OMXH15 ENTITIES' APPLICATION OF PRINCIPLES AND REQUIREMENTS OF GRI IN SUSTAINABILITY REPORTING

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ABSTRACT

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Abstract

The purpose of this study is to evaluate the extent the sustainability reports of OMXH15 listed entities apply the GRI principles and requirements, and thus potentially signal more positive image of their activities than is justified.

Sustainability reporting of organisations has evolved particularly since the publication of Brundtland report (1987). Moreover, increasing demands from various stakeholders in relation to companies' sustainability disclosures in addition to developments in sustainability related reporting requirements have influenced the sustainability reporting of entities. This study is relevant because stakeholders are dependent on the disclosed information made by the organisation.

Similar studies have been conducted in relation to sustainability reporting. Particularly the research of Boiral (2013) which studied the extent to which sustainability reporting can be camouflaged to hide real sustainable development issues and display idealized prospect of the organisation's activities, was of importance to this study. In addition, signaling theory has been utilized as a reference point to explain the information asymmetry.

The research material is the sustainability reports of 15 listed entities which are listed on OMXH15 index. These organisations have disclosed that they report in accordance with GRI Standards, which signifies that they are supposed to present information in conformity with principles and requirements of GRI Standards. The study is conducted as a qualitative content analysis with theory-driven perspective.

The findings of the study suggest that organisations are applying in-accordance requirements of GRI standards for the most part. However, that compliance does not extend to principles of GRI standards. The findings are in consonant with study of Boiral (2013) as companies are presenting information in an unbalanced way, overstating positive impacts.

Key words

Sustainability, reporting, GRI, principles, requirements, signaling theory

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Tiivistelmä

Tämän tutkimuksen tarkoituksena on arvioida, missä määrin OMXH15-listattujen yhtiöiden vastuullisuusraportit noudattavat GRI: n periaatteita ja vaatimuksia ja siten mahdollisesti antavat positiivisempaa kuvaa niiden toiminnasta kuin on perusteltua.

Organisaatioiden vastuullisuusraportointi on kehittynyt erityisesti Brundtlandin raportin (1987) julkaisemisen jälkeen. Lisäksi eri sidosryhmien vaatimukset yritysten vastuullisuustietojen julkistamisesta sekä kestävään kehitykseen liittyvien raportointivaatimusten kehitys ovat vaikuttaneet organisaatioiden vastuullisuusraportointiin. Tämä tutkimus on olennainen, koska sidosryhmät ovat riippuvaisia organisaation julkaisemista tiedoista.

Vastaavia tutkimuksia on tehty kestävän kehityksen raportoinnista. Erityisesti Boiralin (2013) tutkimus, jossa selvitettiin, missä määrin kestävän kehityksen raportointia voidaan naamioida piilottamaan todellisia kestävän kehityksen kysymyksiä ja näyttämään idealisoituja näkemyksiä organisaation toiminnoista, oli tämän tutkimuksen kannalta tärkeä. Lisäksi signalointiteoriaa on käytetty vertailukohtana informaation epäsymmetrian selittämiseen.

Tutkimusmateriaalina ovat 15 OMXH15-indeksiin listatun pörssiyhteisön vastuullisuusraportit. Nämä organisaatiot ovat ilmoittaneet raportoivansa GRI-standardien mukaisesti, mikä tarkoittaa, että niiden on esitettävä tiedot GRI-standardien periaatteiden ja vaatimusten mukaisesti. Tutkimus on tehty laadullisena sisältöanalyysinä teorialähtöisesti.

Tutkimuksen tulokset viittaavat siihen, että organisaatiot soveltavat pääosin GRI-standardien vaatimuksia. Tämä noudattaminen ei kuitenkaan ulotu GRI-standardien periaatteisiin. Tulokset ovat sopusoinnussa Boiralin (2013) tutkimuksen kanssa, koska yritykset esittävät tietoa epätasapainoisesti ja liioittelevat positiivisia vaikutuksia.

Asiasanat

Kestävyys, raportointi, GRI, periaatteet, vaatimukset, signalointi teoria

Säilytyspaikka

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1 INTRODUCTION

1.1 Background

Sustainability is rapidly increasing topic among academics, entities and society (Hazaea et al., 2022). Environmental, social and governance (ESG) matters have captured in recent years or even decades corporate discussions, with the support of investors, regulators, civil society, public policy makers and assurors (Aigner et al., 2022). For example, FIBS has reported in 2021 that there has been unprecedented and great changes in sustainability efforts of Finnish companies in preceding years (FIBS, 2021). FIBS is Nordic corporate responsibility network, accelerator of sustainable business, and developer of corporate expertise (*FIBS Frontpage*, 2022).

Moreover, sustainability reporting has evolved into one of the most important roles among organisations, particularly in European Union (Aigner et al., 2022). Aigner et al. (2022) clarify that in practice, the increasing significance of social-environmental information related to sustainability reports has expanded in the distribution of information in order to cut down the asymmetry of information between shareholders. With sustainability reporting, company reports on the ESG issues and impacts of its operations in relation to these. According to the study of FIBS, corporate sustainability activities have become more strategic, organised and goal oriented (FIBS, 2021). Nevertheless, FIBS (2021) point out that entities should notice sustainability issues even more ambitiously in their future development.

The European Commission's proposition on sustainability reporting, Corporate Sustainable Reporting Directive, (CSRD), brings about 700 companies within the scope of the directive in Finland from the financial year of 2023 (Intito, 2022). The proposal was approved by the European Commission, and it modifies the current non-financial data reporting requirements so that it will affect all large entities and listed organisations operating on regulated markets (excluding micro-companies). CSRD directive also expects an assurance (verification) of reported data and obligates more precise reporting in accordance with the EU's mandatory sustainable development reporting standards. (Corporate Sustainability Reporting, 2022.)

Hence, EU legislation demands that those companies publish information about their social and environmental risks and opportunities, as well as the impact of their operations on people and the environment. The obligations introduced by the Non-Financial Reporting Directive (NFRD) are valid until entities must comply with the new requirements of the CSRD. According to the NFRD, large entities must publish information regarding environmental and social issues as well as the treatment of workers, respect for human rights, the fight against corruption and bribery in addition to diversity within the board of the company. These reporting requirements are valid to large public-interest entities (PIEs) which have more than 500 employees. It comprises about 11,700 large organisations across the EU, including banks, listed companies, insurance organisations and other companies appointed by national authorities as PIEs. (Corporate Sustainability reporting, 2023.) In Finland, listed companies utilise, for example, Global Reporting Initiative (GRI) standards in their sustainability reporting. The GRI Standards are globally accepted sustainability reporting standards developed by the Global Sustainability Standards Board (GSSB) (Global Sustainability Standards Board, 2023).

Terms such as "environmental, social, and governance reporting", "sustainability reporting", "corporate social responsibility (CSR) reporting", and "integrated reporting" have been used interchangeably in business literature to depict reports with varying degrees of concentration on risk, environmental, governance, or social matters (Brockett & Rezaee, 2012).

1.2 Objective of the research

This paper will concentrate on sustainability reports of organisations shortlisted for OMXH15 index. This study applies principles and in accordance requirements of GRI Standards as a reference point. One of the principal targets of GRI is to bolster transparency and exactitude of sustainability reporting to stakeholders (Boiral, 2013). Moreover, the focus is on 15 entities and their sustainability disclosures because as Kananen (2008, p. 85) explains it provides more reliable findings than from one singular case study. The studied entities are Elisa, Fortum, Kesko, Kone, Metso Outotec, Neste, Nokia, Nordea Bank, Orion, Outokumpu, Sampo, Stora Enso, UPM-Kymmene, Valmet and Wärtsilä (OMXH15 Kauppalehti, 2023). These 15 companies have disclosed that they report in accordance with GRI Standards, thus the presumption is that they report in conformity with principles and requirements of GRI Standards. In addition, this study attempts to find out whether this presumption is valid or is the organisations attempting signal more positive image of themselves.

Objective of the study is to evaluate the extent the sustainability reports of OMXH15 listed entities apply the GRI principles and requirements, and thus potentially signal more positive image of their activities than is justified. The research question is how Finnish OMXH15 organisations comply with principles and in accordance requirements of GRI Standards.

GRI (2022) define the requirements for reporting in accordance with the GRI Standards and assert that reporting principles are essential in order to ensure quality of the reported information. Moreover, according to GRI (2022) by reporting according to GRI Standards, company can provide a comprehensive image of its most compelling impacts on the economy, the environment, and people, including their impacts on human rights, and how it manages all these. In this way, the users of the information can make informed evaluations and judgments about the organization's effects and its input into sustainable development (GRI, 2022). Consequently, the application of the GRI principles and requirements is important for external stakeholders when they evaluate the company's operations. This topic is relevant as stakeholders are dependent on the entities' ability and willingness to present comprehensive, versatile, and proper sustainability related information.

This study is conducted as qualitative research and as qualitative content analysis by examining the sustainability reports of the 15 organisations. Moreover, theory-driven content analysis is applied, as signaling theory is utilised as a reference point for the study.

1.3 Previous research

In relation to this topic various studies have been done with many different perspectives, for instance, assurance of sustainability reports (Aigner et al., 2022), balance, completeness and transparency of sustainability reports (Boiral, 2013), quality and constraints of sustainability reports (Boiral et al., 2019), application of GRI Standards in sustainability reports (Manetti & Toccafondi, 2012), and transparency and stakeholder engagement of sustainability reports (O'Dwyer & Owen, 2005). These are essential for this paper and have also contributed to the formation of this research. Moreover, they have indicated that organisations are not able to truly comply with the fundamental principles and requirements of GRI Standards.

Particularly the research of Boiral (2013) has been influential as he studied the magnitude to which sustainability reporting can be regarded as a camouflage to hide true sustainable development difficulties and display an idealized prospect of the organisation's circumstances. This paper connects to this aspect by referring to signaling theory. Signaling theory refers to the situation where one party (information sender) have to decide whether and how to signal (or communicate) information, whereas other party (information receiver) have to decide how to expound that information (Connelly, Certo, et al., 2011).

Moreover, this paper concentrates on one set of guidelines similarly as Boiral (2013) did, and more in detail the principles and in accordance requirements of GRI. He focused in his research on sustainability reports that had received an A or A+ GRI rating. Whereas, this paper will concentrate on sustainability reports of organisations shortlisted for OMXH15 index. Boiral (2013) narrates that an increasing practice of sustainability reporting is fixed on an ideal of transparency which assumes that the reported information gives the most realistic and complete depiction possible of the negative and positive impacts of the organisation's operations. His study identified that up to 90 percent of negative matters were not disclosed, which is contrary to the GRI principles of transparency, balance, and completeness.

Aigner et al. (2022) referred to GRI Standards in their study as well. Their study concentrated on reporting of specific entities from time period of three years and how entities were able to comply with principles and requirements of GRI Standards. The findings of Aigner et al. (2022) study indicated that independent assurances are essential to achieve credibility, which enhances the security of information made accessible to shareholders, and reduces the resulting information asymmetry and disputes. Independent assurance refers to independent third-party verification of the reported information, which is most commonly conducted by audit firm or consultancy company.

Boiral et al. (2019) investigated the perceptions of assurance providers regarding quality and limitations of sustainability reporting by employing GRI Standards as a framework. According to them, the accounting principles underlying the verification process, regardless of their strict appearance, appear to be poorly modified to the qualitative, multifaceted, and complex information within sustainability reports. This matter is discussed further in the theoretical framework section.

Signaling theory is utilised as a reference point to understand findings of this study. Essential element of signaling theory is that signaler (for instance a person, an entity, or a product) has information that is exclusionary to the signaler (Jolink & Niesten, 2021). This is especially relevant currently as Stiglitz (2000) disclose that one of the fundamental matters that companies today consider is how certain activities will be interpreted. Moreover, Machado et al. (2021) state that disclosed information in GRI reports is influencing exhilaratingly the perceptions and decisions of stakeholders. Signaling theory is beneficial in describing behaviour when two parties have admittance and entry to dissimilar information (Connelly, Certo, et al., 2011). Moreover, signaling theory was brought in to address information asymmetry amongst economic parties (Jolink & Niesten, 2021). In short, signaling theory is about reducing information asymmetry and is therefore beneficial in this study. Information asymmetry refers to situation where one party have private information and other party does not have similar access to it and could make more informed decisions if they would have it (Connelly, Certo, et al., 2011).

1.4 Structure of the paper

In the first section of the paper the background for the study is presented. In addition, the objective of the research is viewed and prior research on the matter presented. The remainder of the paper is structured as follows.

In the following section, sustainability reporting is presented more in detail together with its downside, greenwashing. Then, the development of sustainability reporting is disclosed. Following with discussion of assurance of sustainability reporting and display of assurance standards and GRI Standards. Even though this paper does not concentrate on examining the assurance statements per se, assurance of sustainability reporting is explored as it connects closely to object of this study. GRI Standards as well as principles and requirements of them are reviewed more in detail as they are the focal point of this study and as such to applied reporting framework. The paragraph continues by demonstrating relevant literature to the study and ends with presentation of signaling theory.

The following paragraph introduces the data and methodology employed in this study. This section gives more detailed information about the selected data, and the method for the qualitative content analysis is explained as well.

In the following section, the findings of the study are disclosed by presenting them according to their similarities and dissimilarities together with their reference to signaling theory.

The paper ends with conclusions from the research which compares the findings to relevant literature. In addition, avenues for future research are presented.

2 THEORETICAL FRAMEWORK

2.1 Sustainability reporting

Companies strive to maximize their own profits, but also adhere to laws and regulations, industry standards, professional ethics, fulfil environmental protection, safety and other obligations, together with disclosing true, complete, and relevant sustainable development information (Xu et al., 2023). Sustainability information comprises primarily of environmental, economic, and social performance information. Xu et al. (2023) state that currently misuse of resources, pollution and other environmental problems are increasingly grievous and therefore sustainability has gained interest globally. According to them, these requirements have become a general agreement of the society. However, in reality this is not the case as will be seen later in future sections of this paper.

Another reason for increasing significance of sustainability could be monetary, as for example Friede et al. (2015) narrate that since the beginning of 1970s the relationship between ESG criteria and corporate financial performance has been studied. They describe that hundreds of researches have been executed in relation to these and they composed a summary of approximately 2 200 studies. Nearly 90 % of them discovered nonnegative relationship between ESG and corporate financial performance, and majority of the research reported positive findings (Friede et al., 2015). More recently, a study has been conducted by global management consultancy Bain & Company and sustainability ratings provider EcoVadis. In the study "Do ESG Efforts Create Value?" the impact of ESG activities of 100 000 companies was researched. And it found that ESG activities correlate positively with stronger financial performance such as faster revenue growth (Segal, 2023). The study analysed how ESG activities and outcomes compare against their financial performance, and highlighted benefits of ESG performance for private entities and why private equity companies should take into consideration these matters (*Bain - EcoVadis Joint Study*, 2023).

Moreover, it has been reported that investors value increasingly that organisations factor sustainability issues in their activities and strategy. Therefore, presumption in this paper is, that sustainability disclosures of the studied companies should be adequate and appropriate. For example, Chipalkatti et al. (2021) narrate that investors are progressively acknowledging the importance of investing in organisations that attempt to battle environmental destruction and climate change and simultaneously promote corporate responsibility. Park and Oh (2022) continue by stating that ESG criteria are currently regarded significant global non-financial evaluating components of corporate value. They affirm that investors utilise several strategies in order to obtain quality information in investment decision making process. In addition, they assert that investors have nowadays more than simply financial gain goals. Accordingly, Van Duuren et al. (2016) narrate that including ESG factors in investment strategies has become a distinct service for many investment service providers. Moreover, Park and Oh (2022) have found that positive environmental and social outcomes together with long-term financial gains entails integration of ESG information by investors. Thus, reporting sustainability issues is becoming more a presumption than an exception and it is expected that organisations report accordingly. This presumption is valid for this study as well.

Brockett and Rezaee (2012) assert that sustainability reports are supposed to be worthy and relevant to stakeholders for them to gain more transparent and thus more informed data for decision making processes. Hence, more transparent sustainability reporting provides opportunities to adjust potential inefficiencies, risks, and opportunities. Moreover, sustainability reporting can improve relationship between company and stakeholders, as it can create incentives for management for strategy creation, and it can be utilized as a tool for more efficient risk administration. (Brockett & Rezaee, 2012.) In addition, sustainability reporting offers stakeholders an effective way to monitor corporate responsibility. Additionally, enhancing sustainability information disclosure may improve shared value. (Xu et al., 2023.) Correspondingly, Gürtürk and Hahn (2016) affirm that sustainability reporting provides improved external transparency and boost internal sustainability performance assessment and management.

However, it is Brockett & Rezaee’ (2012) believe entities that disregard their governance, ethical, environmental, and social dimensions regularly endure for instance loss of customer confidence, lack of sustainability in the long run, experience decrease in analyst interest, become liable for increased risk of regulatory actions, and become unable to attract skilled employees and investors. Example of such behaviour is greenwashing which is examined further in the following paragraph.

Boiral (2013) studied to what extent sustainability reporting could be utilised to camouflage true sustainable development complications and reflect the entity’s idealised picture of the circumstance. He found that the increasing use of detailed and exacting standards, particularly GRI, has reinforced prevalent optimism about the importance, relative transparency, and accuracy of sustainability reporting to stakeholders. However, he discovered that even 90 percent of the substantial negative events were not disclosed, which is contradictory to the GRI reporting principles of balance, completeness, and transparency. This suggests that only a fraction of the organisation is truly reporting according to GRI principles, which in turn signifies that it is possible that these principles are not presented appropriately by OMXH15 entities either.

2.1.1 Greenwashing

Sustainability reporting has become valuable information provider for stakeholders to collect understanding about organisations' sustainability (Xu et al., 2023). On the other hand, all entities' desire to display themselves in the best possible light (Dando & Swift, 2003). Therefore, escalated pressures to disclose environmental impacts have caused some companies to selectively disclose rather favourable impacts which generates an impression of transparency and at the same time camouflage their genuine performance. These pressures to disclose sustainability information rises for instance from countries, nongovernmental organisations, and United Nations, which result in higher scrutiny. (Marquis et al., 2016.) Marquis et al. (2016) refer to selective disclosure with organisation's symbolic strategy to obtain or maintain legitimacy. They explain that this is done by disclosing excessively favourable or relatively favourable performance indicators to cloud their ineffective performance. This can be characterised as greenwashing.

Xu et al. (2023) describe "greenwashing" as false publicity, overstatement or misleading of multiple green environmental protection actions in the everyday operation, production, and management of organisations. They point out that "greenwashing" of sustainability reporting do not consist merely about the behaviour on operation, production, management, and marketing but also about covering up sustainability related areas like business ethics, charity, and employee rights. A typical example of greenwashing is when entity has declared outstanding sustainability reporting but fails to disclose reasonable and explicit quantitative information, which give an impression of vanity and uselessness (Xu et al., 2023).

