleista viitekehyksistä kuin ohjelmistoyritykseltä ja datan pohjalta luotiin uusi raportointikehys, johon yrityksen metodeja verrattiin. Kestävyysraportoinnin arviointiin täyttävän ESRS raportoinnin vähimmäissisältöä koskevat vaatimukset yleisten taloustietojen osalta. Yrityksen GRI-pohjainen raportointi täytti ESRS ilmastonmuutos, työntekijä sekä kuluttaja ja liiketoiminta aihestandardien olennaisimpia pykäliä. Antaakseen kattavan kuvan kestävyysvaikutuksistaan olisi yrityksen suoritettava kaksoisolennaisuus-arvio analyysi ESRS raportointivaatimusten täyttämiseksi.	
Asiasanat CSRD, GRI, kestävyysraportointikehys, olennaiset ympäristövaikutukset	
Säilytyspaikka Jyväskylän yliopiston kirjasto	

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TERMS AND ABBREVIATIONS

Abbreviations

CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
EC	European Commission
ESRS	European Sustainability Reporting Standards
GRI	Global Reporting Initiative
NFRD	Non-Financial Reporting Directive

1 INTRODUCTION

Macrotrends such as global warming can drive organizations to evaluate their actions and aim to create value for local community (Visser and Tolhurst, 2010). Organizations operating environment is changing due to sustainability challenges and the future scenarios include new risk factors. Furthermore, globalization has enabled the formation of wide and complex supply chains. Due to this organizations are connected to each other at global level, and they face more sustainability issues regarding the impacts of their supply chain. The undertakings sustainability impacts are increasingly recognized in the public and this has created pressure for the organizations to engage in sustainability reporting (Liappis et al. 2019).

Focusing to corporate social responsibility helps organisations to manage economic, legal, and reputational risks. Sustainability and long-term planning are key words in future business and organizations need to implement sustainability goals and corporate social responsibility (CSR) in their actions (Liappis et al. 2019). On the other hand, CSR can be seen as marketing tactic or as a way to manage stakeholder relations (Visser and Tolhurst, 2010). According to Yang et al. (2021) applying Global reporting initiative (GRI) framework to sustainability reporting can improve organizations financial performance and this can act as a driver to its implementation.

The awareness of CSR has increased during the past decades and globalization is one of the key factors in this. Transnational organizations create issues of sustainable production, uniform labour standards and social development (Visser and Tolhurst, 2010). With transparent and relevant sustainability reporting organizations can strive to tackle these global issues (Kurittu, 2018).

Nowadays, attitudes towards businesses are changing and stakeholders expect them to take account on more than just their financial performance. (Hermundsdottir and Aspelund, 2021). Corporate social responsibility includes being aware of the impacts, that business has on society and environment, and as a concept it reaches over the requirements of law. Implementing CSR as part of their operations was a voluntary action that organizations could take to advance their sustainability (Wagner, 2018). European Union Corporate sustainability reporting directive (CSRD) has changed the future of sustainability reporting in European Union, and it places new mandatory requirements for organizations based on their size and revenue. The application of CSRD will become mandatory for EU businesses gradually starting from large enterprises (Official Journal of the European Union, 2022). Following CSRD, the European Sustainability Reporting Standards (ESRS) can be seen as compulsory framework which provides practical metrics and units for undertakings reporting and guides them in fulfilling the aims of CSRD (European Commission, 2023). The new mandatory guidelines create pressure for organizations to meet the requirements of sustainability reporting regarding social, economic, and environmental dimension of sustainability (Official Journal of the European Union, 2022). However, sustainability reporting can also provide several benefits for the organizations. The reporting process offers the undertakings information that can be utilized in change management (Domingues et al. 2017) as well as in recognizing possible opportunities and risk regarding sustainability aspects (European Commission, 2023).

1.1 Defining sustainability reporting

According to Liappis et al. (2019) corporate responsibility emerged as a term for the first time during 1950's when organizations begun to face expectations for creating social value in addition to making profit. Large undertakings, such as factories, have had social impact on their stakeholders before the understanding of corporate social responsibility formed. When environmental activism emerged during 1970's the movement brought attention to the sustainability impacts of the undertakings and to environmental regulations (Liappis et al. 2019). However, in the 1970's there was still a prevailing assumption that the socially responsible actions of organizations were only based on mandatory legislation. Sustainability as a term in public use traces its origins back to the 1980's and to United Nations (UN) founding sustainability panel (White, 2015). In the Brundtland report (1987), the sustainability was given a definition which is still known today. Sustainable development is development which fulfils the needs of today's society without making future generations unable to meet theirs. Brundtland (1987) emphasizes that sustainability means meeting the basic needs and providing all same opportunities for better life. Sustainable development is dynamic and the institutional change, resource use, investments and development of technologies are part of constant change. Sustainable development is complex process which requires society to be in harmony with the limits of the ecosystem (Brundtland, 1987). Furthermore, the report acknowledged the need for co-operation between the States and the private and public sectors to lessen the negative environmental impacts of the society (White, 2015).

According to White (2015) businesses sustainability can be evaluated from three dimensions which are social, economic, and environmental sustainability. These dimensions form the triple bottom line (Gimenez et al. 2012) which is used as definition for sustainability by Elkington (1997) to reflect the environmental, social, and economic performance of organizations. The definition of corporate social responsibility had developed since its first definitions (Carroll, 1999) and one of its internationally known models is the pyramid of CSR. It consists of four categories, first one being the economic responsibility which acts as foundation for legal, ethical, and philanthropic responsibilities (Carroll, 1991).

According to Liappis et al. (2019) triple bottom line has a strong influence on organizations sustainability reporting and its topics. Social sustainability can be defined as undertakings actions which do not directly or indirectly impact its stakeholder groups in a negative manner. Respect of employee's human rights

and compliance with lawful working conditions within the organization are considered as one of the most important definers of social sustainability Liappis et al. (2019). Missimer et al. (2017) define social sustainability as upkeep of the basic conditions which are required for the social systems so they will not systematically degrade.
The environmental responsibility is another key factor that includes environmental degradation prevention, emission reduction and sustainable use of natural resources. (Liappis et al. 2019). According to Gladwin et al. (1995) transactions of ecosystem services are the base for organization's operations and without these services the existence of businesses would be impossible (Gladwin et at al. 1995) Thus, undertaking's ecological sustainability is formed by its negative and positive environmental impacts. Furthermore, it includes organizations operations which mitigate or prevent environmental degradation, minimize greenhouse gas emissions as well as efficient and sustainable use of natural resources (Liappis et al. 2019). Carroll (1999) argues that all dimensions CSR should be fulfilled at all times. Thus, without economic responsibility, organization cannot meet requirements to be socially and environmentally responsible as economic sustainability acts as a cornerstone for the other dimensions of sustainability (Carroll, 1999). Economic responsibility includes all financial impacts that organization directs to its operating field. Stakeholders are entities which are affected by organizations actions financially and (Liappis et al, 2019) when creating value organization should not do it at the expense of its main stakeholder groups (Isaksson and Steime, 2009). The traditional view of business is solely its profitability, but economic responsibility uses it as foundation for responsibility and focuses on good governance, upkeep of trust with transparent actions and responsible exercise of power (Liappis et al. 2019). An undertaking is considered economically sustainable when it conducts its businesses transparently and complies with administrative regulations (Liappis et al. 2019). However, company can claim to be sustainable only if it complies to all three pillars of triple bottom line (Fischbach and Ksiezak, 2017).

1.1.1 Benefits of sustainability reporting

Actions and strategies of the organizations to address sustainability issues are being evaluated more thoroughly compared to before. To implement sustainability strategies the decision makers must understand the measures they may take to improve the organizations performance. For this reason, the managers require information of all indirect and direct impacts caused by organizations operations (Epstein and Buhovac, 2014). According to the Official Journal of the European Union (2022) sustainability reporting provides businesses information, which can be utilized in future decision making and identifying the possible risks and benefits of certain actions. Epstein and Buhovac (2014) state that the integrating the sustainability reporting into business decision making can lead to improved investment and operational results (Epstein and

Buhovac, 2014). According to Domingues et al. (2017) sustainability reporting can act as communication tool and Official Journal of the European Union, (2022) sates that transparent, and clear communication regarding organizations actions can improve their stakeholder relationships and company reputation. However, Sehgal et al. (2023) disclose that sustainability reporting can improve undertaking's reputation in long-term timeframe regarding how the compliance mechanism works, but it can also result to short-term loss of reputation due to declaration of possible poor sustainability performance (Sehgal et al. 2023). Consistent and annual sustainability reporting provides stakeholders with an overview of the company's operations and can itself reduce the sustainability-related inquires received by management and lessen the employee's workload regarding the communication (Official Journal of the European Union, 2022).

The benefits of sustainability reporting can also aid organizations with optimizing their operations. According to Liappis et al. (2019) reporting on environmental impacts of an organization can improve its resource efficiency, such as finding ways how to utilize production by-product flows. Annual reporting enables benchmarking and improved management of company's operations (Liappis et al. 2019). Additionally, sustainability reporting offers stakeholders, such as investors, opportunity to assess the organization's responsibility (Official Journal of the European Union, 2022) and corporate sustainability itself creates business opportunities for organizations (Liappis et al. 2019). Epstein and Buhovac (2014) state that well implemented sustainability strategies can provide organizations with competitive advantage. Organization's sustainable actions can lead to increased revenues and lessen the operational costs. Additionally, the improved sustainability can create customer satisfaction and new market opportunities as well as increase company's performance (Epstein and Buhovac, 2014). According to Liappis et al. (2019) corporate which incorporates sustainability into its operations also increases its employee's commitment to the organization.

1.1.2 International norms of sustainability reporting

The ILO conventions, United Nations guiding principles on business and human rights and OECD guidelines for Multinational Enterprises are examples of internationally recognized instruments of sustainability reporting (GRI and SASB, 2021). The UN guiding principles on business and human rights (UN, 2011) state that all member countries and their business enterprises have responsibility to respect human rights and they should avoid all actions that can lead to their violation. Furthermore, companies should acknowledge negative impacts on human rights and take action to prevent and alleviate them. The guidelines concern all UN member states and their local and transnational companies. Guiding principles implementation should direct attention to marginal and vulnerable groups in non-discriminatory way (UN, 2011).

International labour standards are the foundation of work rights, and they consist of conventions and recommendations. Protocols and conventions are legally obligatory whereas recommendations provide potential guidelines to be implemented. International labour standards are legal instruments that ILO utilizes in their aim to guarantee work safety, promote sustainable development, and answer the challenges of globalization. Goals of Sustainable Development Agenda 2030 align with ILO conventions and especially Goal 8 "Decent Work and Economic Growth" is promoted in international labour standards which aim is in enforcing decent work in growing and developing economy (International Labour Organization, 2019). OECD guidelines for Multinational Enterprises (2011) are recommendations directed from governments to transnational companies. The guidelines strive for global, social, ecological, and economic development and direct businesses towards it. The standards and principles are not legally binding, but the guidelines offer vast amount of information about responsible business, and they are internationally recognised (OECD, 2011). Global reporting initiative (GRI) is internationally recognized sustainability reporting framework which aligns with the ILO conventions, United Nations guiding principles on business and human rights and OECD guidelines (GRI and SASB, 2021). By implementing GRI in sustainability reporting, organizations can show that they integrate the international norms and their instruments into their own sustainability reporting process.

1.2 Development of sustainability reporting

1.2.1 Global reporting initiative framework

The understanding of what sustainability and corporate social responsibility mean has drastically developed over past decades. Global reporting initiative has been part of this change and its principles have been created to give clear frame for sustainability reporting to organizations of all sizes. Sustainable global economy is scenario that GRI aims to reach. With sustainability reporting GRI provides organizations a framework for transparency and comparability. GRI is multinational non-profit organization that has been operating since 2002 and the foundation is based in Netherlands. The reporting is built on GRI standards and according to GRI Annual Report (GRI, 2022a) they are used by two thirds of 5200 global top-ranking businesses. This makes GRI standards the most implemented sustainable reporting instrument in international level and the GRI reporting, and its tools and materials are publicly available. GRI, 2022a).

The GRI created a new field since it provided the first international sustainability reporting framework (GRI, 2022b). The first GRI-frame has been published in early 2000's and at the beginning the key focus was in providing transparency and including excessive amount of information about the company into the report. Today GRI-frame has been modelled towards showing responsibility thinking in organizations management and including value chains in the report (Kurittu, 2018). In 2016 guidelines were developed into first international reporting standards to make them more comparable and uniform (GRI, 2022b; Kurittu, 2018). Global Sustainability Standard Board (GSBB) governs GRI standards and Due Process Oversight Committee (DPOC) supervises their developing process. GRI standards are created by selected groups of professionals and preliminary versions of standards are publicized to develop them further based on received consultation. (GRI, 2022c; GRI and SASB, 2021)

1.2.2 GRI as sustainability reporting tool

GRI report should always be framed in sustainability context. Organization must gain understanding of its own operating environment to be able to report their social, environmental, and economic impacts (Kurittu, 2018). To get vast picture of their sustainability context, organizations should profile themselves based on their activities. This includes factors such as strategies, business model and organizations value statements. Organization type and the services that it provides as well as its members are information that must be defined in the report (GSSB,2022). Stakeholders are another important factor that has effect on the content of GRI report. Organization engages with their main stakeholder groups to understand their expectations and interest regarding sustainability report Organizations can conduct annual stakeholder surveys or customer satisfaction surveys to gain insight of its stakeholder's expectations. Social media, marketing, collaborations, and customer service are other pathways for acquiring information (Kurittu, 2018). GRI report should include content that is designed to appeal to its most probable readers and engagement with stakeholders is needed for organization to have knowledge of this. The GRI report must cover all main environmental, social, and economic impacts that organization causes with its actions. The impacts can be either negative or positive towards these dimensions (GRI, 2016). Organizations value chain can be considered when impacts are defined, thus external actors are part of GRI reporting in addition to internal ones. The relevance of the indicators is the most important factor of GRI reporting (Kurittu, 2018). To meet this goal organization should assess their impacts regularly through the year before the GRI Material topic reporting. When new GRI report is in process, material topics from previous reporting periods are examined to recognize changes in their negative and positive impacts (GRI, 2021c). Furthermore, GRI reporting processes must be documented when organization is determining their relevant topics. Records are used for describing chosen approach, gathered data and to support the made decisions. Approaches to GRI reporting vary between organizations due to their different circumstances such as location, operational sector, and cultural and legal context (GSBB, 2022).

1.2.3 GRI standards

The GRI standards (2021 a) guide the sustainability reporting process, and they are divided to three parts which together form a modular system. GRI Universal standards apply to all organizations that use the GRI as reporting method and Sector standards are aimed at specific fields. The Topic standards cover varying subjects and offer relevant disclosures regarding them. Organizations can use the GRI standards to determine which topics are material to their sustainability reports (GRI, 2021a). Disclosures are part of GRI standards and they for structure for the reporting process. Disclosures contain recommendations that organization is encouraged to follow and requirements that are compulsory list of information that must be provided by organization. The GRI reporting happens within the standards when disclosures are followed (GRI, 2021a). The GRI Universal standards consist of three separate parts. GRI 1: Foundation acts as a guide to sustainability reporting and includes key concepts, principles, and mandatory requirements. The GRI 2: General Disclosures focuses on organizations practices and its business structure. With guide of General Disclosures picture of organizations profile and understanding of its impacts can be formed (GRI, 2021b). GRI 3: Material Topics guides defining relevant topics regarding organizations impacts and provides information how to manage material topic reporting (GRI, 2021c) The Sector standards include information about the most relevant topics for specific sectors and organizations can use it as a guide when determining topic standards. Coal, agriculture, and fishing sectors are examples of areas that are included in the Sector Standards (Global Sustainability Standards Board (GSSB), 2022). The organizations most substantial impacts on environment, people and economy are determined with GRI 3: Material Topics and it guides the reporting of topic selection and its processes (GSBB, 2022).

1.2.4 Impact assessment and GRI indicators

To determine the impacts of organizations operations qualitative and quantitative analysis can be conducted. However, organization might not be able to evaluate negative impacts to all its activities. Complex value chains and international operations are examples of things that can be challenging to thoroughly assess and define all material indicators (GRI, 2021d). Organizations can assess their impacts in a situation when they are without needed data by conducting research regarding the sector where they operate. In scoping exercise impacts which are customary for specific sector are assessed and acquired information is used in the GRI report. Environmental agencies, government and civil society organizations can act as sources in impact identifying process (GSSB, 2022). Positive impacts of organization are evaluated based on how they contribute to sustainable development. In reporting process positive and negative impacts are addressed separately and their significance and relevance are the key factors of the GRI report (GRI, 2021c). The significance of organizations impact can be determined with materiality matrix or by listing impacts to numerical scale. Creating consistent and understandable report for the stakeholders is important part of organizations communication. The GRI report does not create value for the company of stakeholders are not engaging and accessing it (Kurittu, 2018).

According to Belkhir et al. (2017) indicator of CO2 emissions is the only sustainability metric that is regularly and coherently used regarding scope 1 and scope 2 emissions in GRI reporting. All direct greenhouse gas (GHG) emissions that are caused by organizations actions, such as transport by vehicles, are scope

1 emissions. GHG emissions from energy consumption are defined as scope 2 emissions. Reason for CO2 emissions being a major indicator lies in climate change and the emphasis of environmental responsibility that companies have (Belkhir et al, 2017). Scope 3 emissions are defined as all indirect emissions of company. Scope 3 often causes the largest part of GHG emissions but sector specific data of it is not always available (Downie and Stubbs, 2012). Indicators of environmental performance provide information that can be assessed to improve organizations process efficiency. Based on evaluated information organization can change its strategy and management regarding sustainability issues (Slater and Gilbert, 2004). In addition to emission indicators the environmental dimension in GRI reporting includes disclosures concerning material, waste, water and energy use and supply chain management. The social responsibility dimension of GRI has disclosures regarding occupational health and safety as well as training and education impacts and their management. Furthermore, social dimension also contains indicators about diversity, equality, fair labour, and organization management. All these disclosures of different sustainability dimensions are numbered in Consolidated set of GRI standards (GSSB, 2022). In GRI report organization is to choose only the most relevant indicators for its processes (Kurittu, 2018).
According to Sasse-Werhan (2019) GRI has created a universal frame and language of sustainability for organizations and their stakeholders. However, Fotiadis et al. (2023) state that even though several organizations have utilized GRI to disclose CSR information it does not mean that the reporting manners are comparable and consistent. As a framework GRI provides uniform information for measuring sustainability performance and factors but the organizations have had variation between the information quality, measurement style and the way they define materiality in their reports (Fotiadis et al. 2023). Independent consultants can be commissioned to conduct GRI reporting but organization can decide to create the sustainability report on their own. This is concern to comparability of the GRI reports between different organizations and Sasse-Werhahn, (2019) suggested that enforcing mandatory reporting framework for all would be solution for the problem (Sasse-Werhahn, 2019).

1.3 Framing the study aim

The thesis focuses on assessing if sustainability reporting of software company Pinja Group meets the requirements of European Sustainability Reporting Standards. Since mandatory ESRS is a novel topic, the study draws from prior sustainability reporting research, EU reporting directives and regulations which preceded ESRS to provide framework for assessing Pinja Group's sustainability statements.
As a software company Pinja Group is part of knowledge industry as it provides knowledge based digital solutions to other companies (Pinja Group, 2023 a, c). Pinja Group is global software and service company which was establishment

dates to 1990. The company started with providing software solutions and development for consumer and corporate use. Within decades Pinja Group grew and specified its services to industrial sector. Nowadays the company has their focus on offering sustainable digital solutions throughout the whole life cycle of product for corporates operating in different fields such as forest, energy, manufacturing, and welfare industries (Pinja Group, 2021a). Pinja Group provides guidance for managing and improving industrial processes towards more efficient and sustainable options with IT support, and cloud services. Sustainability is integrated to Pinja Group's daily operations and digitalisation of circular economy as well as improving the efficiency of production chains are their key elements (Pinja Group, 2021b).

In 2021 Pinja Group had over 500 employees and turnover of 42,7 million (Pinja Group, 2023 a; Pinja Group, 2023 b) which places the organization under the ESRS requirement to conduct sustainability reporting according to the 2024 due to their amount of revenue. Assessing the ESRS reporting requirements of software company is interesting perspective since according to El Geneidy et al. (2021) emissions of this type of organization are less visible and more complex to detect compared to companies who offer physical products and services, such as manufacturing industry (El Geneidy et al. 2021).

Comparing the sustainability reporting of Pinja Group to the mandatory ESRS disclosure requirements will provide insight for the future changes that organization must consider in their reporting. Evaluating the current sustainability reporting of the company and defining the comparability of the metrics and targets of their GRI based indicators to the metrics of ESRS Minimum Disclosure Requirements is the purpose of this master's thesis. Furthermore, the study forms a cohesive framework for comparing sustainability reporting data that has been disclosed before the application of CSRD and ESRS requirements. The met reporting directives and the possible shortcomings of the current reporting provide valuable information for the Pinja Group and offer insight for meeting the requirements of European sustainability reporting standards.

The structure of the thesis consists of literature review which introduces the development of sustainability reporting in context of European Union and outlines reporting frameworks that have been drivers of sustainability action in organizations, such as European Union Green Deal, EU Taxonomy and Non-Financial Reporting while having primary focus on CSRD and ESRS as new mandatory guidelines for reporting. The research question of the study is, does the current sustainability reporting of the software company meet the requirements of European Sustainability Reporting Standards. The hypothesis is that Pinja Group meets the basic requirements of ESRS due the past GRI based reporting which has been applied in the company and has similar reporting categories as ESRS. Methodological framework follows the theoretical part of the thesis and empirical findings of mixed method study are discussed in relation of ESRS requirements.

2 PATH TO CORPORATE SUSTAINABILITY REPORTING DIRECTIVE

2.1.1 The Green Deal

To answer the aim of the Paris Agreement to steer the society towards climate-resilient development and to lower the greenhouse gas emissions (European Commission, 2016a) the European Commission (2019a) introduced The European Green Deal. The European Green Deal is extensive growth strategy which supports sustainable transition of European Union towards society, which is resource efficient, has decreased greenhouse gas emissions to net zero by 2050, and conserves and protects natural resources while maintaining a competitive economy (European Commission, 2019a). Furthermore, decoupling economic growth from extraction of natural resources and promoting social rights are key goals of European Green Deal which was founded to establish sustainability policies as a norm for all sectors (Skjærseth, 2021). Additionally, the integration of UN sustainable development goals to European Union policies and to the economy is important element of the Green Deal (European Commission, 2019a). At a macro level the strategy is divided into different action areas, and it is similar to the triple bottom line of John Elkington (1997) who described areas of sustainability as people, profit and planet. Following triple bottom line, the Green Deal acknowledges how improving social well-being, environmental protection, and restoration as well as sustainability in resource use are interlinked and have trade-offs between them.

These larger objectives include new policies for agriculture, mobility, infrastructure, and development of clean energy production. The social and economic dimension contain policies for social support and taxation and the social dimension of the strategy also focuses on vulnerable groups and areas which face the largest sustainability challenges (European Commission, 2019). European Commission (2020b) states that the circular economy action plan, Sustainable Europe Investment Plan as well as EU industrial and Biodiversity strategy are actions that support the goals of the Green Deal and are part of long-term strategy to mitigate climate change. According to the Commission (2019a) the Green Deal development strategy takes place in all policy levels forming new standards and regulations furthermore accelerating international collaboration in EU. The Green Deal acts as a driver to change in in every sector but the sustainable transition requires co-operation from civil citizens and authorities both in national and local level. Furthermore, the Green Deal strategy contains instruments for climate change adaption and funds development and research where different stakeholders such as companies and institutions collaborate to find solutions for change and more sustainable future (European Commission, 2019a).

2.1.2 Sustainable Finance Action Plan

The Sustainable Finance Action Plan was published by European Commission in March 2018 to take further step to bridge the gap between sustainability and finance and follow the path set in European Green Deal. The Action Plan presents three key action plan areas which contribute to sustainable growth. Financial risk management of environmental degradation, climate change, social issues and depletion of resources is one of the areas addressed in the Action Plan (European Commission, 2018). Sustainability-Related Disclosures Regulation (SFDR) was put in application during 2021 and it requires financial advisers and market participants to provide investors information regarding the negative sustainability impacts of their investments and sustainability risks that are directed to them. In other words, the market participants must provide support for the sustainability claims regarding their own financial products (Official Journal of the European Union, 2019c). The implementation of SFDR addresses the risk management of sustainability threats which were brought up by Sustainable Finance Action Plan. Promoting financial transparency and long-termism is another main area of the Action Plan (European Commission, 2018) and revision on Non-Financial Reporting Directive was a key action taken to enhance the disclosure of non-financial information by the undertakings and identify its shortcomings (Fiandrino et al. 2022). Lastly, reorienting financial flows to sustainable investments is action plan area which European Commission addressed in the Action Plan. They voiced a need for a classification system for economic activities based on their sustainability and in May 2018 regulation proposal for establishment of sustainable investment framework was issued (Technical Expert Group on Sustainable Finance, 2020). As a part of Action Plan, the EU Taxonomy Regulation, which is a classification system of sustainable activities, was published in 2020 (Official Journal of the European Union, 2020).

2.1.3 The EU Taxonomy

European Commission (2018) addressed the lack of mandatory sustainability reporting standards and stated that organizations sustainability actions can be challenging to compare due there not being unified standards to assess their governance, social and environmental performance (European Commission, 2018) In 2018 European Commission Action Plan report set to develop an EU taxonomy, which gives requirements for unified sustainability reporting including use of standards and benchmarking. Benchmarks can be utilized as instruments that assess organizations performance (European Commission, 2018) and reliable assessment with benchmarking requires accurate input data. Therefore, obligatory guidelines for administration and methodologies of benchmarking are crucial (Official Journal of the European Union, 2016 b). The EU Taxonomy was designed to work as a classification tool for economically sustainable activities (Official Journal of the European Union, 2020) and the Fig. 1 presents the structure of the Taxonomy system as a part of Action plan. The EU Taxonomy combines both juridical and non-juridical actions to form an adaptative legislation which will not create excessive burden to organizations administration. (European Commission, 2018).

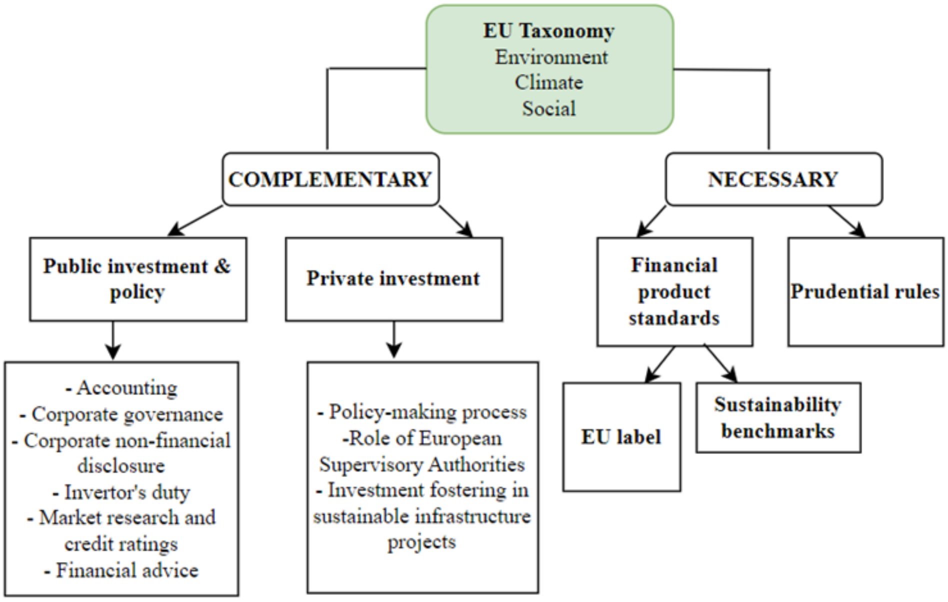

FIGURE 1. Structure of the EU taxonomy. Modelled after (Nyikos and Kondor, 2022).

According to European Commission (2018) the update began from climate change mitigation actions, but the report set it to be expanded to other areas of environmental issues. Additionally, taxonomy's scope was planned to cover social dimension of sustainability. EU Taxonomy provides a standard frame for classification of organizations activities and determines which actions can be seen as sustainable (European Commission, 2018). The classification of economic activities is divided into three definitions: transition defines activities which are not climate neutral and enabling is definition for the activities that indirectly contribute to climate neutrality. The economic activities can be identified as green if they comply with net-zero goal. The green and enabling activities are automatically Taxonomy-eligible meaning that they can be seen to contribute to the fulfilment of climate goals by for example reducing emissions in other sectors or by carbon removal (Schütze and Stede, 2024).