Marquis et al. (2016) discovered in their study that information access and civil society's activism had asserted constraining effects on the selective disclosure. According to framework of information economics, information is the foundation and starting point to secure accuracy of decision-making, meaning that the more accurate the information is, the more ensured the decisions are, and hence information play an essential role in the capital markets (Xu et al., 2023). Xu et al. (2023) clarify that greenwashing behaviour undermines the quality of disclosed information and creates information asymmetry. This information asymmetry is centre of attraction in this study as published information is the research material of this paper. In addition, it relates closely to signaling theory, which is the applied theoretical framework in this paper.

Aigner et al. (2022) assert that cases of environmental impacts as well as consequences to shareholders, display the need for revelation of socio-environmental information with financial data, in order to avoid information asymmetry. Dando and Swift (2003) state that the extent to which stakeholders can trust and rely on corporate environmental and social accounts is an indicator of the sincerity, efficiency, and legitimacy of accountability process. Correspondingly, Aigner et al. (2022) believe that by disclosing information about entities' own activities' impact, they can attain credibility in consideration of their reported operations.

Aigner et al. (2022) studied Brazilian entities compliance of standards for verifying sustainability reports from time interval of three years. They focused on the way entities presented GRI principles and their ability to respond to GRI requirements, which are utilised also in this paper. According to them, the global sustainability reporting has endured backlash lately because of corporate fraud cases. This has caused users of financial statements to become sceptic of the reported information and in practice, it involves reluctance from organisations to diligently evaluate their operations using sustainability assurance standards (Aigner et al., 2022). This corresponds to findings Xu et al. (2023) who believe that stakeholders have advanced in their capability to measure and identify reported information, as they wish to obtain more competent information of the organisations.

Moreover, responsiveness to stakeholders' interests and obligation to improve performance and innovate is a key element of accountability according to Dando and Swift (2003). Thus corporate "greenwashing" behaviour delivers wrong sustainability signal to stakeholders. In fact, Xu et al. (2023) found in their study that greenwashing behaviour of sustainability reporting have diminished the "shared value" development, whilst the extent of asymmetry as well as the quality of sustainability information disclosure operate as a partial intermediary between them. "Shared value" can be defined as practices and policies that improve organisation's competitiveness and strengthen the circumstances of societies (Xu et al., 2023).

For the entity, greenwashing behaviour will rise two costs: cost of producing false statements which entails resources, and cost of punishment, which will be eventually inevitable. Additionally, "greenwashing" behaviour will influence the entity's quality of sustainability reporting disclosure and thus the value-added benefits of entity, which will become irretrievable. (Xu et al., 2023.) Moreover, Xu et al. (2023) assert that once the greenwashing behaviour is recognised, capital markets will react instantly, and it will result in withdrawal of capital because of loss of trust which in turn impact the value of entity's stock. This may be true, but the magnitude of this mistrust appears to be somewhat unclear.

For instance, Kleffel and Muck (2023) researched how greenwashing is detected and understood by investors and their study suggests that different investors manage green certificates differently, as some are ready to give up expected return for the sake of an assurance of sustainability of investment. In fact, they found that investors with inherent desire to do good, are inclined to forfeit expected return that may be greenwashed. And only investors directed by self-centred delight obtained from doing a good deed approve a lower return for assets with a certificate that decreases greenwashing risk (Kleffel & Muck, 2023). Thus, at least for some the actions taken by organisations have significant value.

On the other hand, Xu et al. (2023) state that stakeholders are progressively improving their skills to measure and identify reported information, as they wish to obtain more competent information of the organisations. These remarks imply that stakeholders are truly more awakened in relation to sustainability reporting. Though, findings of Kleffel and Muck (2023) suggest that not all of them value transparent reporting as much. Even Xu et al. (2023) acknowledge that greenwashing in sustainability reporting has complexity and characteristics which could have varying financial impacts for different stakeholders, and thus disadvantage the shared value targets and their achievements. They found in their study that "greenwashing" behaviour in sustainability reporting impact the shared value by expanding information asymmetry and decreasing quality of reported information, meaning that the problem of greenwashing is inevitable.

2.2 Development of sustainability reporting

History of sustainability reporting dates to 1960s and 1970s in Europe as organisations identified their significance in society instead of just maximising profits. Development of sustainability reporting started somewhat later in the United States. After the Brundtland Report in 1987, sustainability was promoted and it created for instance environmental reporting in Germany, Austria and Switzerland during the 1970s. (Brockett & Rezaee, 2012.) Report of the World Commission on Environment and Development: Our Common Future, more commonly known as the Brundtland Report, was developed as an attempt to draw a global agenda for change and call for political action (Brundtland Report, 1987). Environmental reporting was a source of legitimacy for sustainability reporting (Larrinaga & Bebbington, 2021). In the US sustainability progressed in 1980's with the creation of Environmental Protection Agency (EPA) and Clean Air, Clean Water, and Endangered Species Acts (Brockett & Rezaee, 2012).

By the end of 1980s, Brundtland Report had initiated environmental concerns as a focal point in research and policy making. Epistemic communities offered counsel and advocated environmental and social reporting in the 1990s. Different actors, such as the Fédération des Experts-Comptables Européens (FEE, nowadays Accountancy Europe), ACCA and AccountAbility, developed ideas to target accounting indications of incorporating environment and even rise of sustainable development. Epistemic communities were informal networks of professionals who have the competence and expertise in the field, in addition to the authoritative claim to policy pertinent knowledge. In fact, these epistemic communities have developed and distributed elements of sustainability reporting, such as conceptual framework, assurance and annual reporting as well as performance indicators. (Larrinaga & Bebbington, 2021.)

During 1980s ethical and social performance of companies was promoted through ethical investment funds in the US and UK (Brockett & Rezaee, 2012).

Environmental reporting emerged in 1980s, but European Commission and its policy to promote organisations to consider environmental issues was the stimulating factor for reporting in the beginning of 1990s according to Larrinaga and Bebbington (2021). By displaying sustainability reporting as something that comply with prevailing structures, while dividing norms and concepts (often deriving from financial reporting framework, and which are legitimate and already known in corporate reporting), sustainability reporting was accepted and recognised by NGOs, government officials, corporate representatives to name a few who endorsed the project. It seems that environmental reporting practice operated as a model and comprised an organizational routine that was able to be converted to sustainability reporting. This way justifying legitimacy and merging of sustainability reporting expectations and procedures in relation to norms. (Larrinaga & Bebbington, 2021.)

Thus, by the time of publication of Brundtland Report, environmental concerns started to soak in thought of the government, displaying the prolonged concerns of civil society and NGOs (Larrinaga & Bebbington, 2021). However, the first adoption of compulsory sustainability reporting law was in 1997 in Finland. Afterwards, similar laws were adopted in other countries globally as well, for example in Australia, Canada, Norway, Netherlands and the United Kingdom. (Brockett & Rezaee, 2012.)

In the 1990's sustainability reporting was handled from the perspective of environmental accounting with the concentration on the environmental impacts of organisations (Gokten et al., 2020). GRI was initiated in 1997, which attempted to create a sustainability information disclosure framework and in 2000 GRI sustainability reporting guidelines were issued. GRI was launched to set up triple bottom line which refers to environmental, social, and economic performance. During this time, voluntary corporate social responsibility reports obtained power because of requirements of socially responsible investors, managerial initiatives on corporate image creation, and incentives from other stakeholders such as standard-setters, regulators, and policymakers. (Brockett & Rezaee, 2012.)

The concept of triple bottom line is used to evaluate entity's performance from three standpoints – profit, people, and planet (Gokten et al., 2020; Brockett & Rezaee, 2012.). Thus, Brockett and Rezaee (2012) characterize triple bottom line as entity's requirement to widen their focus beyond profit making and reflect its activities on environment, society, and community. According to Gokten et al. (2020), once the triple bottom line approach was presented in 1998, environmental accounting reconstructed into sustainability accounting. Moreover, Brockett and Rezaee (2012) narrate that as companies and their role in society as a whole has evolved, concentrating on multiple bottom lines has come imminent.

During 2010s a lot of progress was made in sustainability reporting for example the sustainable stock exchanges initiative was developed by the United Nations Principles for Responsible Investment (UNPRI). At the same decade the Securities and Exchange Commission (SEC) emitted a report "Commission Guidance Regarding Disclosure Related to Climate Change", which calls public organisations to publish material financial and reputational risks linked to climate change. Moreover, the International Integrated Reporting Committee (IIRC) was established with the main focus to form an integrated reporting framework to institutionalize reporting about sustainability performance information. In addition, the International Organization for Standardization (ISO) refined "ISO 26000" guidelines for social responsibility reporting addressing the relevance and significance of public reporting on social responsibility to stakeholders. In 2011 Singapore Exchange (SGX) established a "Sustainability Reporting Guidance" framework, demanding its public companies to present accountability for their operations and organise business in a sustainable way. (Brockett & Rezaee, 2012.) Additionally, in 2010, United Nations acknowledged the GRI guidelines as the basis for sustainability reporting (Gokten et al., 2020).

Large auditing companies have also influenced the sustainability reporting and the institutional constitution of GRI. According to Larrinaga and Bebbington (2021) KPMG's (Big Four company) sustainability reporting survey encouraged particular reporting themes and thus provided a reference point for sustainability reporting practices. Early adaptation of the survey was released in 1993 and its focus was on environmental reporting. (Larrinaga & Bebbington, 2021.) The following versions established the trends in the field, at least according to Larrinaga and Bebbington (2021) as from then on the survey concentrated on verification and reported targets, following by sustainability, and next environmental and sustainability reporting which were replaced by corporate responsibility reporting.

Later on, investor relations was emphasized which was followed by integrated reporting in 2011. Larrinaga and Bebbington (2021) assert that even though these reports created by KPMG were reflecting the trends in the sustainability reporting field, they also generated specific reporting practices. Additionally, they remark that carrier of reporting practices, consists of evolution of indexes like Dow Jones Sustainability Index and FTSE4Good which were established approximately concurrently as the GRI. Thus, the ones who give assurance of the sustainability reporting have had a chance to influence the reporting itself. This could have positive and negative implications as the assurance can impact the manner how sustainability reporting is done. On the other hand, as they are supposed to verify the reported information, they can impact the extent of this reporting.

Larrinaga and Bebbington (2021) acknowledge that even though there have been many influences in sustainability reporting in soft law context, as they put it, governments have still affected sustainability reporting for instance in European Union. With soft law they refer to the fact that reporters have the ability to alter sustainability reporting norms by different manners. For example, some organisations have engaged in the composition of sustainability reporting through GRI development and other similar initiatives. In addition, entities may have an impact on epistemic communities, governments, and carriers as well by producing reporting norms that simultaneously impact their own reports (Larrinaga & Bebbington, 2021). In fact, they narrate that some organisations, which have been involved even before sustainability reporting, have had the change to contemplate whether reporting expectations and practices could be possible or realistic.

The first versions of assurance standards which were utilised in sustainability reporting were ISAE 3000 and AA 1000. ISAE 3000 was issued in 2003 by IFAC (International Federation of Accountants) and approved by IAASB (IAASB, 2011), and AA1000 Assurance Standard (AA1000AS) was released in 2008. (AccountAbility, 2020.) These standards are introduced more in detail in separate section in this paper.

2.2.1 Present sustainability reporting

United Nations (UN) initiated in 2015 the Sustainable Development Goals (SDGs) which changed the dynamics of the financial market (Aigner et al., 2022). SDGs were developed to convene countries to protect the planet, end poverty and ensure prosperity and peace for all people by the time of 2030 (UNDP, 2023).

Particularly after the release of ISAE 3000, many countries have produced guidelines, standards and recommendations for auditing sustainability reports (Dando & Swift, 2003). Distinctive countries have released specific standards for the assurance of sustainability reporting, for instance Germany, Australia, Netherlands and France (Manetti & Becatti, 2009). According to Manetti and Becatti (2009) all of these are triggered by ISAE 3000, even though the standard is not especially designed for sustainability reports, as it is targeted to other assurance engagements than inspecting historical information.

The relevant legislation of sustainability reporting in the European Union are Non-Financial Reporting Directive (NFRD) (2014/95/EU) and more recent one is Corporate Sustainability Reporting Directive (CSRD) (2022/2464/EU). NFRD was adopted in 2014 and in the following years different guidelines were given to help organisation to disclose social and environmental information, and climate-related information. At the end of 2022 first set of draft EU sustainability reporting standards were published by EFRAG and CSRD was published. (*Corporate Sustainability Reporting*, 2023.)

EFRAG's task in sustainability reporting activities is to supply technical advice for European Commission as a draft of EU Sustainability Reporting Standards. EFRAG collects contributions from multiple stakeholders and receives evidence about particular European circumstances along the standard-setting process. (EFRAG, 2022.) According to EFRAG (2022), its legitimacy is based on governance, transparency, due process, thought leadership and public accountability. Interestingly EFRAG (2022) acknowledges itself that it operates in a fast-evolving environment, which may suggest that their operations are challenging and continuously behind time.

EU sustainability standards are developed to satisfy pressing timetable and political objective of European Green Deal (Directorate-General for Financial Stability, Financial Services and Capital Markets Union, 2021). The European Green Deal consists of policy motions with an attempt to set the EU on the direction of green transition, and eventually reach climate neutrality by 2050

(European Commission, 2022). Standards are prerequisite in assuring consistency of reporting related to European Union's sustainable finance agenda, the existing Sustainable Finance Disclosure Regulation, NFRD, Taxonomy Regulation, and demands of expected legislation on due diligence and sustainable corporate governance (Directorate-General for Financial Stability, Financial Services and Capital Markets Union, 2021).

2.2.2 Future of sustainability reporting

Sustainability reporting has evolved into institutionalised practice for big organisations globally and it is uphold by many companies by legal demands about non-financial reporting (Larrinaga & Bebbington, 2021). Moreover, expanding target on value-adding and sustainable performance, longstanding strategies has compelled a demand for novel accountability and reporting format, which spreads over financial statements into nonfinancial key performance indicators out of social responsibility and environmental impact (Brockett & Rezaee, 2012). According to Xu et al. (2023) this has been done by developing and enhancing sustainability reporting information disclosure scheme, averting corporate violations, and introducing effective governance strategy framework for refining information, could bring substantial support for the green and sustainable development of organisations.

An example of this is how EFRAG has submitted the first set of draft European Sustainability Reporting Standards (ESRS) to the European Commission in November 2022. In April 2021, European Commission adopted CSRD that demands entities within its scope to report using a double materiality perspective in compliance with ESRS. After this submittal, European Commission consult EU agencies and other EU states about the draft before the standards are adopted in June 2023. After European Commission accepts the standards as appointed acts, European Parliament and Council will scrutinise them. The reporting requirements will be applied step by step by different entities, as first ones will have to apply standards for reports which are published in 2025. Listed SMEs are obligated to disclose from 2026 onwards, with an additional opportunity to voluntary opt-out until 2028, and they will be capable to report under a distinct standard which will be developed in 2023 by EFRAG. (EFRAG, 2022.)

In the United States U.S. Securities and Exchange Commission (SEC) has reported that investor demand for ESG information increases, and that SEC is reacting with an all-agency approach. Some of the most recent actions in the US include request for comment on climate disclosure, statement on the Review of Climate-Related Disclosure, and Enforcement Task Force focused on Climate and ESG issues. (*Climate and ESG Risks and Opportunities*, 2023.) Correspondingly Australian Government Auditing and Assurance Standards Board and Australian Accounting Standards Board have recognized the importance of developing an international framework and standards for sustainability and climate- related reporting and assurance (Hammond, Gyles, and Michaelides, 2021).

2.3 Challenges of sustainability reporting

We have established the benefits and demand for sustainability reporting. However, sustainability reporting is not without its deficiencies and those are discussed further here. A clear illustration of the challenge of sustainability reporting is greenwashing behaviour which was discussed in previous section in this paper.

For example, Brockett and Rezaee (2012) call for improvements in sustainability disclosures format standardization, comparability, availability and transparency, timeliness, reliability, and analysis. Correspondingly, Hodge et al. (2009) narrate that there is a demand for improvement in proper sustainability assurance guidelines and standards. One should note that even though writings of Brockett and Rezaee (2012) are over 10 years old the suggestions for improvement are still relevant today. Particularly comparability and transparency are crucial for the information to be useful for information user. As Brockett and Rezaee (2012) state, often sustainability disclosures are not comparable, transparent and consistent. Though, GRI has enhanced the importance of these by imbedding them to the principles of GRI. On the other hand, practical guidance on these is virtually non-existent. With reliability, Brockett and Rezaee (2012) refer to accuracy, timeliness, and completeness of sustainability reports. Reliability of reports is connected to stakeholders' trust in them and therefore independent assurance is suggested by Brockett and Rezaee (2012). Similarly, Dando and Swift (2003) explain that report readers want to be able to trust on the quality of the processes, competencies and systems that carry the information in to the report and support the entity's commitments and performance. Thus, independent assurance seems to be the most obvious measure to counteract the potential mistrust.

Correspondingly, Gürtürk and Hahn (2016) believed that external users have confidence in assurance statements and those statements influence in their impressions. The findings of their study, however, signify that assurance statements fail to give comprehensive image of the entity because most of the statements provide assurance only on parts of the sustainability reports. Hence, the assurance statements themselves may signal of deeper assurance that is appropriate. According to Dando and Swift (2003), assurance practice itself has been devised by financial assurance models which are insufficient to address the qualitative and broader aspects of environmental, social, and ethical performance. In fact, they think that credible, accurate and precise information solely do not urge organisational change in relation to sustainability.

On the other hand, Gürtürk and Hahn (2016) state that the relationship between work performed and assured content appears to be vague in understanding. To improve the understanding of this relationship, they suggest that entities should present explicitly and clearly the applied methods in relation to the assurance process which in turn may improve the transparency of assurance statements. Correspondingly, Manetti and Becatti (2009) state that there should be specific directions and guidelines for assurance providers in international auditing standard procedure. They focused on their paper to analyse how efficiently GRI standards were carried out in different assurance statement typologies. Therefore, simply producing an independent assurance as suggested by Brockett and Rezaee (2012) is not sufficient enough to diminish potential mistrust.

On the other hand, Larrinaga and Bebbington (2021) disclosed that sustainability reporting liberated itself from the annual corporate report. Before 1990s environmental and social publications were often made in parts of the annual report and financial reporting framework offered an example in terms of design for sustainability reporting framework. However, financial reporting is over 500 years old and is still continuously developing in the middle of growing scrutiny and public attention. (Larrinaga & Bebbington, 2021.) This relates to the issue that all principles that apply to financial reporting and assurance do not necessarily adapt to sustainability reporting, which have resulted in the development and adoption of assurance standards and challenges in assessing them.