The EU taxonomy offers legal guidance on mitigation and adaptation actions that can be taken by organizations, and it provides sector specific information that is based on unified indicators (European Commission, 2018) and mitigation criteria as well as thresholds (Schütze and Stede, 2024). The performance thresholds act as a tool for undertakings to evaluate their environmental performance and identifying their impacts. The EU Taxonomy sets three key thresholds for undertaking's activities and contributing significantly to one of the six environmental objectives presented in Figure 2 is the base of technical screening criteria (Technical Expert Group on Sustainable Finance, 2020)

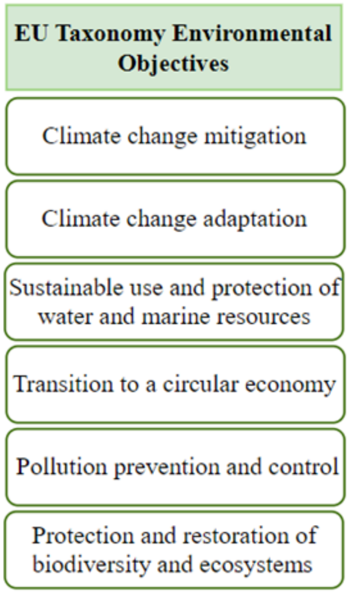

FIGURE 2. Environmental objectives of EU Taxonomy. Modelled after (Technical Expert Group on Sustainable Finance, 2020)

This is followed by 'do no significant harm' threshold where when relevant, undertakings determine if their actions have negative impacts on other five environmental objectives. Additionally, the third threshold is met if undertaking complies with minimum safeguards, such as UN Guiding Principles on Business and Human Rights (Technical Expert Group on Sustainable Finance, 2020). The EU Taxonomy's classification system covers approximately 80% of economic activities which generate greenhouse gas emissions, thus it might have significant role as a tool for decision making of investors (Schütze and Stede, 2024). All participants in financial market which provide financial products are subject to EU Taxonomy Regulation. Additionally, all non-financial and financial organizations are applicable to follow the EU Taxonomy if they fall into scope of Non-Financial Reporting Directive (European Commission, 2021).

2.1.4 Non-Financial Reporting

The public policies require adaptation in a global economy which is increasingly impacted by phenomena such as depletion of natural resources and climate change. The sustainable change of financial system is a core element when striving towards economy which is green and supports future generations. For more transparent and stable economy new adaptations to financial system are needed (European Commission, 2018). Directive 2003/51/EC was one of the first disclosures where reporting of businesses environmental and social information was mentioned. The directive referred to providing additional information in undertaking's annual report and in its paragraph 9 it was stated that "The information should not be restricted to the financial aspects of the company's business. It is expected that, where appropriate, this should lead to an analysis of environmental and social aspects necessary for an understanding of the company's development, performance, or position" (Official Journal of the European Union, 2003). This statement can be viewed as predecessor and first step for Non-Financial Reporting.

The European Commission (2019) states that private sector is central for the green transition and sustainability goals ought to be integrated to organization's governance and environmental data of the companies should be accessible for investors. The Non-Financial Reporting Directive (NFRD) was set to disclose the credibility of the company's actions regarding sustainability (European Commission, 2019). Non-financial reporting (2014/95/EU) was formed by EU Commission to support the sustainable transition of Europa's economy (Baumüller et al. 2021) and acts as revision to the Accounting Directive (Directive 2013/34/EU) (European Commission 2020a). European Union issued the NFRD in 2014 (Raith, 2023) and the EU directive placed requirements for public interest entities which employ over 500 people to disclose their sustainability risk management and most relevant information regarding governance, social and environmental aspects. The organizations included to the scope of NFRD were to report according to its requirements from 2018 encompassing information about the company's business model, risk management plan and policies which are material (European Commission, 2020a). The NFRD does not have standard framework or indicators which are mandatory to follow during the reporting process (European Commission, 2020a) and the directive gives organizations flexibility in their reporting manner and thus balance between it and standardization is required for sufficient and transparent disclosure of non-financial information (European Commission, 2018).

European Commission (2020a) states that disclosure of information is mandatory "to the extent necessary for an understanding of the development, performance, position and impact of the company's activities." (European Commission, 2020a). The perspective of double materiality expresses the idea of NFRD of disclosing both the negative and positive impacts the organization has on its operating environment and the effects sustainability issues have on the organization. The NFRD provides guidelines for the reporting but in its review the need for common standards was expressed. In the public consultation, the comparability issues between the organizations reports and mandatory disclosure of materiality assessment process were among the key topics in addition to the concerns voiced about interaction of different CSR legislations. Furthermore, the review expressed the need of less complex reporting directives for small and medium-sized enterprises (European Commission, 2020a).

In the review of NFRD, the standardisation of sustainability reporting was presented to be a solution for unreliability of the reports and lack of their comparability by the respondents (European Commission, 2020a). However, the reporting burden on company administration is a factor that was raised as a concern, and a need to develop the scope of reporting was voiced (European Commission, 2020 a). Official Journal of European Union (2022) states that the lack of standardisation and mandatory guidelines affected the quality of sustainability reporting, and the Directive 2013/34/EU provides an option for organizations to choose whether they applied the Guidelines of climate related information (Journal of European Union, 2022) which are based on recommendations by Task Force on Climate-related Financial Disclosures. (European Commission, 2019b). Implementing Non-Financial-Reporting Directive is an action that organizations can take when they strive to enhance their business transparency. However, the reporting forms of organizations might vary substantially due to NFRD not having a consistent reporting standard. According to Wagner (2018) the sustainability of organization's business operations is often difficult to compare to other businesses because of these differences.

Due to these shortcomings of NFRD, the Official Journal of the European Union (2022) stated that the obligatory reporting standards are required to obtain comparable and reliable data from the undertakings. The mandatory steps in the reporting process were needed to ensure the disclosure of material information that is viewed trustworthy by stakeholders (Official Journal of European Union, 2022). Corporate Sustainability Reporting Directive was developed to create uniform sustainability framework for all undertakings, and it builds upon previous sustainability guidelines stemming from the European Green Deal. Figure 3 presents the development of sustainability disclosures which acted as drivers for common sustainability framework and as the base for CSRD.

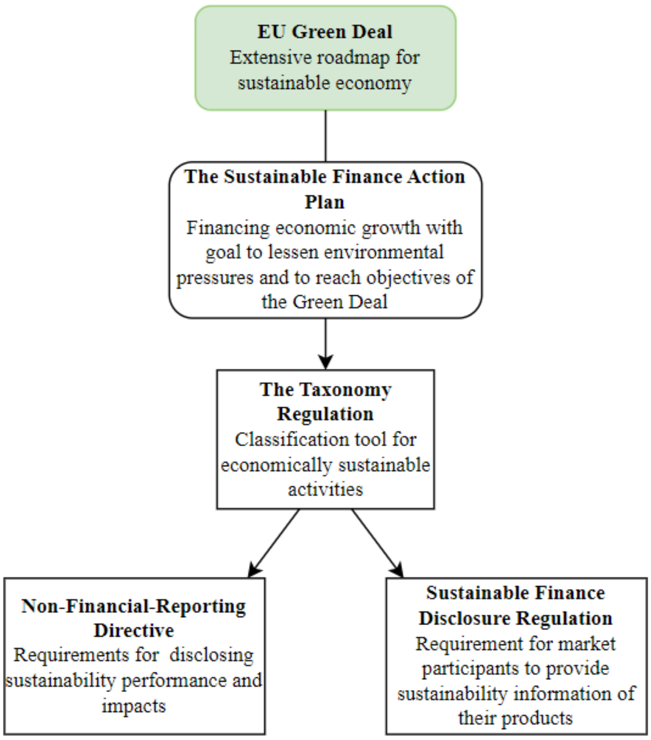

FIGURE 3. Developments stemmed from European Green Deal and their connectedness.

2.2 Corporate Sustainability Reporting Directive

Corporate sustainability reporting directive (CSRD) amends already existing EU regulations and directives and forms them into uniform and cohesive sustainability reporting standard. The directive was founded to address the issue of lack of mandatory standards in sustainability reporting and it was built on updating already existing legislation and directives. Corporate Sustainability Directive aims to lay foundation for global standards of sustainability reporting and prevent greenwashing (European Parliament, 2022). The CSRD has been enforced from July 2024 meaning that first sustainability report conducted according to the directive will be due in beginning of 2025 (Official Journal of the European Union, 2022). Following the CSRD implementation organizations are required to evaluate their social and environmental impacts, and report them applying general standards (European Parliament, 2022). From January 2025 all large undertakings which currently are not subject to the NFRD must begin reporting according to CSRD if their number of employees exceed over 250. Additionally, the undertakings are subject to new reporting guidelines if they have 40 million turnover or total assets of 20 million. These undertakings must publish report which applies CSRD in 2026. (Official Journal of the European Union, 2022; European Commission ,2023).

The CSRD requires all small and medium-sized organizations, who operate in the regulated market of European Union, to report information regarding their sustainability. These undertakings are required to prepare corporate sustainability report starting from the January of 2026 and the period gives the organizations time to prepare for sufficient application of the new reporting directive (Official Journal of the European Union, 2022). With CSRD in place, stakeholders such as investors, will be able to compare organizations reports reliably and have transparent access to their data. Non- EU- companies must follow CSRD reporting requirements if their turnover is over 150 million euros annually. With CSRD European Union will become precursor in global sustainability reporting field (European Parliament, 2022).

The CSRD aims to prevent the inconsistent use of sustainability topics and utilizes sustainability factors which form a list of key sustainability matters for the reporting. In the new directive, such as in Directive 2013/34/EU regarding NFRD, the governance is included as a sustainability category along with social and human rights as well as environmental factors. In the CSRD the organizations responsibility to disclose their risks is extended to the resilience of their business strategy regarding to sustainability. Furthermore, they are expected to report their business models compatibility with climate goals, such as Paris Agreement, and they are expected to disclose their own sustainability targets as well as their action plan to achieve them (Official Journal of European Union, 2022).

2.2.1 Due diligence

The Directive 2013/34/EU set the requirements for sustainability reporting of social well-being and human rights (European Commission, 2020a), but CSRD contains a statement which claims that the mandatory requirements of due diligence should be more detailed compared to previous ones (Official Journal of the European Union, 2022). The due diligence constructs of identifying, preventing, and mitigating as well as finding remedies for negative impacts of undertaking's operations (European Commission; DG for Justice and Consumers, Torres-Cortés; Salinier; Deringer, 2020). The reporting of due diligence concerns the whole value chain of the organization and its directly and indirectly caused impacts with the aim of keeping organizations accountable (Schilling-Vacaflor and Gustafsson, 2023).

The disclosures must align with the UN Guiding Principles of Human Rights and report both the organizations impact on different sustainability factors and the scale of the impact. Furthermore, the due diligence must include the organizations own processes, supply chains, financial relationships as well as its material products and services (The Official Journal of the European Union, 2022). Alike to the Guiding Principles (UN, 2011) the organizations must also include remediation of possible negative impacts caused by their operations to the disclosure of due diligence. The Official Journal of European Union (2022) states that the value chain of the organization should also regard the sustainability impacts that the organization creates at the downstream of the value chain including countries outside of EU.

2.2.2 Sustainability reporting standards and indicators

The need for technical and specific list of sustainability reporting disclosures and indicators has been acknowledged by European Commission for a long time. According to the Official Journal of European Union (2022) the standardisation of sustainability reporting should include the environmental objectives of the EU disclosed in Regulation (EU) 2020/852 and list all key sustainability factors regarding the environmental impacts of organizations. The biodiversity, land, water, and climate impacts are disclosed as four major factors that organizations should include into their reporting (Official Journal if European Union, 2022). The environmental performance of the organization can be measured from the viewpoint of resource efficiency. The use of fossil and renewable energy sources as well as organizations greenhouse gas emissions are indicators that should be utilized in measuring undertakings impact on the environment. Additionally, land and water use, waste generation and use of raw materials are indicators that should be included into the sustainability reporting. The biodiversity impact of organizations processes and the contribution to circular economy are more extensive objectives that cover several activities (Official Journal of the European Union, 2019c).

When organization is gathering information from the objectives of social sustainability the indicators are related to social well-being of employees, the equality of the organization, investment in human capital and acting according to the labour rights. (Official Journal of European Union, 2019c). Additionally, the diversity and inclusion of the organization as well as non-discrimination are social factors that undertakings should include in their sustainability reporting. The involvement of social partners regarding organizations operations is a factor that is expected to be disclosed. Organizations should also provide information about child and forced labour if there is risk that these might be relevant for their value chains (Official Journal of the European Union, 2022). The sustainability reporting of organizations governance utilizes the tax compliance, sufficient management structure and the internal employee relationships and their remuneration as indicators (Official Journal of European Union, 2019c). The CSRD disclosures of environmental, social and governance factors are presented in Fig. 4, and they act as a higher-level thematic framework for European Sustainability Reporting Standards, which provides mandatory reporting guidelines for undertakings.

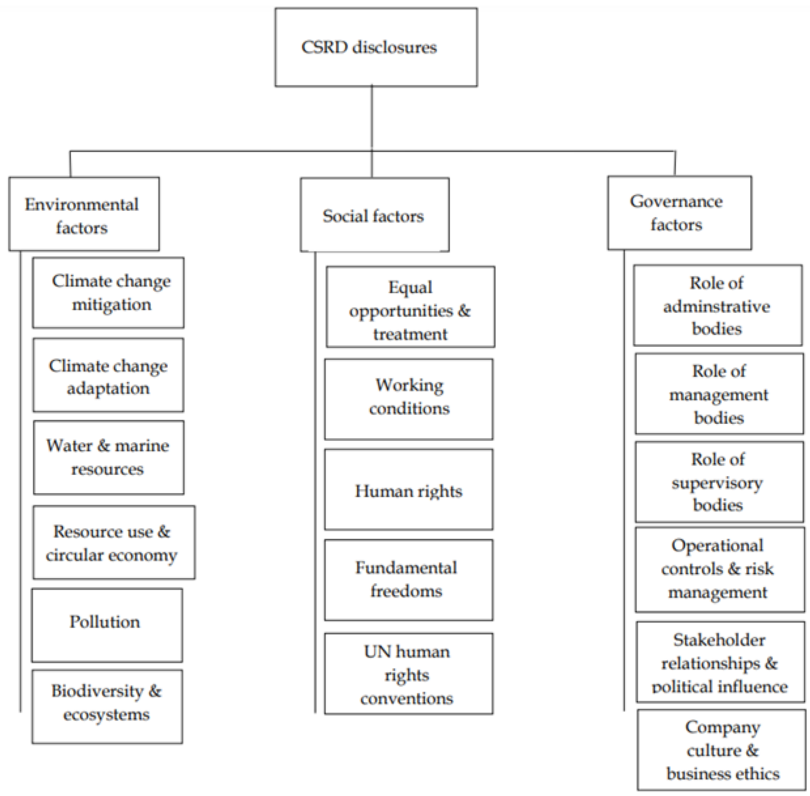

FIGURE 4. CSRD framework for reporting factors (Official Journal of the European Union, 2022)

2.2.3 Addressing the issues of past sustainability reporting

According to Official Journal of the European Union (2022) difficulty to gather information from all operations taking place in undertakings value chain is a factor that was addressed even before publication of ESRS. Especially actors, such as small and medium sized undertakings, and organizations located in emerging markets might not be able to provide needed information for sustainability reporting. The new sustainability reporting standards aim to provide specific guide for disclosing information regarding value chains while considering the organizations size, capacity, and complexity of its business activities (Official Journal of the European Union, 2022).

When conducting sustainability reporting, organizations might face difficulties especially when obtaining and managing reporting data when they have global supply chains and multiple suppliers (Bateman, 2017). Required information sources can be downstream of organization's supply chain and the complex supply network might negatively affect the quality of obtained information (Seretakis and Mezzanotte, 2023). The difficulties to report information along the whole value chain of organization are acknowledged in CSRD. Thus, the undertakings must separately state if they have problems regarding gathering data and they are required to mention the missing information in their sustainability report. Additionally, the undertakings must also present their future plans for more sufficient information gathering. (Official Journal of European Union, 2022). By the 30th of June 2024 the European Commission must provide supplement to Directive (EU) 2022/2464 and specify sustainability reporting standards which account the characteristics and capacities of the small and medium-sized entities, and which are relevant to the size and complexity of their operations.

The lack of benchmarking and information regarding the future actions of the undertaking have appeared in the previous sustainability reports and the CSRD underlines their importance (Official Journal of European Union, 2022). The specific standardization of sustainability reporting factors and unified information about required data are needed to avoid unnecessary burden of organizations administration (European Commission, 2023). Requirement that the sustainability disclosures must include both qualitative and quantitative information regarding sustainability factors is another change that is included to CSRD compared to NFRD Directive 2013/34/EU. Since the CSRD aims not to inflict unreasonable burden for organizations administration regarding sustainability disclosures, the mandatory standards should consider already existing reporting frameworks when possible and utilize them to minimise the pressure towards organizations (Official Journal of European Union, 2022)

Task Force on Climate related Financial Disclosures, the Sustainability Accounting Standards Board as well as the International Integrated Reporting Council and Global Reporting Initiative are examples of these already well-known frameworks (CDP et al. 2020; SASB, 2020). The already existing frameworks that include guidelines on responsible business and sustainable development, should be utilized in the development of sustainable reporting standards. SDG's, OECD Guidelines, UN Guiding principles on Business and Human Rights as well as ILO policies and the Global Compact are examples of frameworks that are globally recognized and support sustainability. In addition to these globally acknowledged frameworks, the new sustainability reporting standards should include themes from principles such as the Sustainable Development Goals, the Global Compact, and the UN Guiding Principles on Business Human Rights (Official Journal of European Union, 2022). The principles from these frameworks have provided a base for European Sustainability Reporting standards.

2.3 European Sustainability Reporting Standards

The European Sustainability Reporting standards (ESRS) were published by European Commission (2023) in accordance with Directive 2013/34/EU and Directive (EU) 2022/2464 regarding the sustainability information that organizations must disclose (European Commission, 2023). The process of developing standardized guidelines for disclosed non-financial information has been a long and ongoing process. CSRD is the result of the development to establish common European wide guidelines for undertakings (Official Journal of the European Union, 2022) and European sustainability reporting standards provide practical reporting requirements, data points and measurement metrics for undertakings.

The Regulation (EU) 2020/852 regarding environmental objectives of EU Taxonomy is another publishment which is integrated into the new ESRS's sustainability statement, and they must be clearly applied into the reports environmental section (European Commission, 2023). Furthermore, the ESRS are designed to work in unison with CSRD in collaborative manner and they set due diligence requirements and provide guidance for double materiality assessment (European Commission, 2023). It could be said that ESRS acts as a more detailed user manual to assess organization's impacts on sustainability matters and sustainability risks effects on the organization and as guide for undertakings to meet the requirements of CSRD.

According to EFRAG (2022b) all material opportunities, impacts and risks are to be reported if they are related to governance, social and environmental sustainability matters of the undertaking. EFRAG (2022a) states that the organizations impact refers to all positive and negative factors that its operations cause. The impacts are assessed with impact materiality which also defines possible future impacts of the undertaking (EFRAG, 2022a). The financial materiality assessment is utilized to identify sustainability related opportunities and risks of the organization. These include those resulting from reliance on social, natural, and human resources. The corporate sustainability reporting standards require undertakings to report only according to the material sustainability matters and the new regulation offers information for determining relevant disclosures. The ESRS include both mandatory and non-compulsory disclosures. The disclosures include recommended reporting methods and considerations for certain issues, but regarding the voluntary statements the undertakings can themselves determine if they are applicable in their reporting (European Commission, 2023).

2.3.1 Disclosing qualitative and quantitative information

The characteristics of information in sustainability statement must meet certain requirements. The reported sustainability information is to be disclosed according to Disclosure Requirements which consist of specific datapoints that can be either numeral or narrative (European Commission, 2023). When organization is conducting their sustainability statement, they are required to represent data relevant to the disclosed sustainability matter and represent it in an accurate and complete way as well as without bias. Presented information must be from verified sources and supported with enough contextual information for their sufficient interpretation (EFRAG, 2022a). Additionally, the aim of sustainability statement is to create a comprehensive picture of organizations operations with linking forward- and backward-looking information regarding organization's operations. If the organization discloses information that differs from the previous reporting period it must state the differences and provide reasons for the change. The usefulness of the qualitative and quantitative performance metrics has to be considered before they are utilized in the sustainability statement (European Commission, 2023). This implies that metrics should be interpretable and present the data in a transparent way.

Furthermore, the metrics must describe if the practices to reduce undertakings negative impacts and to increase positive results regarding social and environmental aspects are effective. Furthermore, the metrics and units must produce comparable and reliable information as well as give insight to company operations probability to have financial effects. When conducting sustainability statement, it is crucial that the metrics and units as well as their definitions and measuring are consistent in the reporting (EFRAG, 2022a). In addition to this, the undertaking is required to produce information which is comparable to reference points, such as sector specific benchmarks and targets. Verifiability of reported information is crucial for it to be defined as faithful representation. Due to this, the undertaking must confirm the source of disclosed information or its gathering process. (European Commission, 2023).

2.4 Double materiality

Double materiality assessment is a crucial step of reporting according to ESRS and choosing material sustainability topic areas has been part of sustainability reporting even long before the new standardization. Both NFRD (European Commission, 2020a) and CSRD include the aspect of double materiality as a key matter. This means that the organization are to report the impacts their actions have on the environment and on people as well as how sustainability matters impact the organization. The CSRD emphasized that in the reporting process these both perspectives should be considered and be material in the disclosure (Official Journal of European Union, 2022). New ESRS regulation emphasizes double materiality and similarly divides it into two dimensions. The impact materiality includes both negative and positive social, governance, and environmental impacts of the undertaking. The impacts are viewed both in downstream and upstream of organizations value chain including the lifecycle of its services and products. Additionally, the impacts caused through undertakings business relations, such as all operations in value chains, are part of the impact materiality. The financial materiality is the other of the dimensions and it is defined as actions that can affect the undertaking's economic performance, financial position, revenue, and discount rates on short- to long-term time periods (European Commission, 2023).

The materiality assessment of European Sustainability Reporting standards is based on OECD Guidelines for Multinational Enterprises and on UN Guiding Principles of Business and Human Rights (European Commission, 2023). According to UN (2011) the due diligence process consists of identifying, mitigating, and preventing organizations impacts on human rights. In addition to their own actions the organizations should evaluate their indirect impacts. Furthermore, they should assess the appropriate actions if they cause or contribute to any negative impacts (UN, 2011). The due diligence process by OECD (2018) is defined as assessing and identifying existing and potential negative impacts of the undertaking's operations including the services and products it provides. Taking an action to cease, mitigate and prevent the negative impacts are the actions following the identification. Conducting the ongoing due diligence includes scoping all business areas and connections where risks are most likely and prioritizing the ones which are most significant (OECD, 2018). These OECD (2018) and UN (2011) due diligence process define the assessment methods applied in ESRS (European Commission,2023). Table 1 presents the process of ESRS due diligence and its sustainability objectives.

TABLE 1. Due diligence requirements following European Sustainability Reporting Standards (Official Journal of the European Union, 2023)

ESRS due diligence requirements	Paragraphs
Integrating due diligence in strategy, governance, and business model	ESRS 2 GOV-2 ESRS 2 GOV-3 ESRS 2 SBM-3
Stakeholder engagement with affected groups	ESRS 2 GOV-2 ESRS 2 IRO-1 ESRS 2 MDR-P Topical ESRS
Assessing and identifying negative social and environmental impacts of the organization	ESRS 2 IRO-1 ESRS 2 SBM-3
Addressing the negative social and environmental impacts of the organization	ESRS 2 MDR-A Topical ESRS, the actions taken to address the impacts
Following the effectiveness of the actions taken to mitigate negative impacts	ESRS 2 MDR-M ESRS 2 MDR-T Topical ESRS, targets and metrics

The ESRS process of determining the material matters and assessing the materiality of undertaking's impacts is based on the three main steps. The organization must gain deep understanding of how its stakeholders, business connections and operations create positive and negative impacts. Furthermore, the undertaking must identify the existing impacts of its processes and the ones which potentially might happen. For this identification step, organization can utilize several sources, such as scientific research, and engage with advisors and its stakeholder groups. The third step that organization must take is assessing materiality of potential and already existing impacts. This includes defining thresholds to narrow down the impacts which will be reported (European Commission, 2023). The topical ESRS include list of sustainability matters which must be considered when organization is conducting a materiality assessment. The list acts as a tool and supports the materiality assessment process. The listed sustainability matters are divided into sub-topic categories. They can also include their own sub-sub-topic category if it is necessary for understanding the extend of the topic (European Commission, 2023).

The sustainability reporting standards base the materiality of the adverse impacts on their severity and their likelihood in case the assessment concerns potential impacts. The severity is defined based on its scope and scale. Additionally, the impacts irremediability increases its severity (EFRAG, 2022a). The financial materiality is not something that can be always controlled by the undertaking since the dependencies on social, natural, and human resources can create both opportunities and risks which are financial. According to European Commission (2023) the materiality of these two possibilities is assessed based on their probability and the degree of their impact.

The ESRS do not provide their own mandatory steps for organizations regarding due diligence process. Due diligences expected result is to gain information about the impacts of organization's operations, but the ESRS does not impose requirements of its conducts (European Commission, 2023). Due to this the existing international due diligence processes of OECD and UN are to be utilized by organizations who are conducting their sustainability reporting (EFRAG, 2022b) Materiality must be determined also when organization is reporting about its opportunities and sustainability statement should include description of how the certain aspect acts as opportunity for the organization or for its sector (EC, 2023).

2.4.1 ESRS 1 and ESRS 2

The sustainability report consists of certain obligatory structure which has four sections shown in Figure 5. The general, environmental, social and governance information include disclosure requirements which application is determined by mandatory guidelines and by assessing which of their objectives are material for the undertaking (European Commission, 2023).

Like Global reporting initiative (GRI,2022d) the European Sustainability Reporting standards include sector specific categories. The other two categories, topical and cross-cutting standards, are applied to all undertakings and are not dependent on the field they operate in. The ESRS 1 General requirements and ESRS 2 General disclosures form the cross-cutting standards, and they act as base for disclosing sustainability information (European Commission, 2023). The ESRS 1 includes the structure of the reporting standards and all the key concepts such as the qualitative characteristics of information, due diligence, and double materiality. Additionally, ESRS 1 contains guidelines for reporting the value chain information and instructions of sustainability statement's preparation (EFRAG, 2022a). Metrics and targets (MT), impact risk and opportunity management (IRO) as well as strategy (SBM) and governance (GOV) are general sustainability reporting areas that are included in ESRS 2 (European Commission, 2023).

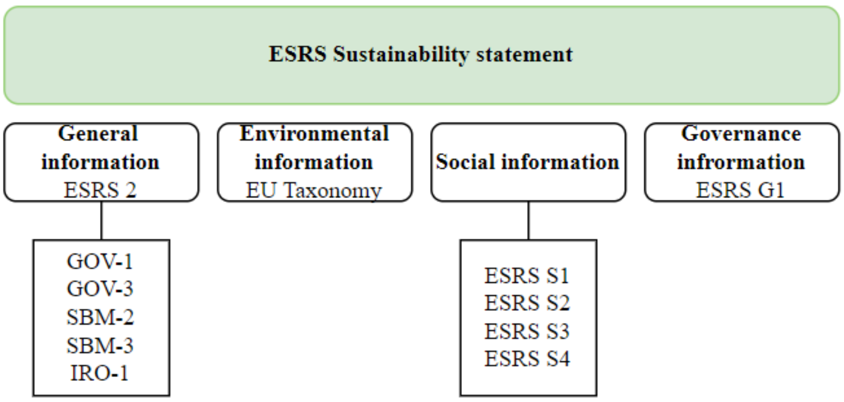

FIGURE 5. Structure of the sustainability statement following requirements of European Sustainability Reporting standards. Modelled after (Official Journal of the European Union, 2023).