Larrinaga and Bebbington (2021) narrated that particular concerns that should be covered in sustainability reports were verified through comparison of performance indicators. Performance indicators attained prestige in management accounting in the 1970s and 1980s. This way GRI had definitive model to track when constructed environmental and social matters into performance indicators that ought to catch managers' recognition. The difficulty with this transformation is in converting some social issues, like human rights, into available indicators. (Larrinaga & Bebbington, 2021.)

Boiral (2013) contemplated in his study the extent of entity's true sustainability performance and its measurability. He questions what entity's true sustainability performance would be, and how organisation could unmistakably measure and communicate such statements, or it would even be possible. Though, the potential discrepancy between supposedly reported concrete sustainability issues and what is truly reported by the entity in concrete terms are inclined to be disregarded or included within a general view of corporate sustainability (Boiral, 2013). He remarks that disclosure of adverse events permits the reader to acknowledge that a negative impact or a problem exists, but at the same time acknowledges that it is challenging to recognise information about those in the reports unless the reader is willing to search for it. In addition to willingness, this requires true effort and determination from an external stakeholder.

Similar views share Manetti and Becatti (2009) who state that sustainability report is notably complex matter to investigate, as it combines qualitative and quantitative information. The process of combining both qualitative and quantitative information is difficult to formulate as it includes mapping and stakeholder involvement (Manetti & Becatti, 2009). Correspondingly, Larrinaga and Bebbington (2021) declare that a challenge related to sustainability reporting is in its various aspects of sustainable development which have to be converted and the way these are transformed into a quantifiable indicators. As such these hurdles create a dispense with comparability and integration that further interfere sustainability reporting's ability to reach defined goals, like accountability and improvement (Larrinaga & Bebbington, 2021). Moreover, they state that reporting is frequently detached from the corporate activities in a manner that is not producing any of the pledged objects, neither in respect of generating advantages for shareholders and organisations, nor in respect of empowering stakeholders and making companies responsible for their activities' environmental and social effects.

One of the most interesting observations that Boiral et al. (2019) made was that no matter the appearance of the assurance statement, the accounting principles governing the assurance process itself appear to be poorly adapted to information of sustainability reports, because of the information's complex, qualitative and versatile nature. Additionally, they found that the information entities and assurance providers tend to conceal negative elements that could potentially harm corporate image. Though, it is acknowledged by Boiral et al. (2019) that they cannot pinpoint what is the reason for differences in statements as those could result in application of standards or guidelines, auditors themselves or other factors. This relates strongly to signaling theory which is presented at the end of this paragraph.

Readers of the information have to decipher the assurance signal in order to determine whether it is able to improve the credibility of the sustainability information. Moreover, the perceived reliability can affect the decisions as well as concerns of stakeholders, such as performance evaluations and risk. (Baier et al., 2022.)

2.4 Assurance of sustainability reporting

Organisations acquire external assurance in order to complement their credibility and boost their internal processes and systems related to sustainability (Hummel et al., 2019). García-Sánchez et al. (2022) assert that corporate social responsibility assurance can aid investors in their decision making by illustrating management's engagement to corporate social responsibility reporting**.** Thus, the disclosures of companies are of consequence for stakeholders. O'Dwyer (2011) narrate that in large measure the foremost interest for assurance arrived from clients affected by internal as much as external assurance, and so assurance providers developed the business with this constituency.

The study of Hazaea et al. (2022) showcased that the demand for audits of sustainability reports both improves the reputations of institutions and improves value of entity's structure, planning, accountability and monitoring. Findings of their study reveal that essentially role of audit as a promoter and securer of sustainability is critical, particularly if the audit characteristics are divergent.

Interestingly, Dando and Swift (2003) state that larger amounts of transparency are not adequate to display responsibility or improve confidence and belief, that an entity is adequately committed to a sustainability mission. Moreover, they suppose that social, environmental, and ethical reporting must be followed by independent and sturdy assurance of these aspects. Nonetheless, Boiral et al. (2019) observed in their study that assurance statements lean to act as a mask or a disguise and that this has ethical implications by presenting misleading image of rationality and confidence to stakeholders. Correspondingly, Gürtürk and Hahn (2016) point out that misleading and imprecise assurance statements may discard relevant information, and therefore divest assurance statements off their purpose.

Hummel et al. (2019) state that especially poor sustainability performers need improvements in their sustainability reporting, and thorough assurance processes aid in these advancements. On the other hand, they recognise that prime sustainability performers acquire external assurance principally to sustain their legitimacy and credibility among stakeholders. Respectively, Boiral et al. (2019) found that in general assurance statements continue to be a way of legitimation for both assurance providers and reporting entities. Nevertheless, they observed in their study that GRI principles are not consistently assessed by assurance providers. Moreover, particular GRI principles like clarity of information, timeliness and sustainability context are rarely addressed. Majority of the statements concentrate on only a few applied principles which are utilized in financial reports as well, such as completeness, accuracy, and reliability of the presented information. (Boiral et al., 2019.) They suspect that one of the reasons for this may lie in the fact that same accounting companies perform both financial and sustainability assurance. Similarly, they narrate that isomorphism may give a reason for the appearance of the statements, which seems to be the rational and detached from prominent sustainability issues that entities face.

On the other hand, Gürtürk and Hahn (2016) view external assurances more as an internal tool instead of a means to correspond to growing transparency requirements of stakeholders. According to their study, majority of the assurance statements are oriented especially to company and its management, not as communicative or stakeholder targeted instrument. Similar views share Boiral et al. (2019) who state that assurance statements of sustainability reports are accustomed to project entities’ anticipations and to justify the quality of the presented information. Correspondingly, Dando and Swift (2003) assert that many assurance statements are targeted to the directors of organisations and their extent is decided by the organisation, instead of the stakeholders or independent assurance provider on the organisation’s behalf.

Braam and Peeters (2018) believe that with more strict reporting and assurance regime, entities may be urged to provide more complete and balanced information about their corporate sustainability performance, and even improve comparability of organisations' performance disclosure in their sustainability reporting. In addition, they state that more stringent operation of assurance by independent third parties may reduce managers' opportunistic application of third-party assurance as a tool for diminishing legitimacy risks. They think that this way, overall confidence, credibility, and the accountability of the corporate sustainability performance could be improved. From this perspective signaling as well as the required reporting from EU could act as a boost for transparency in sustainability reporting.

For instance, O'Dwyer and Owen (2005) concentrated in their paper on analysing assurance statements of sustainability reports, which were short-listed for the Association of Chartered Certified Accountants (ACCA) UK and European Sustainability Reporting Awards scheme in 2022. They examined how much prevailing assurance practices enhance transparency and responsibility to stakeholders, and developed their evaluative framework from AccountAbility, FEE and the GRI's guidelines. Their study shows that in terms of sustainability report's credibility, it seems that often it is considered adequate once sustainability report is verified by esteemed party. Even though assurance ought to be fundamental in holding powerful organisations accountable to their stakeholders (O'Dwyer & Owen, 2005). Baier et al. (2022) studied sustainability assurance and whether it actually signals credible information or enables unethical behaviour of false signaling. As Baier et al. (2022) also states, the signaling is valuable because readers of information are reliant on sustainability assurance when they contemplate the information of sustainability reports. The research of O'Dwyer and Owen (2005) displayed variation in levels of assurance between accounting and consulting firms and the use of specific assurance standards by assurors. Additionally, they observed that there were deficiencies in their study about materiality, responsiveness, and completeness. Principles of completeness and materiality are also considered in the findings of this study.

Hodge et al. (2009) studied whether assurance statement of sustainability report could influence the confidence and perceptions of credibility of information in those reports. Overall, they found that reliability and credibility is perceived to be higher when sustainability report information is assured. Hummel et al. (2019) found for instance that organisations that are performing well in the context of sustainability, acquire external assurance mainly to sustain their legitimacy and credibility among stakeholders. Moreover, the confidence of a reader is higher when the assurance provider is a public accountancy firm rather than a specialist consultant (Hodge et al., 2009). Thus, the external assurance statement has significance to external stakeholder. Sustainability assurance have developed since both of these studies of Hodge et al. (2009) and Manetti and Becatti (2009). For example, GRI-standard has provided updates in their reporting, and it is applied by many entities, including by the ones who are object of study in this paper. Another example of improvements is European Sustainability Reporting Standards which are a result of the CSRD directive.

According to Brockett and Rezaee (2012) There are three types of assurance opinions in terms of sustainability disclosure. The first, negative assurance, means that assurance providers reckon that they are not aware of any required alterations in sustainability performance disclosures that would enable compliance with globally accepted sustainability standards, such as ISO 26000 (Brockett & Rezaee, 2012). Negative phrasing is the most cautious manner to convince stakeholders and it is primarily applied by accounting firms. Thus negative phrasing accentuates absence of problems instead of reliability or quality of sustainability reports. (Boiral et al., 2019.)

The second, positive assurance, designate that assurance providers conclude whether sustainability performance disclosure are adequately disclosed in accordance with globally accepted sustainability standards (Brockett & Rezaee, 2012). Boiral et al. (2019) found that typically consulting companies as assurance providers are more positive and emphasise the quality of the reports in respect of reliability, clarity, balance, or accuracy. They point out that even though phrasing appears to be less prudent, it usually prevails rather unattainable and does not compromise assurance providers. In fact, they mention that negative and positive phrasing of conclusion are not inevitably exclusionary, and, in their study, they found that 20 % of the studied statements use them together to illustrate different features of the sustainability reports.

The third, integrated and/or universal audit approval, refers to limited assurance in which assurance providers verify conformity with applicable sustainability standards on prearranged procedures (Brockett & Rezaee, 2012).

According to Manetti and Becatti (2009) auditors may express only two levels of assurance: reasonable or limited. The basis of the level of assurance relies on inherent characteristics of the subject and the carried-out inspections. The reason for two different levels of assurance is due to ISAE 3000. In ISAE 3000 the possibilities as subjects are wide and heterogeneous, so it would not be logical to set a higher or lower reliability in advance. Fundamental elements of assurance services according to ISAE 3000 are level of assurance, a chance to use interdisciplinary teams, assessment of audit risk, types of verifications and inspections, appropriate reporting criteria, and the format of the given assurance statement. Determinants of lower or higher reliability controls are limitations of internal control systems, usage of selective tests, the inherent character of the subject, the reality that most of the components auditor collects are indicative but not definitive, and the used discretion in accumulating indicative matters and in deducing on the basis of assured evidence. (Manetti & Becatti, 2009.)

Manetti and Becatti (2009) highlight the importance of level of assurance. Limited or moderate level of assurance signals that the affirmation process has not been broad and that the conclusion of assurance statement should viewed with prudence (Boiral et al., 2019). In an independent limited review, auditors hold a limited responsibility and definitive opinion is not expected from assurance providers by report readers (Aigner et al., 2022). Meaning that limited assurance is provided for issues that are more challenging to confirm such as social impact of entity's activities, and reasonable assurance is verified for issues that are more objectively assessed, such as financial indicators (Manetti & Toccafondi, 2012). According to IAASB principles, all external verification services should affirm the level of assurance so that the expectation gap could be reduced (Manetti & Becatti, 2009). With expectation gap Manetti and Becatti (2009) refer to the reader's understanding of the credibility of the assurance and their real effectiveness. According to Aigner et al. (2022) limited review broadens the expectation gap for the recipients of information. Further, they suspect that this is the reason for variety in the use of assurance standards.

Dando and Swift (2003) studied the credibility gap between increased levels of ESG disclosures and public trust. According to them, sustainability reporting should be evaluated in terms of usefulness and relevance to stakeholders and hence their decision-making process as ethical, environmental, and social reporting reveals performance in respect of stakeholders. Therefore, they state that it is necessary to have information presented that depicts a balanced image of the entity's impact on natural environment and society. In their paper in 2003, Dando and Swift pointed out that financial auditing practice was incapable to ensure the reliability and sturdiness of sustainability reporting and to influence public confidence. The assurance of ethical, environmental, and social accounting and reporting was at its infancy in 2003 according to Dando and Swift and the advancing climate of risk appetite, responsibility and governance was even then presenting new challenges. Even though the study of Dando and Swift is 20 years old, it highlights issues that are relevant today and emphasised by other researchers as well.

For example, Boiral et al. (2019) found that in general, the evaluation process for stakeholder responsiveness is not established. In fact, it appears to depend on the entity's reported information and concentrate on internal processes instead of assessment of the concerns recited by stakeholders (Boiral et al., 2019). In addition, auditors may not possess the necessary competency to perform required verifications or they may come across complications in meeting stakeholder requirements because of overly generic information and opinion-based indicators (Manetti & Becatti, 2009).

Boiral et al. (2019) narrate that the principal outcome of assurance process is displayed in assurance statement or publicly available report constructed around kindred themes such as level of assurance, scope of the review process, limitations, criteria, and methods used by assurance providers and conclusions. According to them, the conclusions in assurance statements provided by assurance providers are prepared in cautious and measured terms, but they are intrinsically aimed at stakeholders to convince them of report's reliability. In fact, they discovered that the conclusions of assurance statements were fundamentally drawn to convince stakeholders about the reliability of the report, even though they are created in cautious terms. According to them, this convincing has two primary reasons. The most frequent is to emphasise the absence of material or considerable misstatements, inaccuracies or errors, the other focus more on quality of report (Boiral et al., 2019).

Baier et al. (2022) state that there are two variables of sustainability assurance, scope of assurance and reference explicitness, that influence together the assurance signal and the interpreted reliability of a sustainability report. Moreover, they believe that there is indication that receivers are not at risk of false signaling but are potentially at risk of making incorrect interpretations of the assurance signal and thus may react negatively even to well-intentioned signals. According to Baier et al. (2022) there is not a uniform standard for clearly referencing and marking topics to be subject to assurance. Thus, the choices management makes about the reference explicitness, can potentially be easier or harder to interpret for the reader of the information. They narrate that in connection with the sustainability assurance, the observability of the signal can be captured with reference explicitness. Reference explicitness relates to the communication decision of assurance and thus makes a distinction of an entity's form of communication, whether it is through verbal or visual information signals. (Baier et al., 2022.)

This does not conform to statements of Xu et al. (2023) who declared that stakeholders are improving their capability to measure and identify reported information, as they wish to obtain more competent information of the organisations. Therefore, it is possible that Baier et al. (2022) underestimate the abilities of stakeholders, or vice versa Xu et al. (2023) overestimates them, or the true value disclosures of organisations have.

On the other hand, Baier et al. (2022) notify that it is important that when evaluating the relationship between perception of credibility and reference explicitness, the reader should observe and receive the assurance signal consciously due to potential misinterpretation of signals. Moreover, they acknowledge that unclear reference could potentially devise an impression of a comprehensively assured sustainability report, even if only chosen topics have been assured. Thus, an entity can display receivers the signal of assurance, even only particular topics are in the scope of the assurance. Hence, as a signal the quality of sustainability assurance may diverge significantly. (Baier et al., 2022.) This issue highlights the concern with signaling and the amount of information the reader should have on the subject. Reader's criticality of the sustainability reports is necessary for veritable understanding of the entity's sustainability activities, for example by comprehending the different levels of assurance statements.

According to Manetti and Becatti (2009) it will never be plausible to ensure highly trustworthy verification. The reason for this is the complexity of sustainability reporting as object of investigation as it incorporates qualitative and quantitative information (Manetti & Toccafondi, 2012). Moreover, auditors are not always able to execute verifications about sustainability reports because there may be challenges with assessing the level of involvement of stakeholders or with evaluating effects of company policies (Manetti & Becatti, 2009). In fact, the main criticisms of assurance standards during the time of Manetti and Becatti's (2009) study were about role and responsibilities of external experts, level of assurance, connection to financial audit, conformity with national regulations and laws, involvement of stakeholders, and materiality and relevance of presented information.

Framework and standards have been created to improve more comparable and robust reporting, such as GRI guidelines (which are utilised in this paper), and diverse methods or evaluating various aspects of performance, such as environmental management (ISO 140001) (Dando & Swift, 2003). Mainly guidelines and standards of assurance services have been compiled by international accounting organisations, such as International Auditing and Assurance Standard Board (IAASB) of the International Federation of Accountants (IFAC), Fédération des Experts Comptables Européens (FEE). Other creators of guidance are private not-for-profit organisations for instance AccountAbility, and national bodies. (Manetti & Toccafondi, 2012.) IAASB offers guidance in the format of key procedures and basic principles for professional accountants on how to execute non-financial assurance engagements (Aigner et al., 2022). These standards and guidelines fluctuate significantly in terms of content and scope. ISAE 3000 is a benchmark for accountant assurance providers, such as the Big Four companies. (Manetti & Toccafondi, 2012.)

Gürtürk and Hahn (2016) studied whether assurance quality was dependent on the assurance provider, and the applied standards and guidelines, such as ISAE 3000, AA1000 and GRI, by using deductive content analysis. Their analysis displays that Big Four assurance providers provide most of the assurance statements. Big Four organisations frequently comply ISAE 3000 standard, which according to Gürtürk and Hahn (2016) is short of a definitive linkage to the applied methods. They state that non-accountants utilise methods with more variety. They suspect that assurance providers with accountant background may be grounded on isomorphism due to network effects, uncertainty and professionalisation. This derives in decrease of heterogeneity of assurance practice and is also projected in the structure and working of the assurance statements (Gürtürk & Hahn, 2016). Moreover, they propose that this custom may decrease the transparency, learning effect and credibility of assurance statements. In fact, they suspect that this development of homogeneity in assurance statements may be the cause of traditional assurance practices, which are initiated from non-sustainability domain.

Boiral et al. (2019) point out that even though assurance of sustainability reports rests upon certain standards, especially AA1000 and ISAE 3000, standards themselves are established to a great degree on general auditing principles. These general principles are for example impartiality and independence of auditors, determinations of scope and separate levels of assurance engagement, as well as the organisations of the assurance statements. Although these principles are employed in disparate fields, they prevail in accounting and financial auditing. (Boiral et al., 2019.)

However, the adaptability of financial assurance practices to sustainability context is not that straightforward. For example, O'Dwyer (2011) found in his study that standard compliance and substantive testing may be too rigid and constrained for non-financial professionals as they may not consider adequately the complexity of data and its context. Thus, for instance materiality is entirely different in financial reporting compared to sustainability reporting. Moreover, accountant and nonaccountants' differing conceptions about materiality can create resentment as evaluations of stakeholder completeness and materiality are approached differently. For instance, financial assurance professionals may calculate fatalities as non-material, whereas non-financial professionals views every fatality material. (O'Dwyer, 2011.)