2.4.2 Topical and Sector specific standards

Topical ESRS which are also known as sustainability matters are either sector-specific or are applied to all fields (EFRAG, 2022a). The topical reporting requirements form the categorization of sustainability matters into environmental, social and governance information shown in Table 2. According to European Commission (2023) the sector specific category addresses areas that are not covered sufficiently by ESRS 1 and ESRS 2. These standards address risks and opportunities as well as impacts which occur in specific fields and are relevant only to them (European Commission 2023). Sector specific ESRS disclosures must be grouped based on the sustainability topic and area which the disclosed information concerns. When conducting the report, the undertaking must describe how the disclosed information is linked. This might require expressing how units and metrics are chosen and how they are related to strategy and risk management as well as governance. Organizations must ensure that their entity-specific disclosures are comparable with other undertakings. For this purpose, other international frameworks, such as GRI, can be applied to have consistent reporting methods (European Commission, 2023).
To understand their risks and opportunities as well as their impacts of the organization, it is crucial for undertakings to conduct materiality assessment. The assessment is the first step of reporting according to corporate sustainability reporting standards. Sustainability matter can be determined material when it fulfils the criteria of financial or impact materiality (EFRAG, 2022a). The sustainability matters are listed in topical ESRS, and they are categorised into several topic categories to act as a base for materiality assessment. After determining sustainability matter as material, undertaking must report its information according the topical ESRS and its Disclosure Requirements. Additionally, the undertaking must disclose additional reports if the matter is material, but it is not sufficiently covered by existing ESRS. Furthermore, the ESRS 2 presents Minium Disclosure Requirements regarding undertakings targets, actions, and policies. If these remain lacking and they are not adopted by the organization the schedule for their implementation may be included to the report (European Commission, 2023).

TABLE 2. Categories of the sustainability statement and their sustainability matters following requirements of European Sustainability Reporting standards. (European Commission, 2023)

Part of the management report	ESRS codification	Title
General information	ESRS 2	Genereal disclosures, including information provided under the Application Requirements of topical ESRS listed in ESRS 2 Appendix C
Environmental information	Not applicable	Disclosures pursuant to Article 8 of Regulation (EU) 2020/852 (Taxonomy Regulation)
	ESRS E1	Climate change
	ESRS E2	Pollution
	ESRS E3	Water and marine resources
	ESRS E4	Biodiversity and ecosystems
	ESRS E5	Resource use and circular economy
Social information	ESES S1	Own workforce
	ESRS S2	Workers in the value cahain
	ESRS S3	Affected communities
	ESRS S4	Consumers and end-users
Governance information	ESRS G1	Business conduct

2.4.3 Environmental information of ESRS

The objectives of ESRS 2 General disclosures apply to all organizations and their requirements must comply with ESRS E1 Climate Change and other standards if they are determined material in the double materiality assessment (EFRAG, 2022b). The Climate Change standards require organizations to report their negative and positive impacts their operations have on climate change. This also includes the potential effects that might be caused by the organization. Additionally, the undertakings must specify their plan to act according to targets of Paris Agreement and to mitigate the climate change (EFRAG, 2022c) The ESRS E1 standard contains same risk management objectives as SFDR (European Commission, 2018), since it addresses climate change as sustainability threat and requires undertakings to declare their material opportunities and risks caused by climate change as well as their management plan. Furthermore, the organizations must disclose the economic effects that they might face due to their impacts and climate risks in their operating environment. The risk classification and management must be conducted with horizons of short-, medium-, and long term. (EFRAG, 2022c). The environmental information of sustainability statement is pursuant to EU Taxonomy environmental objectives (European Commission, 2023) but all of them are not automatically material to organization's operations. Table 2 presents five topics of ESRS Environmental standards which provide organization's stakeholders information regarding the undertaking's operations.

The topics, sub-topics and sub-sub topics of Environmental standards are shown in Table 3. The topical list acts as a support tool which organizations can utilize when conducting their double materiality assessment (European Commission, 2023).

TABLE 3. Topical standards for disclosing environmental information following European Sustainability Standards (European Commission, 2023)

Topical ESRS	Environmental matters covered in topical ESRS		
	Topic	Sub-topic	Sub-sub topic
ESRS E1	Climate change	Climate change adaptation Climate change mitigation Energy	
ESRS E2	Pollution	Pollution of air Pollution of water Pollution of soil Pollution of living organisms and food resources Substances of concern Substances of very high concern Microplastics	
ESRS E3	Water and marine resources	Water Marine resources	Water consumption Water withdrawals Water discharge Water discharges into the oceans Extraction of water resources
ESRS E4	Biodiversity and ecosystems	Direct impact drivers for biodiversity loss Impacts on the state of species Impacts on extent and condition of ecosystems Impacts and dependencies on ecosystem services	Climate change Land use change Fresh water use-change and sea-use change Direct exploitation Invasive alien species Pollution Others
ESRS E5	Circular economy	Resource inflow, including resource use Resource outflow related to products and services Waste	

2.4.4 Social and governance information of ESRS

The social information is included in sustainability statement to create extensive picture of undertakings negative and positive impacts on external and internal stakeholders, such as its own workforce, employees in the value chain, consumers, and communities (European Commission, 2023). The undertaking's must report on their due diligence process regarding their social sustainability matters meaning that actions taken to prevent, mitigate and remediate negative impacts are added to the report. Furthermore, the financial risks and opportunities that arise from social sustainability matters must be included to the organization's sustainability statement. The management of these risks and their identification process are mandatory aspects for the reporting as well as including the short-, medium- and long-term time horizon view regarding them. Additionally, undertakings must disclose their impact assessment approach in the sustainability statement (EFRAG, 2022d). The Appendix 1 presents the sustainability matters and their sub-topics related to social dimension of sustainability aligning with international instruments of human rights such as ILO conventions and UN Guiding Principles of Business and Human Rights (European Commission, 2023).

The governance information provides stakeholders with uniform image of undertaking's business conduct. Thus, the undertakings must disclose their operations, performance and strategy concerning code of conduct. The required information covers a wide area of organization's processes and standards, such as the role of the administrative bodies and evaluating material risks, opportunities, and impacts, which can be reported in conjunction with ESRS 1 and ESRS 2 (EFRAG, 2022e). The topical standard and its sub-topics of governance information are presented in Table 4. Governance is one of the key factors of due diligence process and elements such as integration of sustainability performance in incentive schemes and interaction with stakeholders who are impacted by undertaking's operations are part of it (European Commission, 2023).

TABLE 4. Topical standards for disclosing governance information following European Sustainability Standards (European Commission, 2023)

Topical ESRS	Governance matters covered in topical ESRS		
	Topic	Sub-topic	Sub-sub-topic
ESRS G1	Business conduct	Corporate culture Protection of whistleblowers Animal welfare Political engagement and lobbying activities Management of relationships with suppliers including payment practices	
		Corruption and bribery	Prevention and detection including training Incidents

3 MATERIALS AND METHODS

3.1 Materials

The qualitative data of the study was gathered from several different official sources. European Union regulatory documents, international sustainability reporting frameworks and legal instruments as well as materiality analyses. Furthermore, the annual sustainability reports of Pinja Group were utilized to gain understanding of the organization's previous reporting methods. The European Union regulatory documents and directives were acquired from EUR-Lex and European Financial Reporting Advisory Group's webpages as well as from Official webpage of European Commission. The CSRD Directive 2022/2464/EU and ESRS Regulation C/2023/5303 being the most material sources for the study. The Global Reporting Initiative, United Nations Guiding Principles on Business and Human Rights and ILO Conventions were data sources for international sustainability reporting frameworks and legal instruments utilized in the study. Furthermore, the GRI based annual sustainability report publications of Pinja Group, which were available on company's webpage, were acquired from the organization and from its mother company Norvestor. Additionally, interview with HR Officer of Pinja Group was conducted to gain deeper insight into organization's sustainability reporting operations.

3.2 Methods

The research strategy of the thesis was a mixed method case study. According to Eriksson and Kovalainen (2008) case study research can be utilized to present complex systems in more accessible form. The method can often be seen as qualitative, but its frame can also be constructed based on quantitative data in addition with research literature and existing empirical data, such as annual reports, organizational charts, and media texts way (Eriksson and Kovalainen, 2008). Mixed methods include the use of both qualitative and quantitative methodological approaches (Sandelowski et al. 2012) and mixed methods case study constructs of two phases: obtaining data applying both qualitative and quantitative collection methods and integrating this data into cohesive results (Hitchcock and Onwuegbuzie, 2022).

Since the topic of the study was novel, it limited the amount of prior research that could be utilized. The mixed method case study was chosen as the best research approach because it allows for the creation of a consistent image of the organization's sustainability reporting by combining data from multiple sources (Hitchcock and Onwuegbuzie, 2022). Due to the novel study topic mixed method design was appropriate since it is applied when researcher needs to use qualitative data for forming base for the explored topic before utilizing quantitative methods. Additionally, purposeful integration of qualitative and

quantitative data can provide depth to the study which might be lacking if only one approach would be applied. (Ivankova and Creswell, 2009).
In this study multi-step process was utilized to determine if organizations current sustainability reporting met the requirements of the new European Sustainability Reporting standards by European Commission (2023). Fig. 6 presents a novel framework with five steps was designed to compare organizations past and current sustainability reporting to the new obligatory sustainability disclosures of ESRS. The first step was gathering qualitative and quantitative data. Based on the acquired information sustainability reporting framework was constructed for evaluating reporting methods. Analysing the structure of organization's sustainability report was the third step and disclosed ESG information and GRI disclosures of the organization's sustainability reports (Pinja Group, 2023c) were analysed and compared to the ESRS's mandatory paragraphs. The final and fifth step was defining which ESRS requirements were fulfilled, and which were not met.

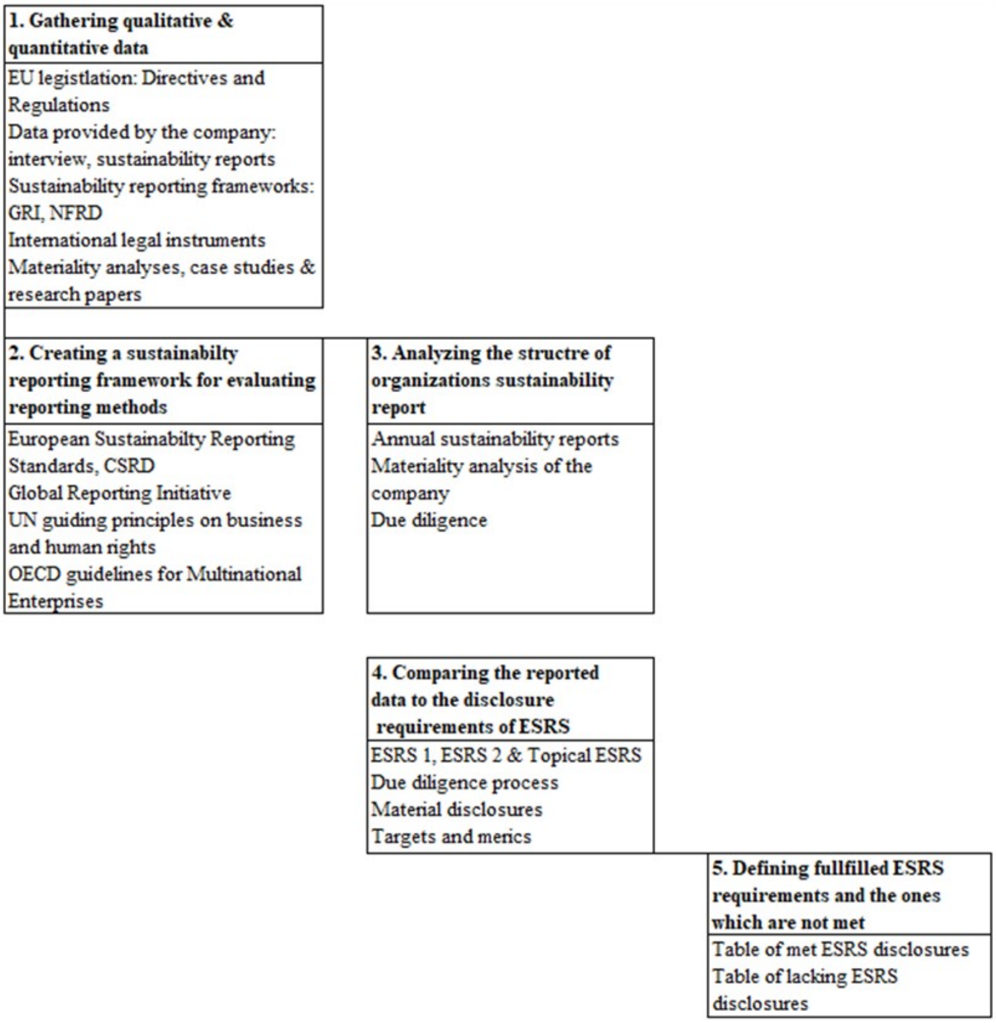

FIGURE 6. The constructed five-step novel framework for evaluating the sustainability reporting of the organization.

The semi-structured interview, which utilizes questions and prompts to draw participant more fully into the study subject, was chosen as another method to gather data of Pinja Group's sustainability reporting for the mixed method study. Semi-structured interview is qualitative research approach which incorporates both theoretical and open-ended questions and researcher draws answers from participant's experience and from existing knowledge of discipline's frameworks (Galletta et al. 2013; Given, 2008). The semi-structured interview, which questions are presented in Table 5, has flexibility for follow-up questions, and it allows in-depth study of the topic (Leavy, 2014).

TABLE 5. Question categories divided by sustainability objectives of ESRS disclosures.

Section	Standard	Questions
Environmental information	ESRS E1	*The new ESRS disclosure concerning energy use requires organizations to report if their energy sources are renewable. In your recent sustainability report did you specify the used energy sources?*
	ESRS E1 ESRS E2	*Did you use Y-hiilari tool to calculate company's emissions for your 2023 sustainability report?*
	ESRS E5	*The ESRS topical standard 'Circular economy' has outflow section which requires organizations to specify how they recycle their waste. Does Pinja do this?*
	ESRS 2 IRO-1 ESRS E2	*According to ESRS organizations have adaption time for the supply chain data gathering requirements. Since Pinja has leased IT-equipment such as laptops, has the aspect of gathering data from company's supply chain been already addressed?*
	ESRS E4	*Since Pinja is an IT-company are the biodiversity impact risks determined as material?*
Social information	ESRS S1	*Is the organization's employee accident rate, which is included to the ESRS "Health and safety" standard, publicly available information or is it only internal knowledge?*
	ESRS S1	*In your previous sustainability report Pinja has used 1 to 5 satisfaction scale when reporting their employee well-being in the organization. Does the company have annual survey which this scale is based on?*
	ESRS S1 ESRS S2 ESRS G1	*In Pinja's 2023 sustainability report it was stated that you provide training regarding corruption and bribery topics. Can you elaborate on this?*
Governance information	ESRS G1 in conjunction with ESRS E1, E4 & ESRS S1,S4	*Mandatory reporting requirements of ESRS include disclosing the main features of organization's risk management and internal control systems. Does Pinja currently have internal risk management system regarding other material topics than data safety and management?*
	All ESRS disclosues	*Third party has already provided Pinja with materiality analysis during 2021. Can you elaborate on this?*
	ESRS G1 ESRS S2	*Does Pinja have public supplier code of conduct or is it integrated into the company's general code of conduct?*

Applying semi-structured approach, interview questions were prepared beforehand based on the sustainability topic areas and as typical for the approach additional questions were presented during interview which style was conversational (Eriksson and Kovalainen, 2008). The interview questions were divided into three categories regarding European Sustainability Reporting Standards: environmental information, social information, and governance information.
The semi-structured interview was chosen as data collection method based on it enabling the deeper understanding of organization's sustainability reporting methods and discussion of information which is not publicly available.
To manage and analyse qualitative data provided by the organization, construction of case record (Eriksson and Kovalainen, 2008) was conducted. In the study data was gathered from several different sources, and case record was conducted to organize information and categorize it manually in Microsoft Excel by utilizing thematic analysis. Thematic analysis is a qualitative research method, which can be used as a tool to identify and analyse themes from collected data (Nowell et al. 2017; Braun and Clarke, 2006). As stated by Nowell et al. (2017) thematic analysis can be utilized in categorizing themes from governance documents. The GRI index indicators of Pinja Group's sustainability report were used as key words for searching ESRS disclosures from governance documents and environmental, social, economic and governance information were formed as common themes. The GRI and ESRS reporting disclosures were compared based on categorized case record data and the tables are presented in result section.

4 RESULTS

The following chapters outline the results of conducted framework, which compared metrics of economic, governance and environmental GRI disclosures and paragraphs to the reporting requirements of European Sustainability Reporting Standards and determines their comparability.

4.1 Economic and Environmental GRI and ESRS disclosures

Both ESRS 2 SBM-1 and GRI 201-1 disclosures include requirement to report annual revenue in M€. The structure of the GRI 210 and the information it discloses met the requirements of ESRS 2 SBM-1.

TABLE 6. Comparison of metrics of GRI 201-1 and GRI 302-1 to metrics of ESRS 2 SBM-1 and ESRS E1.

	ESRS Disclosures	Metrics	GRI Disclosures	Metrics
Economic	ESRS 2 SBM-1 Breakdown of total revenue by significant ESRS sectors	Revenue, M€	GRI 210: Economic performance 201-1	Revenue, M€ Annual revenue growth, %
Environmental	ESRS E1 Climate change ESRS E1-5 ESRS 2 SBM-1	Total energy consumption from fossil fuels, nuclear and renewable sources in MWh Disaggregation of all renewables	GRI 302: Energy 302-1	Energy consumption, MWh Share of renewable electricity,%

The environmental disclosure GRI 302: Energy 302-1 of Pinja Group was not directly comparable with mandatory reporting requirements of ESRS regarding the energy disclosures. Both GRI and ESRS disclosures included energy consumption in MWh and share of renewable electricity in percentages as reporting metrics and units. However, the ESRS reporting had divided the energy topics in paragraphs ESRS E1-5 and ESRS 2 SBM-1. The structure of GRI 302 disclosure applied by Pinja Group did not directly fulfil the reporting requirements of ESRS E1-5 and ESRS 2 SBM-1 since it did not declare the share of energy produced with fossil fuels.

The analysis of sustainability report presented in Table 7. showed that GRI emission disclosures 305-1, 305-2 and 305-3 included total GHG emissions and gross scope 1, 2, and 3 GHG emissions in tCO2e as metrics. These GHG emission reporting metrics were comparable with ESRS E1-6 disclosure. From comparison of specific ESRS E1-6 and GRI 305 paragraphs it could be seen that out of ten mandatory ESRS paragraphs four were met by GRI based sustainability reporting (Appendix 2.). The paragraphs 48 (a), 49 (a, b) and 51 concerned disclosing emissions from each of the scope.

TABLE 7. Comparison of metrics of GRI 305 to metrics of ESRS E1 and ESRS E1-6.

	ESRS Disclosures	Metrics	GRI Disclosures	Metrics
Environmental	ESRS E1 Climate change ESRS E1-6	Gross scope 1,2,3* GHG and total GHG emissions in tCO2e	GRI 305 Emission 305-1 Emission 305-2 Emission 305-3	Scope 1, Scope 2, Scope 3 Carbon footprint, tCO2e

The analyse outcome showed that both GRI disclosure 306-3 and ESRS E5-5 disclosure seen in Table 8. had disclosed amount of total waste in tonnes as their reporting metrics and thus are partly comparable with each other. The disclosure paragraphs of ESRS E5-5 are not fully covered by the reporting requirements of GRI 306-3. Thus, the GRI reporting of the organization did not meet all mandatory requirements of E5-5 resource outflow. Out of eight mandatory and applicable paragraphs one was fulfilled as seen in the Appendix 3.

TABLE 8. Comparison of GRI 306-3 reporting disclosures to ESRS E5 disclosure requirements

	ESRS Disclosures	Metrics	GRI Disclosures	Metrics
Environmental	ESRS E5 Resource use and circular economy E5-5 Resource outflows	The amount of total waste, kg or tonnes	GRI 306:Waste 306-3	Waste, tonnes

4.2 GRI and ESRS disclosure requirements for social information

The GRI 2: General Disclosures 2-7 met the requirements of ESRS S1-6 regarding the same metrics on disclosure of total number of employees presented in Table 9. The three of the reported metrics were not comparable with ESRS S1-6. One out of seven applicable ESRS S1-6 paragraphs was met by organizations GRI 2: General Disclosures (Annex 4.) The analysis showed that both ESRS-S1-14 and GRI 403-9 disclosures included rate of work accidents requirement as reporting metrics. Thus, one out of five ESRS paragraphs was met by organization’s public sustainability report as presented in Annex 4.

TABLE 9. Comparison of reporting disclosures of GR2: General Disclosures 2-7 to ESRS S1-6 and comparison of GRI 403-9 to disclosure requirements of ESRS S1-14.

	ESRS Disclosures	Metrics	GRI Disclosures	Metrics
Social	ESRS S1, S1-14 Health and safety	% of employees covered by the undertaking's health and safety management Number of fatalities Number of lost work days Work related accidents: number, and rate	GRI 403: Occupational health and safety 403-9	Accident rate, accidents per 1000 full time equivalent employees (FTE)
Social	ESRS S1 Own workforce S1-6 – Characteristics of the undertaking's employees	The total number of employees	GRI 2:General Disclosures 2-7	Employee satisfaction, scale 0-5 Employees, total number New employees, total number Employees working remotely, %

The metrics of GRI 418-1 did not apply to ESRS S4-4 disclosures, which can be seen in Table 10. The ESRS metrics were disclosed as non-mandatory and thus cannot be compared to GRI 418-1. It could be determined that GRI metrics covered more topic area on Customer Privacy than ESRS S4-4.

TABLE 10. Comparison of GRI 418-1 disclosures and ESRS S4-4 mandatory reporting requirements

	ESRS Disclosures	Metrics	GRI Disclosures	Metrics
Social	ESRS S4-4 Taking action on material impacts on consumers and end-users	Non-mandatory, determined by undertaking	GRI 418: Customer Privacy 418-1	Breaches of security or customer privacy, pcs Training on security and GDPR, Yes/No

4.3 GRI and ESRS disclosure requirements of governance information

The GRI 205-2 met the reporting requirements of ESRS G1-3 regarding the same metrics on training in anti-corruption presented in Table 11. The GRI disclosure 205-2 applied by Pinja Group did not directly fulfil all the mandatory paragraphs of the ESRS G1-3 and ESRS G1-4 reporting requirements shown in Appendix 5. Three ESRS paragraphs out of total eleven were met by Pinja Group's GRI based reporting. These paragraphs 18, 20 and 21, which had narrative metrics, concerned organizations procedures to prevent incidents of bribery and

corruption and communication regarding their prevention policies. These aspects were included into sustainability report of the company.
The organization's reporting of GRI 2: General Disclosures 2-23 and 2-24 met the requirements of ESRS G1-1 regarding 'training on company policies' as matching metric. The narrative information of GRI based sustainability report covered the ESRS G1-1 paragraphs 7, 10 (a) and 10 (c) regarding disclosing information on business conduct policies and employee training. Appendix 5. presents the mandatory paragraphs which three out of nine were met.

TABLE 11. Comparison of metrics of GRI 205-2 and GRI 2 General Disclosures to metrics of ESRS G1-3, ESRS G1-4 and ESRS GOV1-1

	ESRS Disclosures	Metrics	GRI Disclosures	Metrics
Governance	ESRS G1 Corruption and bribery ESRS G1-3 ESRS G1-4	Number of fines and convictions regarding bribery Number of bribery or corruption incidents Coverage and frequency of anti-corruption training	GRI 205: Anti-corruption 205-2	Training on anti-bribery and corruption, Yes/No
Governance	ESRS G1-1	Code of Conduct Training on company policies Existence of grievance machine regarding code of conduct	GRI 2: General Disclosures 2-23, 2-24	Training on Code of Conduct, Yes/No

The GRI based organization's public sustainability reporting of 2023 met the requirements of ESRS requirements partly in all reporting areas covering minimum one paragraph per European Sustainability Reporting Standard disclosure.

4.4 Interview results as deeper insight on reporting

This chapter outlines the additional information regarding sustainability reporting of the organization. The supportive data adds on the comparison of GRI based reporting on ESRS requirements and extends the understanding of organizations reporting process. The interview questions were divided into three categories: environmental, social and governance information seen in Appendix 5. The Chief Human Resource Officer of Pinja Group was interviewed regarding the sustainability reporting operations of the company.

4.4.1 Disclosures of environmental information

The interview provided information how internal knowledge of emission calculation methods were existing, but they had not been disclosed in the sustainability report of the organization.

"The 2023 sustainability report was audited by a third party which confirmed our calculations. We used Y-hiilari for the emission calculations and the third party used their own calculation methods which were not specified but both of our results were similar. Our report and the carbon calculations are not just our own disclosures since they were checked and confirmed by the audit."

The methods utilized in emission calculations are mandatory to disclose when applying ESRS in sustainability reporting. Thus, Pinja Group already had required information for meeting the Paragraph 50. of ESRS-E1-6. Additionally, the interview results showed that organization has applied external auditing to verify their own emission calculations. The interview confirmed the way organization had determined the share of renewable electricity for their GRI based reporting:

"It (renewable energy) is included in our carbon emission calculations in a way that emission free energy has been considered. The carbon emissions have been summed up and emission free energy does not increase the total amount. If the emission figures are calculated in kWh and in tCO2e their amount would be larger in kWh."

The interview showed why the categorization of waste types had not been applied in organizations reporting when answering if Pinja Group specifies how they recycle their outflow waste:

"No, we don't. It is difficult to specify since we have only waste which is generated at the office and the waste management companies do not provide us information regarding the composition of collected waste. The waste which is generated comes from the office and it is usually paper, cans and food waste from lunch. From the viewpoint of ESRS materiality assessment, waste might not be material as a topic for us. However, only time will tell if it is determined relevant. I would determine it as non-material due to the generated waste amount in tonnes being so small. "

The comment provided insight for the reasons why sustainability reporting of the organization did not meet the requirements of Paragraphs 37, 38,39 and 40 of ESRS E-5 regarding categorizing generated waste amount by weight drawn from disposal waste and disaggregating outflow by its recovery operation types.

The interview showed how organization's IT-field had impact on the sustainability themes which it determined as relevant and provided deeper understanding how EU Taxonomy was applicable in Pinja Group Group's sustainability reporting process. The question was presented regarding materiality of biodiversity impacts for the company:
"They (biodiversity impacts) are not determined material for us, but EU Taxonomy requires our mother company to report according to it. Due to this Pinja Group must also disclose the

mandatory EU Taxonomy requirements. The list of EU Taxonomy requirements also includes biodiversity aspects which Pinja Group discloses. Our company has few business operations which are eligible for EU Taxonomy, but we haven't met alignment requirements for any products in a way that they would fully meet the EU Taxonomy eligibility. This is topic that we are working on to find out if we could meet alignment requirements with some of the products."

The interview result showed that organization would already have data to report on concerning EU Taxonomy environmental objectives in case ESRS E4 disclosure would be determined material in the future. Furthermore, the study revealed difficulties which organization had regarding gathering information from its supply chain when presented with question if Pinja Group had addressed aspects of data collection form suppliers:

"At some extent. For the data we cannot directly gather from the supplier, which is surprisingly large amount, we utilize statistical averages in either euros or in number of pieces for the calculations."

4.4.2 Disclosure of social information

The interview provided information by what methods employee satisfaction result had been gathered and if the satisfaction survey was annual:

"Yes, the company conducts anonymous employee survey."

The research showed that the materiality of disclosure topics might vary between annual reports and that its public availability might change based on it when question regarding external information of organization's employee accident rate was presented:

"During some years it has been reported but in the next report it probably won't be mentioned since it is not material topic or indicator for us. However, we monitor the accident rate constantly/regularly and report it for example to our investors. It is metrics that we utilize as a unit of accident rate per 10000 work hours."

The organizations current reporting of GRI 403-9 partly covered the ESRS S1-14 and ESRS S1-6 paragraphs 50 and 88. The study findings imply that the extend of met ESRS regulations can change in future reporting.

4.4.3 Disclosures of governance information

The interview showed that organization provided additional information to suppliers concerning its code of conduct when question was presented about their compliance:

"It (supplier code of conduct) is integrated into the company's general code of conduct. We do have a separate supplier code of conduct, but it is not published at our website. However, it is attached as contract annex to our suppliers."

This finding showed that Pinja Group had already possibility to meet ESRS S2-1 Paragraph 18 reporting requirements regarding disclosing if organization had supplier code of conduct in place. However, the information had not been included into GRI index of the 2023 sustainability report.