Aigner et al. (2022) remind that as an assurance procedure, sustainability assessment shares acuity, knowledge and auditing skills statements require to conduct the related competences and tasks. This way the risk-based approach that underplays the possibility of material misstatement could be reflected in the work of the assurance provider (Aigner et al., 2022). Risk-based approach is fundamental element of financial auditing. O'Dwyer (2011) narrates that more enhanced focus on risk in planning procedures was partly actuated by managers and partners to deliver reasonable assurance opinions instead of limited assurance opinions. In fact, according to him in the earlier stages of assurance development, risk disclosures were not regarded as material, as there was an understanding among assurance providers that external stakeholders did not regard quality of information in sustainability reports that compelling. Fortunately, this consideration has been updated, or at least it appears to be.

As for the practical side of standards, O'Dwyer (2011) found in his study that prevailing generic standards such as ISAE 3000 are especially unhelpful in providing guidance on detailed practices which then demand tailoring to serve in different reporting contexts. In fact, AA1000AS and ISAE 3000 seem to elaborate broad parameters for nonfinancial data assurance instead of offering detailed and practical guidance (O'Dwyer, 2011). The interviewees of his study identified that there are deficiencies of conventional audit procedures in satisfying the key targets linked to sustainability assurance. His findings suggest that development of novel assurance practices in Big Four organisations might be restrained by perceived need to rely on financial audit techniques and training as well as internal professional company control procedures which may unintentionally undermine particular aspects of expertise that could in turn inspire more creative assurance practices. Correspondingly, Aigner et al. (2022) note that in case assurors focus on Big Four organisations, there is a probability that certain standards will continue their domination in sustainability assurance process. Though, they mention that assurance provider may embrace supplementary means to enhance the purpose of assessment besides standards.

Similar views share Rossi and Tarquinio, who believe that accounting firms have attained accumulating market shares when compared to consulting firms in sustainability reporting assurance. They viewed voluntary sustainability reports from a period of five years in Italian listed companies and developed their own index, which was based on ISAE3000 and AA1000AS standards, to study sustainability reporting phenomena in Italy. Their research identified that there are variations in assurance of sustainability reports, particularly in the conclusive comments, used criteria and recommendations. Their findings show that accounting organisations prefer to use ISAE3000 standard, and they are inclined to give limited assurance in a negative form. Assurance providers are considered in this paper as well, from the viewpoint of Rossi and Tarquinio's study.

Moreover, O'Dwyer (2011) narrates that there are deficiencies in traditional financial audit customs in evaluating the completeness of sustainability reporting. For instance, interviewees of his study told that they had doubts about the reliance they could have on techniques to evaluate reporting completeness such as peer review processes, media analyses, internet searches and liaison with financial auditors. Moreover, interviewees felt that the lack of guidance affected also to the type and level of work necessary to provide moderate or limited assurance statements (O'Dwyer, 2011). Thus, he suggests involving an external expert stakeholder solution to connect with prevailing financial audit procedure. This means that chosen stakeholders should deliver isolated assurance on the relevance and completeness of sustainability report, while firms limit their focus on evaluating the credibility of the reported information (O'Dwyer, 2011). On the other hand, Machado et al. (2021) point out that reporting entity does not disclose the specifics of the stakeholder engagement process, it is difficult, if not impossible, to convince stakeholders about the usage of stakeholders' input in legitimatizing their operation.

Though, according to Dando and Swift (2003) stakeholders should be assured beyond the precision of the data. Stakeholders need to know that the presented information in a sustainability report is accurate, relevant, balanced and complete depiction of the entity's performance (Dando & Swift, 2003). Therefore, content of the report have to project material concerns of the stakeholders and to society as well (Dando & Swift, 2003). Additionally, Hazaea et al. (2022) state that verification of assurance standards must entail stakeholders who are profoundly engaging with advance reliability and quality of sustainability assurance, regardless of the procedural and commercial points of those standards. In practice, these demands are difficult to execute but even more challenging to evaluate the implementation of them from an external stakeholder perspective.

Hazaea et al. (2022) and Manetti and Becatti (2009) emphasize the selection of appropriate reporting criteria. ISAE 3000 state that assurance provider cannot welcome an assignment for which the reference criteria applied in the report is not known, or if these criteria are judged inadequate (Manetti & Becatti, 2009). Hazaea et al. (2022) remark that determination of reporting criteria is important, because there are different aspects of sustainability assurance. Simultaneously, auditors should refer to established standards consistently that complement reliability of their assessment and the readability of assurance statements themselves, for the reason that without that kind of standard there would be great variance in the used wordings at assurance statements (Hazaea et al., 2022).

In fact, one of the main issues of the sustainability reporting is how to overcome the complications with reliability through supplying the assurance (Larrinaga & Bebbington, 2021). Criticism of sustainability reporting and standards related to it, lean to weaken the trustworthiness of sustainability reports and their utility for stakeholders (Boiral et al., 2019). ACCA (Association of Chartered Certified Accountants) trust that independent external assurance is essential element of trust and credibility progress (Dando & Swift, 2003).

Similar view share Aigner et al. (2022) who state that independent assessments are crucial in enhancing credibility, and this way improves security of the data provided to shareholders, while diminishing information asymmetry and potential conflicts emerged from them. Correspondingly, Dando and Swift

(2003) believe that generating trust and adding value to reporting can be pursued by assurance. According to Boiral et al. (2019), accelerated growth of assurance process demonstrate the demand to enhance the reliability of the reported information from the stakeholders' perspective. They point out that criticism contributes to sustainability reports by undermining the credibility of them for stakeholders. Moreover, even though assurance of sustainability reports is based on particularly on ISAE 3000 and AA1000, these standards are mostly established on general auditing principles such as definition of scope, independence of auditors and different levels of assurance engagement (Boiral et al., 2019). Boiral et al. (2019) remark that even though these principles are applied in several areas, they dominate in financial auditing. Which could be the reason why they do not adapt to nonfinancial context of sustainability reporting without adjustments.

Independence is essential element of credible assurance, and essential element of credibility is trust. GRI addresses the stakeholders' credibility concerns about sustainability reports by suggesting that reports contains a statement of entity's policies and practices in order to improve and display assurance about the accuracy, reliability and completeness, as well as the delivery of independent assurance of the whole report. (Dando & Swift, 2003.) These principles are in the interest of this study due to their evident relevance.

2.5 Assurance standards

There are two international standards for performing external verification of sustainability reports: AA1000 AS and ISAE 3000 (Manetti & Becatti, 2009; Simnett, 2012). ISAE 3000 is often applied by members of the accounting profession, and AA1000AS is applied by assurers from outside the accounting profession (Simnett, 2012). Correspondingly, the findings of Gürtürk and Hahn (2016) display that large accounting companies have gained dominance in sustainability assurance and they extend their traditional services together with application of ISAE 3000. While, AA1000 appears to fall farther behind in concert with assurance providers who specialise in sustainability (Gürtürk & Hahn, 2016). In addition, there are Consolidated Set of the GRI Standards which are developed to promote sustainability reporting (GRI, 2022).

O'Dwyer (2011) observed that even though stakeholder engagement process has occurred, they were not sufficiently documented to assess independently their content. Interviewees of his study remarked for example, that the existing standards have unclear guidance about the procedures which are necessary in providing assurance on the stakeholder process. In addition, ISAE 3000 mentions stakeholder engagement in one sentence whereas AA1000AS is too vast and aspirational to provide reliable guidance (O'Dwyer, 2011). Manetti & Becatti (2009) suggest that stakeholder engagement refers to principles of materiality and relevance as it extends attention to the social reporting. Materiality principle is of particular focus in this study as can be seen in the following sections.

There are few differences between AA1000 and ISAE 3000. For instance, AA1000 implementation of stakeholder engagement is more strictly than ISAE 3000. Principles of AA1000 cover responsiveness and inclusivity whereas ISAE 3000 lacks incorporation of stakeholder management. (Gürtürk & Hahn, 2016.) GRI (2022) explain that meaningful stakeholder engagement is defined as two-way communication and purpose of it can be for instance to determine impacts.

For example, Manetti and Toccafondi (2012) studied stakeholder assurance and its dispersion in sustainability reporting. Stakeholder engagement reviews mutual commitment towards resolving arising issues rather than bare reconciliation. In assurance of sustainability reporting, stakeholders possess a supervisory role because they support information checking of documents as it is specifically requested by assurance provider, who in turn operates as an assembler of data and securer of the assurance process. Concentration and effectiveness of stakeholder engagement in assurance process depicts essential conditions for verifying quality and candour in the entire process. (Manetti & Toccafondi, 2012.)

Below are presented two assurance standards which organisations refer to in their sustainability reporting and to which assurance providers refer to in their evaluation of the reporting.

2.5.1 ISAE 3000

ISAE 3000 has been issued by international auditing standards procedure and is targeted to auditors who commence external verification of non-monetary reports. IAASB (International Auditing and Assurance Standard Board) issued ISAE 3000 into force from the beginning of 2005, and the issuing agency was IFAC (International Federation of Accountants). (Manetti & Becatti, 2009.) The objective of the IAASB is to set standards and facilitate convergence of international and national auditing and assurance standards (ISAE 3000, 2013).

ISAE 3000 concentrates distinguishing to traditional accounting considerations, such as level of assurance, cooperation with interdisciplinary teams, implemented controls, audit risk, standards, and guidelines as well as content and form of assurance statement. ISAE 3000 relies firmly on formal and established auditing in an attempt to ensure that assurance providers handle the risks of their profession and restrict the recipients' expectation gap. From this point of view, disclosed level of assurance is specifically critical. (Manetti & Toccafondi, 2012.)

ISAE 3000 standard foresee a distinction between limited and reasonable assurance. Hence, different parts of sustainability reports may have different levels of assurance. In some national standards, for instance Netherlands and Germany, limited levels of assurance qualitative information have been established, and reasonable levels of assurance for quantitative information. Qualitative information consists of history of entity, management approach for environmental, social, and economic responsibility, values and mission, whereas quantitative information can include financial indicators, amount of received complaints, and levels of emissions. Assurance provider should indicate in their audit which parts provide limited reliability and which reasonable reliability. (Manetti & Becatti, 2009.) But, as Manetti and Becatti (2009) state, this could be perplexing for report readers.

ISAE 3000 was developed as an umbrella standard for assuring other than historical financial information, and there have been issuance of specific subject matter assurance engagements for instance ISAE 3410, Assurance of Greenhouse Gas Statements (Simnett, 2012). Code of Ethics and independence requirements, consists of principles of integrity, objectivity, professional competence and confidentiality, due care, and professional behaviour. ISAE 3000 accentuates for instance quality control within companies and conformity with ethical principles, containing independence requirements, which are acknowledged as being in the public interest and indispensable part of quality assurance engagements. (ISAE 3000, 2013.)

2.5.2 AA1000S AS

AA1000 AS was issued by ISEA (The Institute of Social and Ethical Accountability) to address the quality of assurance provided for ethical, social and sustainability reporting (Dando & Swift, 2003). AA1000AS imply that an assurance engagement may be performed to give either a high level of assurance or a moderate level of assurance (Rossi & Tarquinio, 2017). According to Dando and Swift (2003) AA1000 Series aims to address the gap between responsibilities of auditors, the nature of the opinion, their obligation to public interest, and the grade of independence that assurance providers can uphold from organisation's management.

AA1000S Assurance Standard comprises of three principles which are completeness, materiality, and responsiveness. These principles cooperate with guidelines for solid assurance statement as well as the qualifications and independence of the assurance provider. (Dando & Swift, 2003.)

Completeness is related to the need to evaluate the degree to which reporting entity has comprised in its report all the material information from all viewpoints of sustainability about organisation's performance and activities. Whereas materiality refers to whether reporting company has included up-to-date and adequate information about its performance, activities, and effects in order to stakeholders to constitute an understanding of the entity. This information is understanding acts as a basis for making decisions and acting upon them. With responsiveness it is meant if reporting entity has responded to stakeholders' concerns and provided adequate information about them. Responsiveness relates to entity's ability to communicate basis of policy responses and indicators for changes as well. (Dando & Swift, 2003.)

2.6 GRI Standards

In order to enforce corporate practices in sustainability reports, it is requisite to formalise targets and guidelines that counterbalance individualisation. ISAE 3000 and AA1000AS standards are most commonly used by assurance providers together with GRI guidelines. (Aigner et al., 2022.) This is why GRI Standards are utilised in this study and are presented further here.

GRI Standards have been created by the Global Sustainability Standards Board (GSSB) (GRI, 2022). During 1970s nature and scope of reporting broadened above financial information as there were discussions about responsibility to deliver information to others than only shareholders, and to incorporate ecological and social information for other stakeholders (Larrinaga & Bebbington, 2021).

However, more than a decade passed between release of Brundtland Report and the publication of first GRI sustainability reports (Larrinaga & Bebbington, 2021). The Global Reporting Initiative (GRI) was launched in 1997 in order to create global standardisation and consistency to sustainability reporting (Brockett & Rezaee, 2012). GRI guidelines were first published in 1999 (Aigner et al., 2022; Larrinaga & Bebbington, 2021). At the beginning, GRI concentrated on integrating environmental performance into corporate reporting and providing "Sustainability Reporting Guidelines" (Brockett & Rezaee, 2012; Larrinaga & Bebbington, 2021). And in 2016, the first set of global standards for sustainability reporting were published by GRI (Gokten et al., 2020). Referred reporting guidelines in this paper are published in June 2022. GRI sets guidelines, principles and framework together with list of disclosures as well as key performance indicators (Aigner et al., 2022).

According to Larrinaga and Bebbington (2021) GRI is an important institutional factor in fostering sustainability reporting. This institutionalisation has been surely ensured by the recognition of United Nations. GRI Standards were endorsed as suggested reporting framework for organisations' sustainability reporting by the United Nations Global Compact (Gokten et al., 2020). The institutional sense can be viewed as common language, concepts like materiality and stakeholder engagement, and as an evolution of specific metrics (Larrinaga & Bebbington, 2021). Gokten et al. (2020) refer to concerted language as well by stating that GRI Standards have established a common language for sustainability reporting for both stakeholders and entities. According to GRI (2022) the purpose of sustainability reporting using the GRI Standards is to provide transparency on how an entity contributes or aims to contribute to sustainable development. Moreover, GRI Standards facilitates an entity to disclose its "most significant impacts on the economy, environment, and people, including impacts on their human rights and how the organization manages these impacts" (GRI Standards, 2022, p. 7). In addition, GRI systematised expectations and rules about sustainability reporting continue to be governing reference in the field, even though consecutive advancement have emerged, such as non-financial and integrated reporting (Larrinaga & Bebbington, 2021).

The GRI Standards are based on responsible business expectations, which are presented in authoritative intergovernmental instruments, such as the Organization for Economic Co-operation and Development's (OECD) Guidelines on Multinational Standards and the United Nations (UN) Guidelines on Business and Human Rights (GRI, 2022). Even though GRI Standards are ought to be guiding lines for sustainability reporting, GRI (2022) remark that they do not set targets or other points of reference for good or bad performance.

GRI Standards are constructed as a system of interrelated standards which comprise of three sets: GRI Universal Standards, GRI Sector Standards, and GRI Topic Standards. The purpose is that organisations use these Universal Standards when they report in accordance with GRI Standards. Sector Standards are utilised conforming to the sector in which organisations operate. Whereas Topic Standards are used in proportion to organisations' material topics. (GRI, 2022.)

As a starting point for organisation to apply GRI Standards is "GRI 1: Foundation 2021" which outlines the system and purpose of GRI Standards and clarifies key concepts of sustainability reporting. GRI 1 prescribes also reporting principles and requirements which are necessary to comply with if organisation wish to report in accordance with the GRI Standards (GRI, 2022). These principles and requirements are the focus points in this study and are presented more in detail in the following sections.

Other relevant sections of GRI Standards for this research are "GRI 2: General Disclosures", which consists of disclosures that organisation utilises to present information about its reporting practices as well as other organisational specifics such as policies, governance, and activities. Such data gives a reader understanding about the scale, profile, and impacts of the organisation. And "GRI 3: Material Topics 202" which guides the organisation in determining material topics. Additionally, GRI 3 includes disclosures which are used by the organisation to report information about its determination of material topics, what they are, and how these are managed. (GRI, 2022.) Material topics are also particular focal point in this paper.

2.6.1 Principles of GRI

Below are presented the principles of GRI with more detail to provide an understanding of them. According to GRI (2022) reporting principles are essential in obtaining high quality in sustainability reporting. Thus, if organisation wish to claim that it prepares reports in accordance with GRI Standards, it is necessitated that organisation applies the reporting principles. The reporting principles provide guidance for entities to make sure they report information with quality and appropriate presentation. Information with high quality enables users of information to make informed decisions about the entity's impacts and its activities related to sustainable development. (GRI, 2022.)

Accuracy

With accuracy it is referred to entity’s reported information that should be accurate and adequately detailed to grant an evaluation of the entity’s impacts. GRI acknowledges that features that determine correctness may alter according to the disposition as well as the purpose of the information. Therefore, precision of qualitative information is dependent on the level of detail and consistency with the obtainable evidence. Whereas the precision of quantitative information is dependent on the particular methods that have been employed to collect and analyse information. Entity should sufficiently define bases for calculations and data measurements, and guarantee that similar findings are achievable with replicated calculations. Additionally, company should indicate which information has been estimated, and clarify the techniques and assumptions used, and the potential limitations of these estimates. (GRI, 2022.)

Balance

According to GRI (2022), company must present information in a manner that is unbiased and give fair representation of both positive and negative impacts of the company. GRI reminds that organisation should clearly differentiate the entity’s interpretation of facts and actual facts, and not to leave out relevant information related to its negative impacts. Similarly, entity should not exaggerate positive impacts. (GRI, 2022.)

Clarity

Clarity refers to the manner the entity shall provide information, as it should be understandable and accessible. This includes taking into account differences of accessibility such as language and technology. Moreover, information should be presented in a manner that users of it understand it if they possess reasonable knowledge of the entity and its activities. (GRI, 2022.)

Comparability

With comparability, GRI refers to the company’s way of selecting, compiling, and reporting information consistently in order to enable an evaluation of the changes in company over time and breakdown of the impacts to other companies as well. Comparable information enables the assessment of entity’s current and past impacts as well as targets. Thus, entity should provide information from the current and at least two preceding periods. Moreover, organisation should maintain consistency in the used methods and the way of presenting information in addition to utilizing accepted international metrics and standards conversion protocols. (GRI, 2022.)

Completeness

Completeness relates to organisation’s presentation of adequate information that permit an evaluation of the company’s impacts during the reporting period. Meaning that impacts, activities, and events that have occurred in the particular reporting period should be presented. In the case where information is incomplete, the entity shall determine which part is missing. If the entity compiles of various units, the entity should clarify the used approach in consolidating the information. (GRI, 2022.)

Sustainability context

GRI (2022) explains that entity shall present its impacts in more extensive context of sustainable development. Sustainable development has been determined by the Brundtland Report in 1987 as the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Report, 1987). GRI (2022) summarise that the target of sustainability reporting using the GRI Standards is to convey transparency in the manner an entity devotes and aspires to contribute to sustainable development. Therefore, company must evaluate and disclose information about its impacts in the broader framework of sustainable development (GRI, 2022).

Sustainability context connects to determining material topics which is part of the in-accordance requirements of GRI. Material topics and materiality are also essential elements of auditing and thus are in particular focus in this paper as the point of view is based on auditing. These are covered in detail in the in-accordance requirements section. According to the GRI (2022) comprehending the sustainability context delivers the entity crucial information to decide and disclose on its material topics.

Timeliness

With timeliness it is referred to company's demand to report regularly and thus provide the required information in time for the users of that information for decision making. Therefore, timeliness principle has reference on how quickly after the reporting period entity is able to publish information. GRI recognize that entity must find a balance between providing information in time and make sure that information is of high quality is in accordance with reporting principles. (GRI, 2022.)

Verifiability

With verifiability it is referred to organisation's requirement to gather, record, compile and analyse information in manner that it can be evaluated to establish its quality. Disclosed information should be evaluated to verify its veracity and to define the scope of which the principles of GRI have been enforced. Entity's internal controls and documentation should be organized in a manner that enables review of them by others than who have prepared the information. (GRI, 2022.)

Verifiability principle also relates to the determination of material topics which is mentioned in accordance requirements of GRI. According to GRI (2022), organization should document their decision-making process related to sustainability reporting so that one can examine the elemental processes and decision, such as the determination of material topics. In connection with the review, entity should identify original source of data and offer credible evidence to support made suppositions and computations while affirming to the correctness of the information within agreeable margin of error. Entity should also explain clearly if any uncertainties exist in the reported information. Company should refrain from presenting information that is not confirmed by evidence unless it is pertinent to company's impacts. (GRI, 2022.)

2.6.2 In accordance requirements of GRI

Reporting in accordance with the GRI Standards facilitates an entity to present an extensive image of its significant impacts on environment, people, and economy. Organisations have to comply with all of the requirements if they wish to report in accordance with the GRI Standards. Thus, if the organisation is unable to abide with all nine requirements, it cannot declare that its reported information has been formulated in compliance with GRI Standards. (GRI, 2022.)

Requirement 1: Apply the reporting principles

First requirements expect that entity must apply the reporting principles of GRI 1: Foundation 2021 (GRI, 2022), which have been presented in the preceding section.

Requirement 2: Report the disclosures in GRI 2: General Disclosures 2021

This requirement consists of disclosure for entities to present their reporting practices, governance, activities and workers, policies, strategy, and stakeholder engagement. This information provides understanding about the profile and scale of organizations together with the context for comprehending their impacts. (GRI 2: General Disclosures 2021, 2022.)

Requirement 3: Determine material topics.

Third requirement demands organisation to define its material topics, and to review the GRI Sector Standards that comply to them. Entity should establish whether there are applicable Sector Standards and if there is a material topic for the entity, and correspondingly record topics which are not material and the reason for this. (GRI, 2022.)

It is suggested that organisation follows four steps in determining its material topics. The steps are

1) Comprehend the entity's context
2) Establish actual and potential impacts
3) Evaluate the relevance of them
4) Present the most relevant impacts in sustainability reporting. (GRI 3: Material Topics 2021, 2022.)

The first three steps are related to organisation's identification and evaluation of its impacts. The procedure for each step varies according to the particular circumstances of the entity, for example its sectors, business model, geographic, legal and cultural circumstances, ownership structure and nature of organisation's impacts. It is also mentioned that in this process organisation should engage with relevant stakeholders and experts. Organisation ought to analyse its material topics in each reporting period in relation to preceding periods and clarify potential changes. Organisation should also document the process of determining the material topics, such as decisions, assumptions, analysed sources, made subjective judgements, and gathered evidence. This way organisation is able to disclose its chosen approach and present the disclosures. (GRI 3: Material Topics 2021, 2022.)

Requirement 4: Report the disclosures in GRI 3: Material Topics 2021

This requirement expects that entity report its process of defining material topics, index of them, and the manner of managing each of them (GRI, 2022).

Material topics are in particular focus in this study because of their significance in both financial and non-financial context. According to Brockett and Rezaee (2012) materiality concept is rather well determined in financial reporting but not in non-financial reporting. This might be the reason why there is such variation in studied sustainability reports as will be discovered in findings section. Materiality concept applies to sustainability reporting as it covers vast range of social, ethical, economic, environmental and social performance measures disclosed by organisations (Brockett & Rezaee, 2012).

Materiality is defined by professional judgment and its both quantitative and qualitative operations for sustainability related performance dimensions call for proper professional assessment (Brockett & Rezaee, 2012). Aigner et al. (2022) state that materiality concept is in accordance with the triple bottom line. Once entities report multiple bottom lines, they should concentrate on issues that are material and significant to their stakeholders (Brockett & Rezaee, 2012). Thus, according to Brockett and Rezaee (2012), sustainability reports' main target audience is multiple stakeholders, whereas for financial reports it is shareholders. Therefore, they notify that sustainability reports ought to be relevant and concise, centred upon material matters only, which will further support stakeholders in assessing the organisation's performance on relevant areas.

Farooq et al. (2021) evaluated materiality assessment as well, by evaluating examining listed organisations based in the member states of the Cooperation Council for the Arab States of the Gulf. They found that even though organisations disclose more information about their materiality assessment, the amount of sustainability reports that provide information on how the material issues are identified is decreased.

Boiral et al. (2019) explain that focus on this materiality concept refers to eligibility and evaluating whether presented information and indicators display the company's primary impacts, and more broadly stakeholders' concerns. As a matter of fact, they state that confirmation of materiality appears to mold the entire assessment process and be the principal focal point for the audit. On the other hand, they observed that the process how materiality was assured in practice, stayed ambiguous in majority of the researched statements.

In respect of materiality and relevance in sustainability reporting, Manetti and Becatti (2009) highlight that assurance team should inspect the foundation of them. In a situation where these two indicators are not presented in the report, it is urgent that assurance provider highlights the resulting credibility gap (Manetti & Becatti, 2009). According to Brockett and Rezaee (2012), application of materiality in sustainability reporting is not established well. Similarly, Machado et al. (2021) state that the degree of application of materiality principle is not inevitably disclosed in the reports by the entities.

Manetti and Becatti (2009) comment that reporting on materiality ought to be examined from the stakeholders' perspective. They state that particularly, auditor should examine the process for determining of materiality and the outcome of it. Similar findings were found by Machado et al. (2021) who studied materiality by analysing 140 GRI-based sustainability reports. They noticed that organisations may disclose that they have adopted the materiality principle but lack the proper presentation of essential elements of it. These details are necessary in creating trust in the disclosed information, according to Machado et al. (2021).

Additionally, Machado et al. (2021) observed that the materiality analysis in sustainability reporting is thoroughly different from financial accounting. After all, non-financial disclosures comprise of expansive variety of environmental, social, and economic issues that can be perceived differently by different stakeholders. Hence, the engagement with stakeholders in a meaningful manner should be encouraged. (Machado et al., 2021.)

Requirement 5: Report disclosures from the GRI Topic Standards for each material topic

According to this requirement, company should provide information from the GRI Topic Standards for each material topic, and for each covered material topic either report according to GRI Topic Standards listed for that topic in the Sector Standards or give the ´non-applicable ʻreason for exclusion and the demanded clarification in the GRI content index (GRI, 2022).

Companies are necessitated to disclose only those acknowledgements which are significant to its impacts regarding material topics, thus non-relevant disclosures are not demanded. One should note that there is not minimum requirement for disclosures as the number of disclosures is dependent on impacts on relevant material topics and. If Topic Standards disclosures do not offer adequate information about company's effects, then additional disclosures are expected. If these "additional" disclosures are from other sources or developed by company itself, one should note that they are ought to have similar rigour as GRI Standards disclosures and they should be parallel with prospects of authoritative intergovernmental instruments. (GRI, 2022.)

Requirement 6: Provide reasons for omissions for disclosures and requirements that the organization cannot comply with

In a situation where entity is not able to adhere to a disclosure or a requirement in a disclosure, the company should clarify what it is unable to comply with and specify one of the four reasons for omissions and clarification for the reason. The permitted causes for omission are not applicable, legal prohibitions, confidentiality constraints, and information unavailable/incomplete. It should be noted that the reason confidentiality constraints and information unavailable/incomplete should be used only in exceptional circumstances. If these reasons are used often, the trustworthiness and utility of the sustainability report is reduced. (GRI, 2022.)

Requirement 7: Publish a GRI content index

Company is required to provide "a GRI content index that includes:

i. the title: GRI content index;
ii. the statement of use;
iii. the title of GRI 1 used;
iv. the title(s) of the GRI Sector Standard(s) that apply to the organization's sector(s);
v. a list of the organization's material topics;
vi. a list of the topics in the applicable GRI Sector Standard(s) determined as not material and an explanation for why they are not material;
vii. a list of the reported disclosures, including the disclosure titles;
viii. the titles of the GRI Standards and other sources that the reported disclosures come from;
ix. when the organization does not report GRI Topic Standard disclosures for a material topic from the applicable GRI Sector Standard(s), a list of the disclosures and the required reason for omission;
x. the GRI Sector Standard reference numbers for the disclosures from the applicable Sector Standard(s);
xi. the location where the information reported for each disclosure can be found;
xii. any reasons for omission used" (GRI, 2022, p. 19).

Requirement 8: Provide a statement of use

This requirement refers to the demand to declare the statement that entity has reported in accordance with the GRI Standards for the particular period. To make such statement, it is required that the entity complies with all nine requirements of GRI Standards. The entity is demanded to disclose whether the highest authority in the company is responsible of approving and reviewing the disclosed information, along with the material topics. (GRI, 2022.)

Requirement 9: Notify GRI

This requirement demands organisation to notify GRI of the application of its standards as well as the statement of use by dispatching an email to reportregistration@globalreporting.org (GRI, 2022).

2.7 Signaling theory

Information affects the decision-making process. Stakeholders such as investors or consumers make decisions on the basis of public (freely available) and private (only available for particular parties) information (Connelly, Certo, et al., 2011). Once stakeholders receive less information about the organisation, it signifies that there is a severe information asymmetry between the supply and demand side of the market. Yet, when stakeholders get specific information, the validity and accuracy of that data are equally valuable. (Xu et al., 2023.) Signaling theory proposes that an entity has incentives to report value-revealing information as a signal to others (Cheng et al., 2015). As some information is private, information asymmetries arise among those who have the information and those who could make more informed (possibly better decisions) if they had access to same information (Connelly, Certo, et al., 2011). Thus, entity's decision to publish information can be very relevant for other party, as access to information is essential in decision making process. For example, when an investor wishes to invest in organisation that can comply with GRI principles in its sustainability reporting, appropriate disclosure is crucial.

The essential element of signaling theory is that signaler (for instance a person, an entity, or a product) has information which is exclusive to the signaler (Jolink & Niesten, 2021). Signaling theory is beneficial in characterising behaviour when two parties have access to dissimilar information (Connelly, Certo, et al., 2011). In fact, signaling theory was created to target information asymmetry among financial parties (Jolink & Niesten, 2021). Signaling theory refers to a situation where one party (information sender) have to choose whether and how to signal (or communicate) information, whereas other party (information receiver) have to choose how to interpret that information (Connelly, Certo, et al., 2011). This is especially relevant currently as Stiglitz (2000) disclose that one of the fundamental concerns that companies nowadays consider is how specific actions will be perceived. Moreover, Machado et al. (2021) state that disclosed information in GRI reports is influencing exhilaratingly the perceptions and decisions of stakeholders.

Minutolo et al. (2021) explain signals as follows, where information asymmetries prevail, the entity creates signals that inform to the stakeholders it is abiding by the terms of the contract. In this study this contract refers to GRI-standards and complying with EU legislation. Often the market acknowledges these signals showcased as certifications, labels, disclosure and public statements (Minutolo et al., 2021).

The creation of signaling theory can be traced to Spence's (1973) work on labour economics, where Spence presented information asymmetries in economic models of decision-making (Bergh et al., 2014). Spence (1973) explained signaling theory from the perspective of job market. He focused on explaining how to determine the signaling power of work experience, education, race, gender, and many other observable personal features. Roughly speaking, the question is what in the interactive structure of the market is responsible for the information content of these possible signals, if any. Observable, unchangeable attributes are referred to as indices, whereas signals are observable properties attached to an individual that are "manipulatable" by them. Some attributes, such as age, change, but not according to individual discretion. Naturally, the job seeker cannot do much about the indices, while the signals are, on the other hand, transformable and therefore potentially manipulatable by the job seeker. Spence (1973) admits that doing these "manipulations" can cause costs, for example, in his example, education is expensive. These costs are called signaling costs. (Spence, 1973.)

Corresponding signaling costs are the funds used for the sustainability reports that are the subject of research in this study. Signal costs are essential characteristics of signaling theory in the assurance context (Baier et al., 2022). After all, producing sustainability reports demands resources from entities. Moreover, in accordance with signaling theory, varying levels of assurance mirror varying signal costs (Baier et al., 2022). Although it is mandatory for the selected entities in this study to submit a sustainability information, it is in the interests of the companies themselves to do this in a sufficient manner, in order to maintain their reputation and also their legitimacy. The sustainability reports of these companies are assured due to the requirements of EU regulations (the EU definitions for this obligation were presented in the introduction paragraph), but also because sustainability issues play an increasingly significant role, for example from the perspective of investors. In Europe, the actions of the European Union such as the "Green Deal" also contribute to this.

The European Green Deal is a package of political initiatives aimed at taking the EU into a green transition, with the ultimate goal of achieving climate neutrality by 2050. Its aim is to aid the transition of the EU into a righteous and flourishing society and competitive economy. (*European Green Deal*, 2022.)

Spence (1973) continues by explaining how a modifiable characteristic such as education, which is a potential signal, becomes an actual signal if signaling costs are negatively correlated with the individual's unknown productivity. In fact, Spence (1973) believes that negative correlation is a necessary but not sufficient condition for signaling to occur. Consequently, effective signaling depends not only on a negative correlation between costs and productivity, but also on having "enough" signals in the appropriate cost range (Spence, 1973). In order to signals be effective they must be expensive to imitate and observable. The reason for this is that there may be others who may pursuit to send deceptive signals if it is possible with inexpensive cost. (Connelly, Ketchen, et al., 2011.)

Signaling theory portrays how the cost of sustainability investments could be legitimate because of the information they communicate to organisational constituents, even though those investments fail to provide a positive net present value to the company. Therefore, companies utilise costly signals to communicate information and intentions to others who may want to know such information. It may be challenging for consumers and other stakeholders to know which entities are authentically committed to sustainability, and hence entities use sustainability initiatives to diminish information asymmetry. An alternative for expensiveness of signaling is possible if there is a penalty linked to false signaling. (Connelly, Ketchen, et al., 2011.)

In the case of false signaling, signaler takes advantage of current information asymmetries and attempts to influence the reader's choice to their own benefit by intentionally misleading them (Baier et al., 2022). Hahn and Reimsbach (2021) narrate that the most significant cost factor of false signaling is the cost of being detected. When considering the risk of discovery, the decision of false signaling disclosure strategies is therefore also depending on propensity of risk (Hahn & Reimsbach, 2021). Whereas Baier et al. (2022) and Connelly, Ketchen, et al. (2011) state that the penalty connected to false signaling may surface as a loss of credibility among stakeholders. Thus, false signaling is a cause of information asymmetry (Han et al., 2014). Baier et al. (2022) explain that for example in selected sustainability assurance, an organisation sends the signal of an assured sustainability report, even though not all the topics have been assured. Then, signal receivers perceive the sustainability report more credible than it ought to be if they are not able to observe the false signal (Baier et al., 2022).

However, Connelly, Ketchen, et al. (2011) believe that organisation may be more inclined to invest in expensive signals when they know the receiver of that signal is searching for such signals and is ready to act on them. Connelly, Certo, et al. (2011) explain that if a signaler does not have the fundamental quality associated with the signal but believes that the benefits offset the costs of producing the signal, the signaler may be tempted to false signaling. However, they believe that in such a case misleading signal would increase quickly until receivers learn to ignore them. This can be applied to sustainability reporting as well because issues like greenwashing are indications of public starting to ignore or lose trust in the signals and communication of the organisation. Therefore, the costs of signals must be organised in such a manner that deceitful signals do not pay, in order for them to sustain their effectiveness (Connelly, Certo, et al., 2011).

Both greenwashing and signaling presume benefits will accumulate to ′′good′′ corporate citizens and stakeholders will penalize ′′bad′′ corporate citizens. However, there is one compelling difference between the theoretical perspectives: relative costs and benefits charged on those who do not report sincerely. Signaling theory regard that the costs established by society to those who do not report genuinely will be adequately restraint so that "bad" corporate citizens will be less likely to report voluntarily than "good" corporate citizens. Greenwashing regard that the "benefits" granted to "bad" corporate citizens is greater than those granted to "good" corporate citizens. (Mahoney et al., 2013.)

Thus, signaling theory implies that "good" corporate citizens will be prone to apply Corporate Social Responsibility (CSR) disclosures, whereas greenwashing implies that "bad" corporate citizens will be prone to apply CSR disclosures. In other words, signaling theory suggests that issuing CSR reports is less costly for companies with stronger CSR performances, as they will lead up to lower costs when they issue standalone CSR Reports than those with weaker CSR performance. Consequently, greenwashing expects that companies with weaker corporate citizenship to issue standalone CSR reports in order to manipulate other stakeholders' sightings of the company's environmental and social position than stronger corporate citizens would do. Thus greenwashing suggests that influencing stakeholders' perceptions through CSR reporting would be more beneficial for weak corporate citizens companies. (Mahoney et al., 2013.)

There are two main characteristics of effective signals. The first is related to the signal's observability and it refers to the scope to which outsider is able to notice the signal. The second is related to the cost of the signal. The concept of cost in the signaling context includes the fact that some signalers are in a better position than others to absorb the associated costs. (Connelly, Certo, et al., 2011.) When compared with an inexpensive signal, an expensive signal is perceived by the receiver as more credible in proportion to the signaler's call to possess a certain quality (Hahn & Reimsbach, 2021).