The interview provided specific information regarding the contents of organization's training of employees when follow up question was presented regarding the training programme:

"We actually have annual code of conduct training, which includes all topic areas related to governance. In practice, we ask our employees to familiarize themselves to our code of conduct, but we also have several specific guidelines related to topics such as bribery and inappropriate behaviour in the workplace."

The provided information could be applied to ESRS G1-3 Paragraph 18 concerning reporting about the procedures applied to prevent, detect, and address allegations or incidents of bribery and corruption due to code of conduct covering the topic. The interview showed that Pinja Group had extensive cybersecurity and data protection risk management which had not yet been addressed by any of the ESRS requirements. Other material risks were not addressed in 2023 sustainability report and the interview provided deeper insight on the internal controls of the organization:

"Yes, we have annual risk management process. During annual planning we define business risks for the company and risks at the level of each business unit. We don't have a public document where this process would be described. Additionally, the annual planning process includes key person risk management and personnel risk management. They are aspect of HR planning and due to this they are highly confidential. It is not distributed internally. For cybersecurity and data privacy we have separate and well-working risk management process. We are currently in middle of large auditing process which will provide us with certificate which confirms that our process follows a certain security standard. Furthermore, the risk management, which is part of our annual plan, is process that we conduct internally, and we follow the same steps in the process every year. ISO2701 is a data privacy standard that we have built our own cybersecurity and data security on. The auditing project which we are conducting is based on this standard and the ISO20701 based process should fulfil the ESRS requirements as well."

The previous sustainability report of Pinja Group from 2021 had included materiality assessment and interview presented elaborated information regarding it. Furthermore, the interview showed that organization had already an insight regarding future requirements of ESRS' double materiality and saw it as a next step in developing their reporting process to meet the new mandatory standards:

"We conducted a material analysis, and its perspective was higher level themes. For ESRS we must conduct double materiality assessment which means that we must consider the two axels: economic impact and organization's impact on sustainability. The double materiality assessment would be the next step for Pinja Group so we could report relevant things in the 2025 sustainability report."

5 DISCUSSION

This chapter summarizes the research findings, the framework of the study and evaluates the answers for the research question. Furthermore, the results are compared to prior literature, such as research articles and legal documents. Additionally, limitations of the study and future research possibilities are addressed.
The aim of the study was to evaluate if the current sustainability reporting of the software company Pinja Group meets the requirements of European Sustainability Reporting Standards and address the possible shortcomings of the reporting. The research methodology was mixed method case study where both qualitative and quantitative data collection and research methods were applied. Multi-step process was utilized to create novel framework which was used to evaluate organizations current sustainability reporting. Additionally, semi-structured interview was conducted to with Pinja Group Group's HR officer to support the framework with acquiring expert insight of organization's reporting process. The collected data was managed by construction of case record. The GRI disclosures of Pinja Group Group's reporting were compared to legally binding ESRS requirements by using thematic analysis.

5.1 Current sustainability reporting of the organization and its development

The conducted study shows that the organization meets the ESRS disclosures requirements in several paragraphs of different sustainability areas. Pinja Group has publicly disclosed its sustainability reports since 2020. Thus, the organization has developed a reporting process which already has background information for developing it towards meeting the mandatory ESRS disclosures. However, to present an extensive picture of their sustainability impacts in the future, the organization should expand their reporting to include non-mandatory sustainability disclosures and conduct double materiality analysis.
According to European Commission (2023) double materiality assessment is crucial step of sustainability reporting. With double materiality organizations can define the impacts their actions have on the environment and on people as well as how sustainability matters impact the organization. (Official Journal of the European Union, 2022) To report accordingly and for undertaking to meet the reporting requirements of 2024, the impact materiality of both negative and positive social, governance, and environmental impacts must be assessed. These impacts should be viewed both in downstream and upstream of organizations value chain including the lifecycle of its services and products. (European Union, 2023). The first step for Pinja Group would be meeting these requirements and

this was also addressed in the interview by the Chief HR Officer of the organization.
If organization is not able to gather information from its down and upstream value chain, it is required to report the undergoing process and efforts taken to do so. To avoid excessive burden for the value chain, the organization can limit the disclosed information regarding targets, actions, and policies to the data that is already available internally or externally (EFRAG, 2022 a). Furthermore, for the first three years, undertaking is not required to report information about its value chains metrics unless other EU legislation applies to its topics. These transitional measures regarding the value chain information apply to undertakings of all sizes for three first years. Additionally, organizations are allowed to adopt measures which assist with conducting their new sustainability statement. The transitional measures, such as gathering information from their past sustainability disclosures and complementing ESRS requirements with international frameworks like GRI, can be utilized for the three first sustainability reports (European Commission ,2023). Due to this, Pinja Group the will be able to apply its current sustainability reporting GRI disclosures meanwhile developing its reporting to meet the ESRS requirements.

5.1.1 Aspects of disclosing economic information

The organizations fulfilment of environmental disclosures varied between the sustainability matters of Climate change ESRS E1 and Resource use and circular economy ESRS E5. Regarding the energy consumption of the company the GRI 302: Energy 302-1 disclosure was not directly comparable with ESRS E1 even though both disclosures included energy consumption in MWh and share of renewable electricity in percentages as reporting metrics and units. The requirements of ESRS E1-5 regarding energy consumption from fossil sources were not met due to the company not disclosing its share of energy produced with fossil fuels. Furthermore, the organization did not fulfil the ESRS 2 SMB-1 disclosure of involvement in fossil fuel related activities. According to Official Journal of the European Union (2019c) the undertaking's greenhouse gas emissions as well as use of non-renewable and renewable energy sources are indicators that can be utilized in measuring undertaking's resource efficiency and its impact on the environment. Pinja Group has met the forementioned ESRS requirements only partly and to provide complete picture of its positive and negative sustainability impacts, the organization should develop their reporting on these disclosures.
The analysis of undertaking's sustainability report showed that GRI emission disclosures 305-1, 305-2 and 305-3 were comparable with ESRS E1-6 disclosure due to having tCO2e as their metrics. Out of all the mandatory reporting standards and their paragraphs the E1-6 regarding Gross Scopes 1,2,3 and their total emissions were covered the most extensively. Comparison of the ESRS E1-6 and GRI 305 paragraphs showed that out of ten mandatory ESRS paragraphs four were met by GRI based sustainability reporting. All direct greenhouse gas (GHG) emissions caused by organizations actions are Scope 1 emissions and

emissions from undertaking's energy consumption are defined as scope 2 emissions (Belkhir et al, 2017). The scope 3 emissions are indirectly caused by organization's operations, such as in supply chain (Downie and Stubbs, 2012). As a knowledge organization its emissions are more complex to detect since they are not as visible as of companies who provide physical products. (El Geneidy et al. 2021). Meeting the ESRS requirements of ESRS E1-6 shows that Pinja Group has acknowledged these difficulties and is prepared for meeting the mandatory sustainability reporting in 2024.

The undertaking did not fare as well with the Resource use and circular economy standards as it did with ESRS E1-6. The research showed that both GRI disclosure 306-3 and ESRS E5-5 disclosure had disclosed amount of total waste in tonnes as their reporting metrics and thus are partly comparable with each other. However, the disclosure paragraphs of ESRS E5-5 were not completely fulfilled by organization's GRI based reporting. The conducted interview provided information of difficulties which Pinja Group was facing with their collection of data regarding resource outflows. The amount of waste was difficult to measure for the company due to it being mainly generated at the office and the waste management companies do not provide information regarding the composition of collected waste.

5.1.2 Aspects of disclosing social information

Since Pinja Group is organization which operates in IT-field the GRI 418 Customer Privacy disclosure was determined material by the company in its sustainability report (Pinja Group, 2023) but in the ESRS the breaches in customer privacy as a metrics were disclosed as non-mandatory. Thus, the ESRS and GRI requirements cannot be compared. The GRI 2: General Disclosures 2-7 met the requirements of ESRS S1-6 regarding the same metrics on disclosure of total number of employees. However, Pinja Group did not categorize the employees based on their gender or working-contract, which were requirements in ESRS S1-6 paragraphs. One out of seven applicable ESRS S1-6 paragraphs was met by organizations GRI 2: General Disclosures. The results shows that organization must change their data collection methods on social information if they aim to meet the ESRS disclosure requirements.

Regarding the Health and Safety standard ESRS-S1-14 and GRI 403-9 disclosure both included rate of work accidents requirement as reporting metrics. Thus, one out of five ESRS paragraphs was met by organization's public sustainability report. The interview provided insight on the variability of sustainability information in annual reports. The accident rate was not determined as material disclosure for the future public sustainability statement, but the accident rate was stated to be a topic of communication between the organization and its investors.

5.1.3 Aspects of disclosing governance information

According to European Commission (2023) organizations are not required to disclose any information which is determined sensitive even in the case when it is classified as material in ESRS. Paragraph 106 of the ESRS discloses that undertaking has the right to emit information if it concerns its action plans, strategies, expertise knowledge or intellectual property, such as innovations (EC, 2023). This applied to the annual risk management process of Pinja Group which was not publicly disclosed in the sustainability report due to the highly confidential information of business units and of key person risk management. According to the interview of Chief HR officer of the organization is taking part on large auditing process regarding if they follow ISO20701 security standard in their processes. In the interview, it was disclosed that when organization gains the certificate it should fulfil the ESRS requirements as well.
The organization had listed governance aspects of Responsible Business Conduct, Customers and Supply Chain, Security and Data privacy in their sustainability report (Pinja Group, 2023) but they did not publicly disclose specific aspects regarding them. The sustainability report's GRI 205-2 disclosure met the reporting requirements of ESRS G1-3 regarding the same metrics on training in anti-corruption but since the GRI disclosure did not include information more widely it did not directly fulfil all the mandatory paragraphs of the ESRS G1-3 and ESRS G1-4 reporting requirements.
The organization's reporting of GRI 2: General Disclosures 2-23 and 2-24 met the requirements of ESRS G1-1 regarding 'training on company policies' as matching metric and in the narrative text of sustainability report (Pinja Group, 2023) the training on organization's code of conduct was disclosed.

5.2 Future sights of ESRS and research possibilities

According to the European Commission (2023) the European Sustainability Reporting standards are predicted to develop in the future regarding the ways the different matters are covered. The sustainability topics might become more specific, and this has possible impact on reporting requirements. The evolving of Disclosure Requirements might decrease the need for company specific individualized disclosures and thee reporting might begin changing in the favour of standardised and sector specific sustainability statements (European Commission, 2023). However, the development of sector specific standards is still ongoing process and for the time being the undertakings' focus is on sector-agnostic ESRS (EFRAG, 2023).
Several future research possibilities were identified during the study, double materiality assessment being the most prominent of them. Due to the double materiality being key step on disclosing sustainability matters according to European Sustainability Reporting Standards it would be prominent research area. The challenges determining the material reporting areas and opportunities

regarding ESRS double materiality would be interesting study topic since all organizations operating in European Union member states are required to apply it into their sustainability statements in the future.

Furthermore, assurance and external auditing of sustainability statements are other areas that could be furtherly explored. Assurance of sustainability information has not up to date attracted extensive interest, thus it is promising study field (Somoza, 2023). The transparency and accuracy of sustainability statements is crucial for their validity. Vander Bauwhede and Van Cauwenberge (2022) suggests that sustainability reporting assurance increases the credibility of organization's sustainability reports. Furthermore, the mandatory sustainability reports, which are now required by CSRD, do not act as a substitute for third-party audited sustainability reports (Vander Bauwhede and Van Cauwenberge, 2022). This suggests that mandatory sustainability report itself does not provide as much credibility as the audited one.

Previous sustainability reporting frameworks have not required organizations to disclose mandatory external audits regarding the validity of their sustainability statement's content. According to the Official Journal of the European Union (2014) the NFRD related directive did not require audit firms to check the relevance and truthfulness of reported non-financial information but only to confirm that NFRD statement had been provided by the organization (Official Journal of the European Union, 2014). The credibility of sustainability reporting should be improved with auditors providing their opinion whether the organizations sustainability report meets the mandatory reporting standards and if the undertaking has identified the most material topics for their reporting. In the future, the European Commission will provide reasonable assurance standards for sustainability reporting by 1st of October 2028. These standards would provide common criteria for auditors to follow while conducting the assessment. Additionally, the directive states that it should be ensured that the auditing report by the third party is accessible to everyone, and it can be publicly viewed (Official Journal of the European Union, 2022). This implies that the undertaking cannot have an impact on the auditing result after the content of the sustainability report has been checked by the third party.

Conducting a sustainability reporting assurance has a positive association with organization's market value. According to Bauwhede and Van Cauwenberge (2022) the costs of sustainability report assurance are not as significant as the benefits it provides. This could act as a driver for undertakings to include sustainability report's third-party audits in their business practices (Bauwhede and Van Cauwenberge, 2022). Conducting external audit for their sustainability reports validity would be a beneficial step for Pinja Group and a way to already have the process adopted before the mandatory CSRD requirements will take place. Based on the possible future changes in auditing criteria, integrating sustainability report auditing into their business strategy could be beneficial for Pinja Group before 2028 when assurance standards are published. Furthermore, having a common practice with sustainability assurance could bring a competitive edge and improve the company image.

5.3 Limitations

Disclosure paragraphs of ESRS topics are mandatory only when undertaking has determined them material in double materiality assessment. Due to this case study organization might not apply all the same reporting disclosures in their sustainability statement following ESRS than they did in previous reporting years. The study results provide valuable information for current situation of organization's reporting, but its applicability might vary during following years due to the constant development of ESRS reporting and its additional structures. The provided amount of sustainability reporting data can be considered a limitation. The results would be more extensive if the organization's GRI based disclosures had covered different topic areas in more detail.
Furthermore, the writing process of the thesis begun during Fall 2022 and the European Sustainability Reporting Standards were published in July 2023. The publication of ESRS changed the topic of the study since the new standards were more relevant to the case study organization. The study had previously concerned CSRD, and the change of the research question might have had impact especially on the literature review of the study.

6 CONCLUSION

The conducted study shows that the organization meets the ESRS disclosures requirements in several paragraphs of different sustainability areas but faces shortcomings especially in the disclosures of social information and in the resource outflows. The ESRS 1-6 regarding emission disclosures was extensively covered by the undertaking and code of conduct was integrated into organization's sustainability reporting. To present an extensive picture of their sustainability impacts in the future the organization must conduct double materiality analysis and adapt its data collection to fit the requirements of ESRS either internally or with aid of external auditing.

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APPENDICES

APPENDIX 1: TOPICAL STANDARDS FOR DISCLOSING SO-CIAL INFOR-MATION FOLLOWING EUROPEAN SUSTAINA-BILITY STANDARDS (EUROPEAN COMMISSION, 2023)

Topical ESRS	Social matters covered in topical ESRS		
	Topic	Sub-topic	Sub-sub-topic
ESRS S1	Own workforce	Working conditions	Secure employment Working time Adequate wages Social dialogue Freedom of association, the existence of works councils and the information, consultation and participation rights of workers Collective bargaining, including rate of workers covered by collective agreements Work-life balance Health and safety
		Equal treatment and opportunities for all	Gender equality and equal pay for work of equal value Training and skills development Employment and inclusion of persons with disabilities Measures against violence and harassment in the workplace Diversity
		Other work-related rights	Child labour Forced labour Adequate housing Privacy
ESRS S2	Workers in the value chain	Working conditions	Secure employment Working time Adequate wages Social dialogue Freedom of association, including the existence of work councils Collective bargaining Work-life balance Health and safety
		Equal treatment and opportunities for all	Gender equality and equal pay for work of equal value Training and skills development Employment and inclusion of persons with disabilities Measures against violence and harassment in the workplace Diversity
		Other work-related rights	Child labour Forced labour Adequate housing Privacy
ESRS S3	Affected communities	Communities' economic, social and cultural rights	Adequate housing Adequate food Water and sanitation Land-related impacts Security-related impacts
		Communities' civil and political rights	Freedom of expression Freedom of assembly Impacts on human rights defenders
		Rights of indigenous peoples	Free, prior and informed consent Self-determination Cultural rights
ESRS S4	Consumers and end users	Information-related impacts for consumers and/or end-users	Privacy Freedom of expression Access to (quality) information
		Personal safety of consumers and/or end-users Health and safety Security of a person Protection of children	Health and safety Security of a person Protection of children
		Social inclusion of consumers and/or end-users	Non-discrimination Access to products and services Responsible marketing practices

APPENDIX 2: MANDATORY DISCLOSURE REQUIREMENTS OF ESRS E1-6 AND THEIR FULFILLMENT BY THE COMPANY

ESRS E1-6	Scope 1	Scope 1	
Fulfilled mandatory disclosures and paragraphs	X		
Mandatory disclosures and paragraphs	48a) Disclosing gross Scope 1 GHG emissions	48b) Disclosing % of organization's Scope 1 emissions from regulated emission trading schemes	

GHG emissions	Scope 2	Scope 2	Scope 1 and 2
Fulfilled mandatory disclosures and paragraphs	X	X	
Mandatory disclosures and paragraphs	49a) Disclosing gross location based Scope 2 emissions in tCO2e	49b) Disclosing gross market-based Scope 2 emissions in tCO2e	50. Disclosing separate GHG emissions from investees and from the consolidated accounting group

GHG emissions	Scope 3	Total emissions	Total emissions
Fulfilled mandatory disclosures and paragraphs	X		
Mandatory disclosures and paragraphs	51. Disclosing GHG emissions from material scope 3 categories in tCO2e	52. Disclosing total emissions as a sum of Scope 1,2 and 3 emissions with separating total market- and location based emissions	53 and 54. Disclosing GHG emission intensity in tCO2e 55. Disclosing the method of net revenue calculation and its figures relation to financial statement

APPENDIX 3: MANDATORY DISCLOSURE REQUIREMENTS OF ESRS E5-5 AND THEIR FULFILLMENT BY THE COMPANY

ESRS E5-5	Paragraph 33	Paragraph 37	Paragraph 37	Paragraph 37
Fulfilled mandatory disclosures and paragraphs		X		
Mandatory requirements	Disclosing information of material impacts, risks, and opportunities regarding resource outflows	a) Disclosing the total amount of generated waste	b) Categorizing generated waste amount by weight drawn from disposal and as non-hazardous or hazardous waste. Disaggregating waste by recovery operation types: recycling, preparation for reuse, and other recovery operations	c) Disclosing the total amount of waste categorized by its treatment type; incineration, landfill and other disposal options. Total weigh drawn from disposal and categorizing it into hazardous and non-hazardous waste
ESRS E5-5	Paragraph 37	Paragraph 38	Paragraph 39	Paragraph 40
Fulfilled mandatory disclosures and paragraphs				
Mandatory requirements	d) Disclosing the non-recycled waste ratio: the total % and amount of non-recycled waste	a) Specifying waste sources which are relevant to the undertaking's field or operations b) Defining the materials which constitute the waste	Disclosing the generated total amount of radioactive and hazardous waste	Disclosing contextual information regarding the criteria and methods which were used to calculate data for the disclosure

APPENDIX 4: ESRS S1-6 AND S1-14 MANDATORY DISCLOSURE REQUIREMENTS AND THEIR FULFILLMENT BY THE COMPANY

ESRS S1-6	Paragraph 48	Paragraph 50	Paragraph 50	Paragraph 50
Fulfilled mandatory disclosures and paragraphs		X		
Mandatory requirements	Describing the employee's key characteristics in undertaking's workforce	a) Dsiclosing total number of employees in the undertaking	b) Disclosing the full-time equivalent or head count and breakdown by gender of i) permanent employees ii) temporary employees iii) non-guaranteed hours employees	c) Disclosing the employee turnover of reporting period and total number of employees who have departed the undertaking within the reporting period
ESRS S1-6	Paragraph 50	Paragraph 50	Paragraph 50	
Fulfilled mandatory disclosures and paragraphs				
Mandatory requirements	d) Descriping the data compiling methods and assumptions, including the wether numbers are reported: i) as full-time equivalent or head count ii) as average of reporting period, at the end of the period or with another methodology	e) When relevant, providing contextual information to understand the disclosed data	f) Providing cross-reference information regarding paragraph 50 a) above numer which is the most representative in the financial statements	
ESRS S1-14	Paragraph 88	Paragraph 88	Paragraph 88	Paragraph 88
Fulfilled mandatory disclosures and paragraphs			X	
Mandatory requirements	a) Disclosing the precentage of undertaking's workforce who are covered by the health and safety management system based on standards, guidelines or legal instruments	b) Disclosing the number of work-related fatalities	c) Disclosing the number and rate of accidents which are work related	d) Disclosing the number of cases of recorded work-related ill health, under legal restrictions on the data collection e) Disclosing number of employee work days lost due to work related ill health and fatalities

APPENDIX 5: ESRS G1-3 AND ESRS G1-4 MANDATORY DISCLOSURE REQUIREMENTS AND THEIR FULFILLMENT BY THE COMPANY

ESRS-G1-4	Paragraph 22	Paragraph 24	Paragraph 24	Paragraph 26
Fulfilled mandatory disclosures and paragraphs				
Mandatory requirements	Disclosing information on corruption or bribery incidents occurring during reporting period	a) Disclosing total number of fines and convictions for anti-bribery and anti-corruption law violations	b) Disclosing actions taken to acknowledge breaches in standards and procedures of anti-bribery and anti-corruption	c) Disclosing incidents in undertaking's value chain if its actors are directly involved
ESRS G1-3	Paragraph 18	Paragraph 18	Paragraph 20	Paragraph 21
Fulfilled mandatory disclosures and paragraphs	X		X	X
Mandatory requirements	a) Disclosing the procedures applied to prevent, detect, and address allegations or incidents of bribery and corruption	b) Disclosing if investigators of incidents are part of management chain c) Disclosing incident report outcomes to the operative bodies	Disclosing information on how undertaking communicates its corruption and bribery policies and ensures its accessibility	a) Disclosing the depth, scope and nature of anti-bribery and -corruption training offered by undertaking
ESRS G1-3	Paragraph 21	Paragraph 21	ESRS S2-1 Paragraph 18	
Fulfilled mandatory disclosures and paragraphs				
Mandatory requirements	b) Disclosing the percentage of at-risk functions covered by training programmes	c) Disclosing the coverage of training in regard to members of the supervisory, management and administrative bodies	Disclosing whether its value chain worker policies address human trafficking, forced- and child labour. Additionally, whether supplier code of conduct exists must be disclosed	

APPENDIX 6: ESRS G1-1 MANDATORY DISCLOSURE REQUIREMENTS AND THEIR FULFILLMENT BY THE COMPANY

ESRS-G1-1	Paragraph 7	Paragraph 9	Paragraph 10	Paragraph 10
Fulfilled mandatory disclosures and paragraphs	X		X	X
Mandatory requirements	Disclosing information on business conduct policies and how the undertaking fosters corporate culture	Disclosing how undertaking, develops, promotes, founds, and evaluates its corporate culture	a) Disclosing information on mechanism for recognizing, reporting and investigating concerns regarding code of conduct breaches	c) i)) Disclosing undertaking's whistleblower reporting channels and whether training and information to employees are provided regarding it

ESRS-G1-1	Paragraph 10	Paragraph 10	Paragraph 10	Paragraph 10
Fulfilled mandatory disclosures and paragraphs				
Mandatory requirements	c) ii)) Disclosing whistleblower protection measures in accordance with Directive EU 2019/1937 d) Where the undertaking has no policies it must disclose their planning c) Disclosing follow-up on whistleblower reports	f) Disclosing information on whether undertaking has policies regarding animal welfare, where applicable	g) Disclosing undertaking's internal training policy on business conduct including the coverage, frequency and target audience	h) Disclosing functions which have most substantial risk regarding bribery and corruption

APPENDIX 7: SEMI-STRUCTURED CASE STUDY INTERVIEW OF PINJA GROUP'S CHIEF HUMAN RESOURCE OFFICER

1. **Questions of environmental information disclosures**

   a) The new ESRS disclosure concerning energy use requires organizations to report if their energy sources are renewable. In your recent sustainability report did you specify the used energy sources?

It is included in our carbon emission calculations in a way that emission free energy has been considered. The carbon emissions have been summed up and emission free energy does not increase the total amount. If the emission figures are calculated in kWh and in tCO2e their amount would be larger in kWh.

   b) The ESRS topical standard 'Circular economy' has outflow section which requires organizations to specify how they recycle their waste. Does Pinja Group do this?

No, we don't. It is difficult to specify since we have only waste which is generated at the office and the waste management companies do not provide us information regarding the composition of collected waste. The waste which is generated comes from the office and it is usually paper, cans and food waste from lunch. From the viewpoint of ESRS materiality assessment, waste might not be material as a topic for us. However, only time will tell if it is determined relevant. I would determine it as non-material due to the generated waste amount in tonnes being so small.

   c) Did you use Y-hiilari tool to calculate company's emissions for your 2023 sustainability report?

The 2023 sustainability report was audited by a third party which confirmed our calculations. We used Y-hiilari for the emission calculations and the third party used their own calculation methods which were not specified but both of our results were similar. Our report and the carbon calculations are not just our own disclosures since they were checked and confirmed by the audit.

   d) Since Pinja Group is an IT-company are the biodiversity impact risks determined as material?

They are not determined material for us, but EU Taxonomy requires our mother company to report according to it. Due to this Pinja Group must also disclose the mandatory EU Taxonomy requirements. The list of EU Taxonomy requirements also includes biodiversity aspects which Pinja Group discloses. Our company has few business operations which are eligible for EU Taxonomy, but we haven't met alignment requirements for any products in a way that they would fully meet the EU Taxonomy *eligibility. This is topic that we are working on to find out if we could meet alignment requirements with some of the products.*

e) According to ESRS organizations have adaption time for the supply chain data gathering requirements. Since Pinja Group has leased IT-equipment such as laptops, has the aspect of gathering data from company's supply chain been already addressed?

At some extent. For the data we cannot directly gather from the supplier, which is surprisingly large amount, we utilize statistical averages in either euros or in number of pieces for the calculations.

2. Questions of social information disclosures

a) In your previous sustainability report Pinja Group has used 1 to 5 satisfaction scale when reporting their employee well-being in the organization. Does the company have annual survey which this scale is based on?

Yes, the company conducts anonymous employee survey.

b) Is the organization's employee accident rate, which is included to the ESRS S "Health and safety" standard, publicly available information or is it only internal knowledge?

During some years it has been reported but in the next report it probably won't be mentioned since it is not material topic or indicator for us. However, we monitor the accident rate constantly/regularly and report it for example to our investors. It is metrics that we utilize as a unit of accident rate per 10000 work hours.

3. Questions of governance disclosures

a) Does Pinja Group have public supplier code of conduct or is it integrated into the company's general code of conduct?

It is integrated into the company's general code of conduct. We do have a separate supplier code of conduct, but it is not published at our website. However, it is attached as contract annex to our suppliers.

b) In Pinja Group's 2023 sustainability report it was stated that you provide training regarding corruption and bribery topics. Can you elaborate on this?

We actually have annual code of conduct training, which includes all topic areas related to governance. In practice, we ask our employees to familiarize themselves to our *code of conduct, but we also have several specific guidelines related to topics such as bribery and inappropriate behaviour in the workplace.*

c) Third party has already provided Pinja Group with materiality analysis during 2021. Can you elaborate on this?

We conducted a material analysis, and its perspective was higher level themes. For ESRS we must conduct double materiality assessment which means that we must consider the two axels: economic impact and organization's impact on sustainability. The double materiality assessment would be the next step for Pinja Group so we could report relevant things in the 2025 sustainability report.

d) Mandatory reporting requirements of ESRS include disclosing the main features of organization's risk management and internal control systems. Does Pinja Group currently have internal risk management system regarding other material topics than data safety and management?

Yes, we have annual risk management process. During annual planning we define business risks for the company and risks at the level of each business unit. We don't have a public document where this process would be described. Additionally, the annual planning process includes key person risk management and personnel risk management. They are aspect of HR planning and due to this they are highly confidential. It is not distributed internally. For cybersecurity and data privacy we have separate and well-working risk management process. We are currently in middle of large auditing process which will provide us with certificate which confirms that our process follows a certain security standard. Furthermore, the risk management, which is part of our annual plan, is process that we conduct internally, and we follow the same steps in the process every year. ISO2701 is a data privacy standard that we have built our own cybersecurity and data security on. The auditing project which we are conducting is based on this standard and the ISO20701 based process should fulfil the ESRS requirements as well.