Signalers and receivers have somewhat conflicting interests, as the signaler should benefit from signaling information from the receiver that the receiver would not have done without it, for instance by investing. Thus, outsiders stand to gain from decision making which is based on information gained from signals. However, the usefulness of a signal to the receiver is dependent on the extent to which the signal agrees with the favoured quality of the signaler and the extent to which signalers seek to mislead. For example, in a situation where there is a disparity between the signal and signaler for example when the signaler's unobservable quality does not correspond with the signals, is a result of a poor signaling. This relates to signal fit. (Connelly, Certo, et al., 2011.)

Connelly, Certo, et al. (2011) defined signal fit as the degree of which the signal is correlated with the unobservable quality. Baier et al. (2022) describe signal fit as how well entity is able to fulfil the quality requirement that entity is trying to communicate with that signal. This describes the relationship between public information (the signal) and private information (the signaler's unobservable quality) (Connelly, Certo, et al., 2011). Baier et al. (2022) state that in the case of sustainability assurance, signal fit is strongly reliant on the carried-out assurance engagement. This means that once the assurance depth is reduced and the signal is not adjusted simultaneously, the elemental quality of the assurance signal will be diminished which in turn could influence the reliability perceptions of readers of the sustainability reports (Baier et al., 2022).

Connelly, Certo, et al. (2011) affirm that fit and honesty may be distinguished in a way where fit is a characteristic of the signal, whereas the honesty (truthfulness of the signal) is a characteristic of the signaler. Management researchers have identified signaling effectiveness to be influenced by the idiosyncrasies of the receiver. For instance, signaling process will not work if the receiver is not searching for the signal or does not know what to search for. Additionally, there may be variation in the manner of interpretation of signals, and thus it can impact the process of converting signals into perceived meaning. (Connelly, Certo, et al., 2011.) This could important aspect to consider as it is possible that stakeholders who use sustainability reports as an information source may lack the necessary competence to find the essential information.

It is also argued by Connelly, Certo, et al. (2011) that by sending feedback in the form of countersignals, receivers could promote more efficient signaling. They continue by explaining that the basic assumption is that information asymmetry works in two directions as the receivers want information about signalers, while signalers also want information about receivers so that they may know which signals are most reliable, or which are receiving the most attention, and how receivers are interpreting signals. Moreover, according to signaling theorists, it may be expected that organisation's efforts to signal commitment to sustainable practices to improve, once stakeholders provide feedback about signaling effectiveness (Connelly, Ketchen, et al., 2011).

According to Braam and Peeters (2018) sustainability report signals the reliability of their corporate sustainability performance reports and improves trust in the accuracy and credibility of the presented information. Though, they acknowledge that for example voluntary third-party assurance may also be advantageous for entities with weaker corporate sustainability performance that are contingent on public pressures and legitimacy threats. For the entities in this study, sustainability reporting is mandatory, however, the thoughts of Braam and Peeters (2018) could be equally applicable if the reports were voluntary as legitimacy and public pressures never cease to exist.

Respectively, Hummel et al. (2019) explained through signaling theory why entities invest resources for sustainability reports and assurance of them. Organisations are likely to pursue higher legitimacy by signaling to their stakeholders that they can have confidence in the content of their reports because those have been assured by a third party (Hummel et al., 2019). For instance, Cheng et al. (2015) found in their study that assurance of ESG indicators could have a favourable signaling role in conveying the importance of reported information. Though, should be noted that Hummel et al. (2019) considered the theoretical explanation applicable assuming that assurance is voluntary. They point out that the voluntary aspect of this raises concerns about the quality of the assurance, as entities may try to maintain costs low and still be able to signal that assurance has been made.

The term assurance refers to the entities attempt to assure the readers of the reports that the disclosed content is valid and verified by a third party (Hummel et al., 2019). Thus, signaling theory is connected to assurance of sustainability reporting. Hummel et al. (2019) highlight the question of credibility as the reader cannot evaluate the disclosed content's truthfulness unless it is assessed by journalists or non-governmental organisations. Henceforth, assurance itself acts as a signal which is observable to convey the organisation's veracity (Hummel et al., 2019). Correspondingly, Hahn and Reimsbach (2021) narrate that from a signaling perspective, adequate audits are a way to improve signal quality, since they diminish the reporting entities' possibilities to display false signals which would remain undetected. On the other hand, they narrate that inadequate audits, do not substantially add the signalers' cost of displaying false signals.

3 DATA AND METHODOLOGY

3.1 Data

The chosen companies for this research are listed on the OMXH15 index in Finland's stock exchange. The collection of data was focused on these particular entities because the supposition is that these listed entities ought to present information comprehensively according to GRI Standards because of the requirements of European Union directive NFRD, companies' reference to GRI Standards, and being part of OMXH15 index. The notion is similar as with Gürtürk and Hahn (2016) who studied stock-listed entities, because they appear to be at the front line of current reporting practices as transparency is required from them by diverse stakeholders.

OMXH15 consists of the 15 most traded stocks of companies with good repute in NASDAQ OMX Helsinki. The companies operate in different fields. The restricted amount of constituents together with the liquidity screening assures that all the stocks which are incorporated into the index have great liquidity. This should give the investor an index which is appropriate as underlying for exchange traded funds, index funds and derivatives. (*Overview for OMXH15*, 2020.)

By choosing listed Finnish entities as research objects, and particularly their sustainability reports, the access to entities' sustainability disclosures were enabled. EU-legislation requires that all large companies and all listed companies (except listed micro-enterprises) to disclose information on their risks and opportunities related to social and environmental issues, and the impact they have on environment and people. This assists consumers, investors, civil society organisations, and other stakeholders to evaluate the sustainability performance of companies, as part of the European green deal. (*Corporate Sustainability Reporting*, 2023.) This is important in order to improve transparency and diminish information gap between entities and other stakeholders. In this paper public entities are research objects also because the assumption is that information asymmetry should be lower. Signaling theory helps to understand information asymmetry and thus it is chosen as point of reference for this study.

3.2 Method

This paper is studying sustainability reports of 15 listed companies of OMXH15 index to analyse their application of principles and requirements of GRI Standards. This study is conducted to identify whether those entities are truly able to disclose transparently and in balanced way their accomplishments and defeats in the field of sustainability, or whether they attempt to signal more positive image of themselves that is justified. The perspective of this paper is to assess the application of GRI principles and in accordance requirements with the help of signaling theory.

This study is carried out as a qualitative study and qualitative content analysis is applied. With qualitative research more profound understanding of the phenomenon could be achieved (Kananen, 2008, p. 24). Qualitative research tries to describe, understand, and provide meaningful interpretation of the phenomenon (Kananen, 2008, p. 24). A characteristic of qualitative material is its expressive richness, multilevel and complex nature (Alasuutari, 2011). As is the research material in this study as well. The research material consists of sustainability reports and other publications from the particular companies. As the research material is of multilevel and complex nature as Alasuutari (2011) depicted, is the research material a characteristic of qualitative nature and hence qualitative research is appropriate research method. Some organisations have disclosed financial and sustainability information in one report, or separated elements of information in separate disclosures. The documentation has been downloaded from companies' websites. Thus, the documentation has been publicly available.

Content analysis is a method which enables analysing documents systematically and objectively (Sarajärvi & Tuomi, 2018). This study has been performed by collecting information from the sustainability reports and analysing the information from the context of GRI Standards. Application of elements of principles and requirements of GRI Standards by studied entities are evaluated by concentrating on the content and wording of the reports. Content analysis is a text analysis, and it attempts to find meanings of text (Sarajärvi & Tuomi, 2018). This approach is specifically relevant for achieving the objective of this paper because it enables analysis of sources of information which are challenging to quantify. The content analysis focused on the sustainability reports and other complementary documentation from the year 2021. The reason why the focus was on these documents was because this study was started before all reports from year 2022 were available.

This paper utilises signaling theory as a reference point and as such analysis method is theory-driven content analysis. Theory-based analysis is reliant on reasoning of particular theory, model or authority (Sarajärvi & Tuomi, 2018). Thus, classifications made in the analysis are based on previous information and theories. Notions are derived from theory which are utilized in the analysis. (Kananen, 2008, p. 91.) Theory is useful also because it enables the produce of convincing explanation of the studied practices (Humphrey & Lee, 2004). Signaling theory refers to the situation where one party (information sender) have to choose whether and how to signal (or communicate) information, whereas other party (information receiver) have to choose how to interpret that information (Connelly, Certo, et al., 2011). Theory can be utilized as a mean to build interpretations from collected material, and which enables presenting findings in scientific form. This way theory can act as a goal and as medium. (Eskola, 1998.) Signaling theory will act as such in this paper.

This study is conducted as abductive analysis. Often when theory-based analysis is utilized it refers to abductive deduction (Sarajärvi & Tuomi, 2018). Eriksson and Kovalainen (2008) explain abduction as a process where one progress from people's casual meanings and descriptions to concepts and categories that generate the foundation of understanding or explanation to the depicted effect. In abductive analysis research material and theory take turns, and the analysis starts with research material, but theory is utilized as well (Kananen, 2008, p. 91). Thus, abduction is beneficial approach as it utilizes both theory and practice and these rotate as well (Kananen, 2008, p. 23). On the other hand, Walton (2005) states that abductive inference is extensively considered to be the same as inference to the best explanation with its intuitive and creative nature, which is acknowledged and understood as limitations of this approach.

All the 15 entities have chosen to present their sustainability reports according to GRI-standards. Additionally, some of the companies have decided to utilise other methods of presenting information on some sections of the reports. However, in this study the focus is on the application of GRI and its principles and in accordance requirements. The principles of GRI are accuracy, balance, clarity, comparability, completeness, sustainability context, timeliness, and verifiability (GRI, 2022). In accordance requirements of GRI are:

- Requirement 1: Apply the reporting principles
- Requirement 2: Report the disclosure in GRI 2: General Disclosures 2021
- Requirement 3: Determine material topics
- Requirement 4: Report the disclosures in GRI 3: Material Topics 2021
- Requirement 5: Report disclosures from the GRI Topic Standards for each material topic
- Requirement 6: Provide reasons for omission for disclosures and requirements that the organisation cannot comply with
- Requirement 7: Publish a GRI content index
- Requirement 8: Provide a statement of use
- Requirement 9: Notify GRI. (GRI, 2022.)

As for the validity and reliability of this research, could be said that this research is valid because the research has studied what has been promised to (Sarajärvi and Tuomi; 2018, Kananen, 2008, p. 123), as sustainability disclosures have been examined from the context of GRI Standards. In terms of reliability of the research, this research is relatively reliable as research findings are repeatable as Sarajärvi and Tuomi (2018) and Kananen (2008, p. 123) refer to reliability. This is indicated also because similar findings have been made by for example Boiral (2013), Manetti and Becatti (2009) and Baier et al (2022).

4 FINDINGS OF THE STUDY

4.1 Similarities

There are similarities in the manner organisations present their in-accordance requirements and principles of GRI Standards. First the similarities in compliance with requirements are presented. Then uniformity of organisations in application of principles are displayed.

Majority of the organisations have reported in accordance with all of the GRI requirements. Below in Figure 1 the application of GRI Standards by the studied organisations is presented. Requirement number 1 relates to principles of GRI Standards which are studied separately and is not therefore displayed at all in Figure 1.

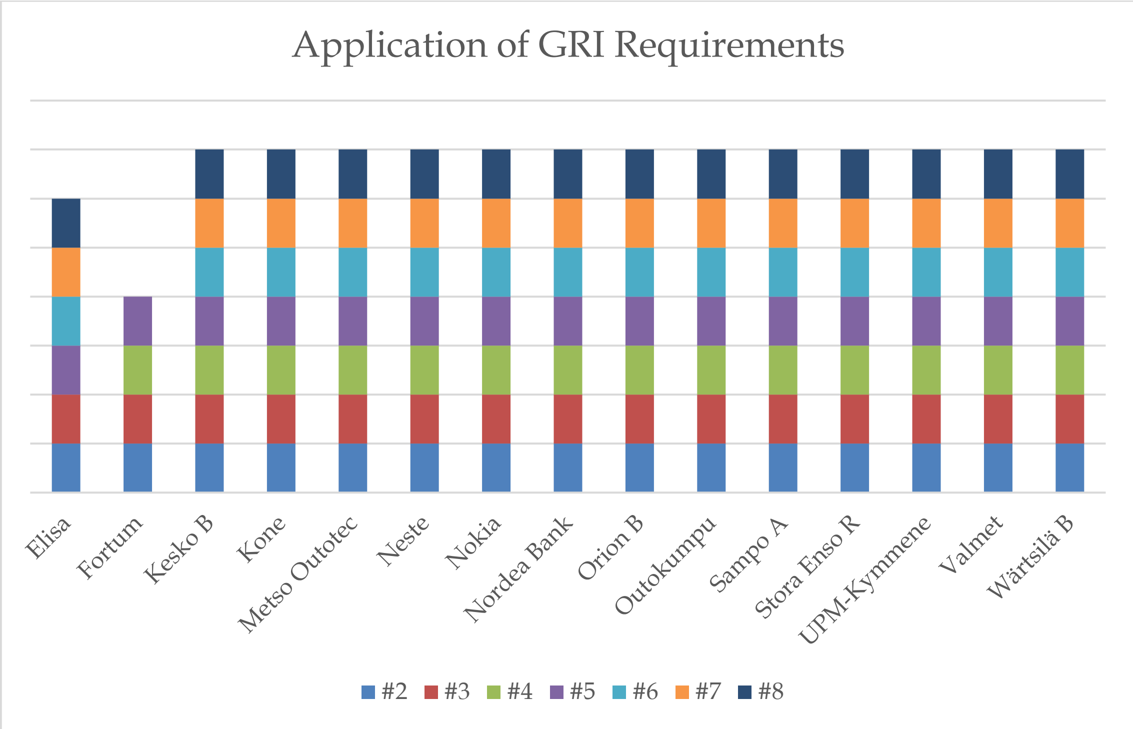

Figure 1. Application of GRI Requirements

As can be seen from above Figure 1, all the entities have applied requirements 2, 3, 5 and 8. As most of the requirements of GRI are presented in conformity with GRI requirements by studied organisations, they signal the appropriateness and commitment to sustainability reporting.

Requirement 2 and 5 referred to general disclosures and reporting in relation to GRI Topic Standards for each material topic. As for requirement number 3, all the companies have listed their material topics, but none of the organisations have mentioned GRI Sector Standards that apply to its sector except Neste, which disclosed that they "report according to SASB Oil & Gas Refining and Marketing Standards where applicable, as Neste is categorized under this sector standard by SASB" (Neste, 2021).

In terms of requirement number 8, all of the entities disclosed that they have reported in accordance with GRI Standards, however Fortum has decided to disclose that they use GRI Standard indicators to measure economic responsibility and that their report references particular disclosures from the GRI- Topic-specific Standards (Fortum, 2021), as such they do not disclose information as required by GRI Standards. This can signal that Fortum is reporting according to GRI Standards but on the other hand it gives the impression that Fortum has decided which disclosures to report to, meaning that they are potentially "cherry-picking". Even though requirement 8 is only about disclosing one particular sentence, the absence of it raises questions.

Hence, from the signaling perspective, Fortum's report signals that they are reporting in accordance with GRI principles and requirements but this fundamental failure to apply requirement 8 signifies that more positive image is signaled than is justified. The reason for this may be that external reader does not know to look for such a statement from organisation' reporting required by GRI. After all, requirement 8 demands organisation simply to state that it has reported in accordance with the GRI Standards.

All the companies had reported the GRI content index in accordance with the requirement 7 of GRI Standards. However, Fortum does not name the index as such but as "reported GRI disclosures" (Fortum, 2021). This can be confusing for external stakeholders, as there does not appear to be any reasonable explanation why the company has decided to proceed this way. For external stakeholders who wish to find the content index and discover quickly the disclosure can this kind of alteration be time consuming and therefore frustrating.

As for the principles of GRI, when evaluating organisations' compliance with principles of GRI Standards, it was promptly discovered that variance exists among sustainability reports. This can be seen also in the Figure 2 below.

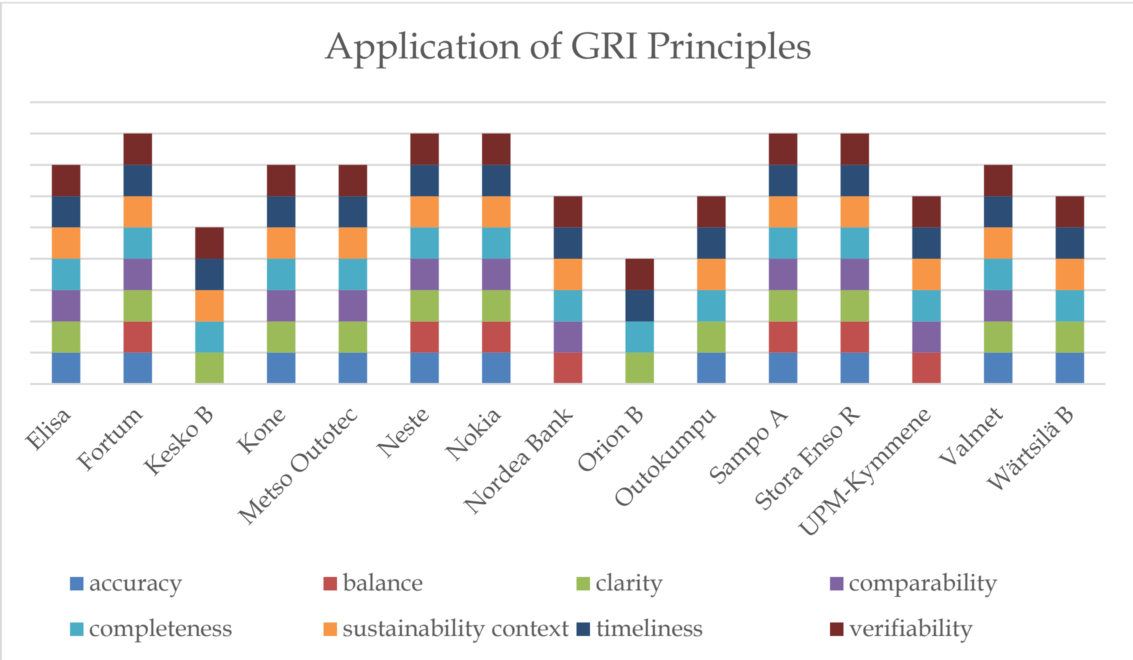

Figure 2. Application of GRI Principles

However, leading adherence to GRI principles was in completeness, sustainability context, timeliness, and verifiability by the studied organisations, and these were disclosed adequately. Thus, they signal organisations' commitment and appropriate disclosure of sustainability reporting to external stakeholders.

The focus with completeness principle in this study was whether company reported impacts during their reporting period. All of the 15 entities clearly disclosed that the reported information had occurred during the reporting period and explained the method of consolidating information as expected from the completeness principle. All the entities also disclosed activities and impacts, but these were presented in a very positive light. Most of the companies mentioned

COVID-19 and its influence on organisation's operations, for example Elisa, Kone, and Kesko. In addition, for example Orion, Neste, Fortum, and Sampo informed about company's activities during the year as highlights of the year 2021. However, one should be aware that even the word "highlights" implies positivity. Even though this reported information provided quick view of the organisation's activities during the year 2021, all these focused on positive notes and achievements leaving the reader clueless of the potential negative marks.

Completeness is closely related to principle of balance which expects a fair representation of both negative and positive impacts of the company. In Figure 2, it has been presented that all the companies have reported according to completeness principle, but as indicated here this could be presented as non-compliance in Figure 2 as well. All the organisations have presented some elements of the completeness principle, but all of them also have deficiencies in their reporting as well. Though, should be mentioned that GRI disclosure: non-compliance with environmental laws and regulations, provides some adverse information about company's operations. For example, Wärtsilä informs about their main environmental disturbances that occurred in their business locations in 2021 (Wärtsilä, 2021). However, not all the companies disclose this information only. For instance, Neste have made remarks of the matter with few sentences (Neste, 2021).

In terms of the sustainability context, 14 of the companies had made clear references to wider context of sustainable development, such as the UN SDGs, but Orion had only mentioned GHG (greenhouse gas emissions) in relation to broader context of sustainable development. On the other hand, even 8 of the entities (Neste, Orion, Fortum, Sampo, Stora Enso, Wärtsilä, Kone, and Kesko) had mentioned ecosystems and their importance in their sustainability context. Orion's decision to disclose it more narrowly than other entities did is somewhat perplexing. Is the reason that Orion does not consider this valuable, or is mentioning of SDGs so fundamental that separate disclosure of those is not necessary? On the other hand, Orion has reported that their sustainability report is in accordance with GRI Standards, thus it is expected that wider context of sustainable development is reviewed in accordance with sustainability context principle.

Timeliness principle was considered by all the organisations in their reporting. They made remarks of the report's publication date, which was during the spring of 2022, as the reports covered year 2021. Some entities even notified the reader of the annual reporting. For example, Nokia mentioned that they have provided corporate responsibility reports annually since 1999.

Clarity principle refers to disclosing information in a manner that is understandable and accessible (GRI, 2022). In terms of accessibility all the entities have provided the sustainability reports or other relevant information available via their websites. In addition, all the reports have been provided at least in English making it thus accessible. Elisa even reported that they have provided the 2021 report as audiobook (Elisa, 2021). On the other hand, for example Sampo reported that their report is only available in digital format (Sampo, 2021), which can make the report inaccessible for someone without internet or possibility to download the reports. 14 of the 15 organisations provided links within their reporting and at least two of them operate accordingly when tested making information easily accessible. Nordea had decided to report information without links but with text references to particular parts within the report. This was not an issue per se, but it created some frustration and was more time consuming, however the information was accessible without straight links.

Verifiability principle relates to requirement to provide information in a manner that enables examination of it and thus establishment of its quality (GRI, 2022). Thus, it refers to the assurance of the sustainability reporting. 14 of the 15 reports have been assured by an external auditor. The supposition is that the organisations have been able to comply with verifiability principle because their reports have been assured. As all of the studied sustainability reports have been assured by an independent external auditor, except Sampo, the supposition is that they have presented information according to verifiability principle. However, Sampo has informed that their information has been pre-assured, and that the pre-assurance does not include an external statement but follows otherwise the same standards as a limited assurance (Sampo, 2021). For external stakeholder this statement remains indeterminate to say the least. Why Sampo has operated this way? Is the reason that there are too inconsistencies or inaccurate data that independent assurance could not be given? Or is this equally acceptable mode of operation to others? How can a stakeholder trust that the provided information is in accordance with same standards as limited assurance? All additional information that has been provided on the matter was that a limited assurance will be provided for the next year, 2022 (Sampo, 2021). It seems that one must only trust the statement made by Sampo itself.

One should acknowledge that even though independent assurance has been provided for majority of the reports, those assurance statements have been of limited assurance. Hence, it is necessary to be aware of the fact that all of the reported sustainability related information is not verified by external party. All the provided assurance statements have been a limited assurance, except for Sampo which have disclosed that their information has been pre-assured by an independent third-party assurance provider (Sampo, 2021). Signaling theory suggests that signal costs reflect the made level of assurance. As all the given assurance statements are of limited assurance, signifies this that organisations want to report only what is required of them. Although, one must observe that in relation to principles and requirements of GRI, all the entities have failed to do just that.

Nine of the fourteen limited assurances have been provided by Big Four company. Three of the assurance have been administered by a company a consultancy company that offers services in the certification of operational systems (DNV Business Assurance Finland, 2023), and the remaining two assurance statements have been provided by another consultancy company which then have been acquired by one Big Four organisation. For example, in Kesko's and Metso Outotec's report it is clearly declared the scope of the assurance by listing the included disclosures, whereas Nordea provided a summary together with reference to pages what have been assured. Moreover, Nokia presented clear list of the assured matters in relation to their assurance statement. On the other hand, Stora Enso have provided information about a level of assurance for direct and indirect fossil CO2e emissions a reasonable assurance has been provided, whereas sustainability reporting is conducted with limited assurance (Stora Enso, 2021). However, the report does not indicate clearly what parts limited assurance consist of. For Kone's sustainability report limited assurance have been provided only for greenhouse gas emissions inventory for Kone's Scope 1, 2 and 3 emissions and factories water consumption data (Kone, 2021). Nevertheless, Kone has provided other sustainability related information in their reporting, for example reporting of their good corporate citizenship including notes about human rights and ethical business practices (Kone, 2021). If stakeholder discard the scope of the limited assurance, they may assume that all of the reported information is assured and thus take it face value.

4.2 Dissimilarities

In addition to similarities, there are dissimilarities in disclosures among entities in terms of in accordance requirements and principles of GRI Standards. First the differences in compliance with requirements are presented in this section. After which the dissimilarities of organisations in application of principles are displayed.

The variations in applying requirements of GRI relate to clarity as well as the actual disclosure of the requirement. For instance, requirement 6 demands entities to disclose why they are not complying some disclosures and the reason for this. From the studied entities approximately half of them disclosed distinctly if there were omissions and one of the GRI pre-determinate reason for it. However, many of the organisations reported clearly whether omissions were recognised but they did not apply GRI's pre-determined explanations for the omission. For example, Orion, Valmet, Elisa, Fortum, Kone, and Neste has decided to report requirement 6 differently than required by GRI requirements (by providing disparate reasons for omission for disclosures. Which does not seem to be compelling issue as such but does make one wonder why this has not been disclosed as instructed by GRI. Is the reason negligence, human error, deliberate or something else? More in detail, Orion has addressed that their reporting does not include purchases from suppliers of goods and service, which overall gives the impression that they have provided information on the matter, but this notification undermines the impact of the report information. In addition, Orion does not disclose why they do not include purchases from suppliers. Additionally, UPM-Kymmene have reported that UPM is not disclosing financial implications of because of commercially sensitive nature of the data (UPM-Kymmene, 2021a), which seems understandable, but on the other hand it is not listed as one acceptable reason for omission by GRI Standards.

Orion's and UPM-Kymmene's decision to not to disclose information according to GRI implies nonconformity and has a signaling effect of non-compliance. However, the companies have provided some information in relation to noncompliance. If reader of the report is not aware of the particular wording requirements of GRI, may the disclosed information signal that there is not deficiency in reporting. Thus, signaling more positive disclosure from these companies.

As for requirement number 4, which relates to material topics, the process for determining them and how organisation manages these material topics, somewhat variance was discovered between organisations. GRI (2022) defines material topics as representation of the entity's most significant impact on the environment, economy, and people, including on their human rights. All the organisations presented list of material topics of some sort. Some of the entities disclosed more in detail about the process of determining their material topics.

Entities that made more transparent disclosures were Valmet, Wärtsilä, and Outokumpu. Thus, signaling their commitment to principles of GRI Standards. Whereas some, for example UPM-Kymmene, Kesko, Nordea, and Elisa, have disclosed only the material topics and in very generic manner the process for determining them, leaving the management of material topics disregarded. Though one should note that most of the companies failed to distinctly reveal their method for managing their material topics. If external stakeholder does not know that requirement 4 also expects disclosure of the management of material topics, these reports of all the entities signal good compliance with the requirement.

For example, Metso Outotec has provided information about the team related to material sustainability matters at the company, and what this includes. Moreover, Metso Outotec acknowledges the significance of stakeholders in relation to sustainability and reports that they have continuous interaction with stakeholders. Another company with the more profound disclosure in relation to process of determining material topics is Outokumpu. Company reports regularly conducting materiality analysis to map stakeholder expectations and evaluate the company's impact on sustainability (Outokumpu, 2021). Outokumpu also discloses both positive and negative impacts in sustainability matters.

On the other hand, for example Nokia have connected their sustainability issues to UN's SDGs by mentioning which of the goals are most material for them and in which they can have the greatest positive impact (Nokia, 2021). Whereas Sampo acknowledges also both positive and negative impacts in relation to SDGs (Sampo, 2021). However, there is no mention of the negative impacts in Nokia's report, only positive which could leave reader of the information biased of the company's performance and commitment in relation to sustainability issues. Many of the entities have mentioned UN's SDGs in relation to their material topics, and often materiality matrix was disclosed to present material topics. For example, Fortum, Orion and Neste considered impact and stakeholder view as the factors in the materiality matrix (Fortum, 2021; Neste, 2021; Orion, 2021).

Materiality matrix provides quick and easy glimpse of the company's material topics for an external stakeholder.

However, even though a company has comprehensively disclosed the material topics and the process for determining them, many of the companies are inadequately explaining how they manage these topics. They remain in general level in their disclosures and thus leave outsider unresolved of the actual actions. For example, Kesko does not clearly indicate what are the actions they do or are planning to do to tackle their material topics. It is time consuming to find the information in the material and even then, the information remains relatively vague. Similarly, Kone, UPM-Kymmene and Elisa has prevailed in general level in their disclosure for management of material topics. Though, Kone does report in their Annual Report for example climate and environmental risks which includes actions for mitigating those risks.

Moreover, UPM-Kymmene does provide some information about different topics, the reader just has to know to look for them. For example, in relation to responsible sourcing, UPM-Kymmene discloses that they have a counterparty risk management tool, and what elements responsibility risk assessment consists of (UPM-Kymmene, 2021a). Nordea for example discloses that they have a plan to integrate sustainability into its business strategy with focus in sustainability matters where material impact is plausible (Nordea, 2021). Yet more definite information of the matter is missing from the report. Wärtsilä, on the other hand, has explained that it is systematically managing through group-level management systems and policies, as well as practices for material sustainability topics and impacts. This consists of procedures, processes, and systems for manage material topics (Wärtsilä, 2021).

However, even though these statements appear to be comprehensive and provide an implication that these matters are well thought out, but actual actions are not disclosed. Whereas for instance, Neste has formed relevant sustainability KPIs (key performance indicator) based on material topics (Neste, 2021), which are presented clearly in a table. This seems to be an improvement as some actual actions are presented as well. Similarly, Stora Enso had created a table to represent their sustainability targets and KPIs. In addition, Stora Enso presented in this table the progress in the matter (Stora Enso, 2021), which was very informing. Corresponding progress on the sustainability matters was presented by Valmet, which included key achievements in 2021 and key topics for year 2022 (Valmet, 2021a).

As for the principles of GRI, as stated above, in relation to companies' compliance with principles of GRI Standards, distinctive variance exists among sustainability reports.

Comparability principle refers to the fact that information should be comparable over time and to other organisations as well (GRI, 2022). All the organisations have presented data from three consecutive years in their reports and targets according to comparability principle. Further, additional information has been provided if comparability is not available or some alterations have been made. However, Kesko, Orion, Outokumpu, and Wärtsilä have not provided any other information in relation to comparability principle, for example conversion rates and accepted international metrics. Although, the reason for this may be the supposition of those.

Comparable information about entity's impacts to other companies is scarce. Fortum has made some remarks to peer companies in terms of their diversity and equal opportunities (Fortum, 2021). Some references have been to local minimum wages by for instance Stora Enso. Stora Enso made also remarks that they monitor contractor companies' accidents in order to identify those with an unacceptably high accident performance compared to peers (Stora Enso, 2021). Neste has made disclosed that they collaborate with peers to drive positive practices in the supply chain (Neste, 2021). Similar disclosure is made by Nokia, who informs that they collaborate with industry peers and other market operators, such as regulators and trade association in driving policies for investing in technologies and thus green transition (Nokia, 2021). Orion explain that they influence political decision-making by relevant industry associations (Orion, 2021). How this is made remains on the other hand unclear. Valmet has reported that they regularly benchmark their management approach and performance of their peers and customers for best practices (Valmet, 2021b). Nokia has referred to other organisations by stating that they consider benchmarking of industry peers and leaders in sustainability in relation to materiality analysis (Nokia, 2021). These remarks remain in relatively general level and seems to be "nice to know" information instead of contributing by adding value to the reader. Stora Enso and Kesko has reported on their performance in ESG indices when compared to other organisations (Kesko, 2021; Stora Enso, 2021). Sampo reported that they attempt to influence the companies they invest by for example working together with business partners to ensure sustainable supply chains (Sampo, 2021). All these mentioned disclosures signal the reader that entities are investing funds to signaling on comparability principle but not all of these are successful in providing valuable information to external stakeholder that is in fact comparable. Thus, one might argue these even be false signaling.

Principle of balance is one of the worst expressed principles by the studied organisations. Balance refers to requirement to present both positive and negative impacts of the organisation in impartial manner (GRI, 2022). Fortum is one of the companies who discloses negative impacts in their reporting to some degree. Fortum, for example, presents different scenarios for global warming and how it influences company's operations (Fortum, 2021). Neste also refers to climate change stating that it may have adverse effect on company's business (Neste, 2021). In addition, Neste recognise for instance the influence of cyber risks and high energy prices to their business (Neste, 2021).

In terms of biodiversity, Neste declares their vision to compensate negative impacts and minimise impacts on biodiversity (Neste, 2021). This appears very general and almost marketing like statement, as nothing concrete information of the matter is given except notification that combating deforestation is required from suppliers and that they follow EU's Renewable Energy Directive in raw material sourcing (Neste, 2021). UPM-Kymmene disclose in relation to biodiversity that their target is to increase it and that they are annually assessing different indicators (UPM-Kymmene, 2021b).

Nokia makes a referral to climate change as well by recognising its challenge and mentioning in a general way that they wish to minimise negative effects. Nokia names supply chain as one the most critical components of their operations and elaborate about their supplier sustainability programs and supplier requirements (Nokia, 2021). Nokia uses multiple pages on clarifying their activities in supply chain and what kind mode of operations they are employing but all of this information is presented in relatively neutral or even positive manner even though the issue appears to be relevant due to the taken actions. Overall, this could signal to the reader that company is taking extra measures to ascertain the appropriateness on the matter. Or that there has been or are issues within the company or sector in the matter. Either way interpretation of the information is dependent on how awakened the reader is. It seems that increasing amount of background information is demanded from stakeholders to make most of the reports. This was affirmed also by Xu et al. (2023) who declared that stakeholders are improving their ability to measure and identify disclosed information, as they wish to obtain more competent information of the organisations. Although, it seems that this is a necessity as organisations' reports are not that understandable and comparable.

Nordea presented in very concise way who their stakeholders are, what they demand and what actions have been taken by Nordea in 2021 (Nordea, 2021). However, the actions focused on the positive achievements and activities. Reader must ponder are all of the activities truly been as positive, or in such an early stage that negative issues are not to be reported. Nordea and Stora Enso make similar statements as Fortum, Neste, and Nokia did by stating that sustainability is part of company's business strategy and that they are attempting to reduce negative impacts and increase positive impacts.

Although, Nordea and Stora Enso assert that either positive or negative impacts have been considered in their materiality and impact analysis (Nordea, 2021; Stora Enso, 2021). Stora Enso also disclosed their operations with significant potential and actual negative impacts on local communities and how they are managing them (Stora Enso, 2021). By making a separate notification of both positive and negative impacts, could it be perceived as a signal of company's comprehensive consideration of the matter, even though it would not necessarily be the case. For example, UPM-Kymmene recognises that their impact extends from the local level to wider society (UPM-Kymmene, 2021a). Sampo acknowledged also that they may have negative impact on SDGs, but they also provided an example how they manage the potential negative impacts instead of simply stating the obvious, by screening investments against norms and standards (Sampo, 2021). UPM-Kymmene takes this to the next level, by also stating the targets but more importantly by providing clear and concise information about their responsibility targets (UPM-Kymmene, 2021a). Correspondingly as Nordea did with their stakeholders, UPM-Kymmene provided the most comprehensive information about their focus area, target for year 2030, and results of 2021 and follow-up for 2030 (UPM-Kymmene, 2021a). It seems that this is the closest one can get in getting adverse information about company's operational progress.

From the perspective of signaling theory, principle of balance and the lack of adequate representation of it in sustainability reporting is a textbook example of it. All the entities appear to display them in more positive light than is true in practice, leaving the negative and adverse events unaccounted for. On the other hand, companies have devoted resources for presenting comprehensively information about their operations, activities, and impacts. Though not in a balanced way. Signaling theory suggests that information "manipulation", create signaling costs. Thus, it is evident that studied entities have invested funds in providing "additional" information as disclosed above but as indicated, this information is not presented in a balanced way in conformity with GRI. Therefore, leaving reader suspicious of the disclosed sustainability information. This mistrust could potentially lead to more revelations which will result to further loss of credibility and even reaction at capital markets as suggested by signaling theory and Xu et al. (2023).

Principle of accuracy was equally challenging to evaluate as the principle of balance. Though, it must be pointed out that even GRI's (2022) description of the principle is relatively vague with its referral to correct and sufficiently detailed information. GRI (2022) provides some additional remarks to the principle such as disclosures of measurements and bases for calculations together with possible estimations.

Most of the entities had made some remarks in relation to accuracy by explaining some elements of it, for instance making notifications about data measurements and estimations. However, these remained generic and common statements without providing information that would enable for example more comprehensive comparability between different organisations. Hence the additional remarks that organisations had made signal that more information is given to external stakeholders but in reality, they fail to provide substantial information and thus add value.

For example, Elisa has referred to estimated costs in relation to their climate change impact assessment (Elisa, 2021). Whereas Fortum remarks that they measure the realisation of the environmental responsibility with specific KPIs (Fortum, 2021). Other examples include explanations of the basis of country-specific emission factors (Kone, 2021), units of measure (Metso Outotec, 2021b; Neste, 2021), basis of calculation method (Nokia, 2021), and disclosure whether estimations have been utilised in reporting (Outokumpu, 2021).

In addition, Sampo had reported that their selection of assumptions and emission factors had followed a conservative approach (Sampo, 2021). Additionally, for instance Fortum, Nokia, Sampo, Outokumpu, and Metso Outotec have also reported if information has not been available for particular reason. UPM-Kymmene has disclosed for example that their data measurement techniques are dependent on local and national requirements and are therefore subject to variation between production sites and if this is relevant it is taken into account when the data is summarised (UPM-Kymmene, 2021b). However, UPM-Kymmene fails to give more detailed information about the matter and the techniques thus leaving report reader responsible for finding more information.

Though, it must be mentioned that all of the organisation's cave in to providing sufficiently detailed information about the calculation methods and measurements as is expected from the principle. Even though referrals have been made to more precise information these references remain generic in nature. Therefore, the information in Figure 2 in terms of principle of balance could be assessed to be worse.

5 CONCLUSIONS

5.1 Conclusions of the research

This paper studied sustainability reports of 15 OMXH15 listed companies in order to analyse their application of principles and requirements of GRI Standards. The study was conducted to identify whether those entities are truly able to disclose transparently and in balanced way their accomplishments and defeats in sustainability, or whether they attempt to signal more positive image of themselves than is justified. This signaling relates to signaling theory which is the reference point of this study. Application of elements of principles and requirements of GRI Standards by studied entities were assessed by concentrating on the content and wording of the reports.

Overall, all the entities have applied in accordance requirements and principles of GRI Standards relatively well. However, from an external stakeholder perspective it is challenging to evaluate organisation’s true compliance with the principles and requirements of GRI Standards. Particularly conformity with principles is more problematic than with requirements.

Evident majority of the organisations have applied requirements of GRI Standards accordingly. However, some variation has been observed in the manner how requirements are presented. Foremost, organisations have chosen to present materiality matrix in relation to material topics, whereas some have disclosed a list of them. The presentation and the effortlessness of gaining information and insight of the organisation influences the perception of the company from an external stakeholder perspective, as indicated by Gürtürk and Hahn (2016) and Hodge et al. (2009). It seems that entities have made improvements in their reporting of material topics (requirement 4) when compared to previous studies. For example, the studies of Brockett and Rezaee (2012) and Machado et al. (2021) have implied that material topics and the process for defining them has remained somewhat vague. This corresponds to signaling theory, as entities are motivated to provide more profound disclosure in relation to their material topics, thus signaling their operations in sustainability reporting. However, even though more information has been presented, the process for determining material topics and how companies manage them remains for the most entities ambiguous. Hence, more profound disclosure in relation to requirement 4 is needed from the organisations in order to provide external stakeholders a better understanding of it.

In addition, Machado et al.'s (2021) research discovered that entities did not disclose detailed and comprehensive information about their approach to identifying material topics, as is expected when applying GRI Standards. To some extent this was applicable for this study as well because the process for determining the material topics was occasionally scarce and more importantly the way the organisation should manage the material topics remained practically vast non-existent. Thus, Machado et al. (2021) suggested that standardization and methodological development of sustainability reporting's materiality analysis are still required. This conclusion is reached correspondingly from this research. Moreover, in this study only a portion of the entities disclosed the way the material topics were identified and even fewer their approach for managing their material topics which corresponds with the findings of Farooq et al. (2021).

From a broader context, excluding the conformity with requirement 4, it is not surprising that organisations have presented information in accordance with requirements of GRI Standards. After all, this is the presumption when organisations have disclosed that they are reporting in accordance with GRI Standards. However, it is somewhat unpredictable that the disclosures are so thorough in relation to requirements of GRI Standards. On account of the studies of Xu et al. (2023) and Aigner et al. (2022) who have suggested that this might not have been the case.

In relation to principles, it is recognised that the discrepancies in conformity with GRI principles can be explained also by the complication of assessing the compliance itself. For example, evaluating the principle of balance is challenging because external stakeholder does not necessarily have exhaustive understanding of the company, its activities and more broadly its sector. If the company decides to disclose negative impacts incompletely, it is troublesome to assess the balance of the information from an external stakeholder perspective. After all, organisations wish to display themselves in the best possible light (Dando & Swift, 2003). Although, Xu et al. (2023) remark that stakeholders are progressively improving their ability to measure and identify disclosed information, as they wish to obtain more competent information of the organisations. Therefore, it is possible that more attentive reader could reach more deeper understanding of these reports.

In terms of principle of sustainability context, 8 of the 15 entities had mentioned ecosystems in their sustainability reporting, but these notes remained very general without connection to real operations. Boiral et al. (2019) found in their study that sustainability context is practically neglected in most statements in their study. They narrate that this principle should be fundamental to display information more deeply for example capacity of local ecosystems to absorb pollution, geographical distinctions, and living standards of ambient communities. Boiral et al. (2019) think that the reason for this may lay in the scope of assessment, as confirmation of sustainability context would demand expanding the scope of analysis through the introduction of contextual and complex information from diverse sources which are not controlled by reporting entities. This is the assumption that conforms with this study also. Particularly the scope is significant as it can be very vast or restricted.

As stated in the findings section, the principle of timeliness was well covered by all the researched entities. However, according to study of Boiral et al. (2019), timeliness principle was principally dismissed in assurance statements. They continue by explaining that even if timeliness is mentioned, it is not explicated or specified in terms of issues such as time period of particular data. Findings from this study were not coincident with Boiral et al. (2019).

It was discovered that there are deficiencies in studied sustainability reports in terms of principle of completeness. Boiral (2013) considers completeness, sustainability context and stakeholder inclusiveness interdependently and complementary. Thus, he examined completeness principle by studying how biased, incomplete, or skewed the presentation of the adverse events is. These matters were considered in connection with completeness and balance principle in this study.

For example, Boiral et al. (2019) found in their study that the completeness principle was covered in less than 40 % of the reports. They acknowledged that this low coverage could be explained by the hardship of evaluating if the reported information is reasonable, sufficient, and does not exclude any material information. This is the recognition is valid also for this study as the assessment of the completeness is challenging, to say the least.

Moreover, Boiral et al. (2019) stated that from the perspective of assurance of sustainability reports, the extent of completeness that could even be expected from sustainability reports remains ambiguous which is why principle of completeness is mainly portrayed by negative phrasing, which mirrors the absence of detected misstatements. Even though sustainability reports are extended in length, the completeness remains obscure from the external stakeholder perspective in this study. Similar findings were made by Boiral (2013) who remarked that most of the reports they examined failed to present negative events. If companies would present together with highlights of the year both positive and negative impacts, external stakeholder would be much better informed. Ambiguous presenting in terms of completeness (and balance) principle signals both more positive image of the company's operations but also leaves a sense of distrust in the presentation and fairness of it.

On the other hand, O'Dwyer (2011) found that there are concerns about auditability of sustainability reports particularly in assessing relevance and completeness of reporting. He narrates that completeness assessment was often considered challenging especially in attempting to develop defendable, practical, and economically realistic formal technique. However, it is acknowledged that all the given assurance statements were of limited assurance, thus relating to the notions of O´Dwyer (2011) study. This issue is recognised also in relation to this study, however, as the focus in this study was not on the assurance of sustainability reports, the matter is not studied further here.

Majority of the sustainability reports were assured as expected from the verifiability principle. Most of the assurance statements were provided by Big Four companies. This is consistent with findings of Gürtürk and Hahn (2016) who also found that majority of the statements are provided by Big Four organisations. Though, reference to ISAE 3000 standard has been made in all of the provided assurance statements, not only in ones provided by Big Four companies as the study of Gürtürk and Hahn (2016) implied. Hence signaling that disclosed information is true as it is verified by external party. This conclusion was also found by Cheng et al. (2015) who discovered that assurance of ESG matters could have a favourable signaling role in conveying the importance of reported information. On the other hand, Hahn and Reimsbach (2021) detected that with adequate audits the signal quality could be improved. This could suggest that studied entities wish to signal higher quality by assuring their disclosures by Big Four companies. Though, it is possible that inadequate audits do not necessarily increase the cost of displaying false signals either as mentioned by Hahn and Reimsbach (2021). Thus, leaving reader alone to evaluate the completeness and balance of reported information. Moreover, the extent and scope of this assurance is another matter of which reader should be aware of. This relates also to signal fit, as all entities were not successful in giving clear clarification which parts of the reports were assured, leaving the reader doubtful of the sustainability reports as suggested by Baier et al. (2022). These matters highlight the difficulty of assessing the entities' application of GRI principles.

Evidently all studied organisations have been willing to invest funds to publish comprehensive information about sustainability issues. Thus, signifying that they believe in signal cost according to signaling theory as Hummel et al. (2019) and Connelly, Ketchen et al. (2011) suggested. Moreover, this way entities' signal has fulfilled two main characteristics of effective signals, cost and observability of the signal as explained by Connelly, Certo et al. (2011).

As stated above, the assessment of accuracy principle is challenging. According to Boiral et al. (2019), assurance providers seldom explain in their statements the applied methods for evaluating data's accuracy. In fact, in majority of the statements, the confirmation of accuracy was only mentioned together with other GRI principles, especially completeness, materiality and reliability of the information (Boiral et al., 2019). Similar conclusion can be drawn from this study as organisations had made some remarks in relation to accuracy principle by explaining some elements of it but otherwise remaining inadequate in providing substantial information.

Construction of comparability principle displayed relatively incompletely in the study of Boiral et al. (2019). Similar findings can be drawn from this paper, as the references to other business actors in the sustainability reports have been minimal and discrete. Boiral et al. (2019) explain that comparisons between entities demands more complex information from diverse sources to assess whether the reporting entity's performance is indeed comparable. They affirm that principles such as comparability, sustainability context, and balance of reports are often neglected by assurance providers. On the other hand, this is understandable to some extent as the guidance on the matter is virtually non-existent. GRI Standards lacks clear instructions on how companies should present such information, which is disadvantageous in the end mainly for the external stakeholders. Hence, improvements on the matter would be much appreciated.

Evaluating the balance of the reported information is one of the most challenging of the principles because the assessment requires more comprehensive knowledge of the field beyond the disclosed data. As indicated by Xu et al. (2023) as well. Boiral (2013) discovered in his study that even 90 percent of the substantial negative events were not reported, which is contradictory to the GRI reporting principles of balance, completeness, and transparency. In fact, Boiral (2013) points out that imbalance can prevent transparency of the reports. After all, the objective of sustainability reporting according to GRI (2022) is to provide transparency on company's contribution in relation to sustainable development. Thus, organisation should not overemphasize positive impacts and information (GRI, 2022). All in all, even though principle of balance is such fundamental principle of reporting, adequate representation of it appears to be scarce.

All in all, the challenge with uncovering signaling from the perspective of outsider stakeholder is in fact the externality. It is troublesome, if not impossible, to know whether organisation is signaling accordingly balanced information. Particularly because the assurance of the reports is misleading itself with their vague explanations of the performed work and scope of the assurance. If one wishes to view sustainability reports critically, one could argue that all the reports fall in the category of false signaling as they try to take advantage of information asymmetries and influence reader's decision making to their own benefit as Baier et al. (2022) stated.

As a whole sustainability reports seemed to be extensions of marketing material of the companies. Which is understandable as organisations wish to present themselves as a successful business in the field of sustainability. But this does not remove the problem for outsider stakeholder to objectively evaluate the operations on entity and compare them to other entities as well.

As concluding remark can be said that the presumption of this paper was that organisations attempt to signal more positive image of themselves with their sustainability reporting and are unable to comply thoroughly with principles and requirements of GRI Standards. And this was the finding of the study as well. However, it is acknowledged that evaluation of these matters is challenging, and more eminent reviewer could have reached deeper understanding of the research.

5.2 Limitations and Avenues for future research

This study implies that more profound research is needed to attain more comprehensive understanding of sustainability reporting in accordance with GRI Standards. This study showcased that even the most fundamental elements such as principles and requirements of GRI Standards are not applied as expected from organisations. Though, it is acknowledged that to some extent these findings of noncompliance could result from the limited resources devoted to this research. Nevertheless, according to GRI Standards sustainability reporting should provide transparency and information in the manner how an entity contributes or aims to contribute to sustainable development. Therefore, the required information and disclosures should be presented clearly for any external stakeholder to discover. For future research similar studies could be performed which focus on particular industries or sectors to gain more profound insight of the sustainability reporting. Another interesting research would be to study how the sustainability reporting have improved particularly as the standards have evolved recently, for example in Europe in the form European Sustainability Reporting Standards. This research could be conducted also by changing the scope of studied organisations or including other similar elements from other reporting frameworks in addition to GRI Standards. On the other hand, the issue could be approached from the perspective of reporting organisations themselves, or from the viewpoint of assurance providers.

REFERENCES

AccountAbility. (2020). *AccountAbility Assurance Standard v3*.

Aigner, G. F., Imoniana, J. O., & Silva, W. L. (2022). On the relation between sustainability report and assurance standards in Brazilian financial institutions. *Entrepreneurship and Sustainability Issues*, *9*(3), 298–316. https://doi.org/10.9770/jesi.2022.9.3(18)

Alasuutari, P. (2011). *Laadullinen tutkimus 2.0.* Vastapaino, Tampere.

Baier, C., Göttsche, M., Hellmann, A., & Schiemann, F. (2022). Too Good To Be True: Influencing Credibility Perceptions with Signaling Reference Explicitness and Assurance Depth. *Journal of Business Ethics: JBE*, *178*(3), 695–714. https://doi.org/10.1007/s10551-020-04719-7

Bain - EcoVadis Joint Study: Do ESG Efforts Create Value? (2023, April 17). https://resources.ecovadis.com/whitepapers/study-do-esg-efforts-create-value

Bergh, D. D., Connelly, B. L., Ketchen Jr, D. J., & Shannon, L. M. (2014). Signalling Theory and Equilibrium in Strategic Management Research: An Assessment and a Research Agenda. *Journal of Management Studies*, *51*(8), 1334–1360. https://doi.org/10.1111/joms.12097

Boiral, O. (2013). Sustainability reports as simulacra? A counter-account of A and A+ GRI reports. *Accounting, Auditing & Accountability Journal*, *26*(7), 1036–1071. https://doi.org/10.1108/AAAJ-04-2012-00998

Boiral, O., Heras-Saizarbitoria, I., & Brotherton, M.-C. (2019). Assessing and Improving the Quality of Sustainability Reports: The Auditors' Perspective. *Journal of Business Ethics: JBE*, *155*(3), 703–721. https://doi.org/10.1007/s10551-017-3516-4

Braam, G., & Peeters, R. (2018). Corporate Sustainability Performance and Assurance on Sustainability Reports: Diffusion of Accounting Practices in the Realm of Sustainable Development. *Corporate Social Responsibility and Environmental Management*, *25*(2), 164–181. https://doi.org/10.1002/csr.1447

Brockett, A., & Rezaee, Z. (2012). *Corporate Sustainability: Integrating Performance and Reporting*. John Wiley & Sons, Incorporated. http://ebookcentral.proquest.com/lib/jyvaskyla-ebooks/detail.action?docID=836570

Brundtland Report. (1987). Report of the World Commission on Environment and Development: Our Common Future. https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

Cheng, M. M., Green, W. J., & Chi Wa Ko, J. (2015). The Impact of Strategic Relevance and Assurance of Sustainability Indicators on Investors' Decisions. *Auditing: A Journal of Practice & Theory*, *34*(1), 131–162. https://doi.org/10.2308/ajpt-50738

Chipalkatti, N., Le, Q. V., & Rishi, M. (2021). Sustainability and Society: Do Environmental, Social, and Governance Factors Matter for Foreign Direct Investment? *Energies*, *14*(19), 6039. https://doi.org/10.3390/en14196039

Climate and ESG Risks and Opportunities. (2023, April 6). SEC.Gov. https://www.sec.gov/sec-response-climate-and-esg-risks-and-opportunities

Connelly, B., Certo, T., Ireland, D., & Reutzel, C. (2011). *Signaling Theory: A Review and Assessment*. Journal of Management Vol. 37 No. 1, January 2011 39-67 DOI: 10.1177/0149206310388419. https://doi.org/10.1177/0149206310388419

Connelly, B., Ketchen, D., & Slater, S. (2011). Toward a 'theoretical toolbox' for sustainability research in marketing. *Journal of the Academy of Marketing Science*, *39*(1), 86–100. https://doi.org/10.1007/s11747-010-0199-0

Corporate sustainability reporting. (2023). https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

Dando, N., & Swift, T. (2003). Transparency and assurance: Minding the credibility gap. *Journal of Business Ethics: JBE*, *44*(2/3), 195–200. https://doi.org/10.1023/A:1023351816790

Directorate-General for Financial Stability, Financial Services and Capital Markets Union. (2021, March 8). *Reports on development of EU sustainability reporting standards*. https://finance.ec.europa.eu/publications/reports-development-eu-sustainability-reporting-standards_en

DNV Business Assurance Finland. DNV. (2023).

Farooq, M. B., Zaman, R., Sarraj, D., & Khalid, F. (2021). Examining the extent of and drivers for materiality assessment disclosures in sustainability reports. Sustainability Accounting, Management and Policy Journal, 12(5), 965–1002. https://doi.org/10.1108/SAMPJ-04-2020-0113 https://www.dnv.fi/about/business-assurance/index.html

Gokten, S., Ozerhan, Y., & Okan Gokten, P. (2020). The historical development of sustainability reporting: A periodic approach. https://ztr.skwp.pl/resources/html/article/details?id=205634&language=en

EFRAG. (23 November 2022). EFRAG delivers the first set of draft ESRS to the European Commission [Press Release]. https://www.efrag.org/Assets/Download?assetUrl=/sites/webpublishing/SiteAssets/EFRAG+Press+release+First+Set+of+draft+ESRS.pdf&AspxAutoDetectCookieSupport=1

Elisa. (2021). Sustainability Report.

Eriksson, P., & Kovalainen, A. (2008). Research philosophy. SAGE Publications Ltd, https://doi.org/10.4135/9780857028044

Eskola, J. (1998). Johdatus laadulliseen tutkimukseen. Vastapaino, Tampere

European Commission. (2022, December 6). A European Green Deal. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

European Green Deal. (2022, December 6). https://www.consilium.europa.eu/en/policies/green-deal/

Intito. (2022, November 22). *EU komission Uusi Kestävyysraportoinnin standardi.* https://intito.fi/eu-komission-uusi-kestavyysraportoinnin-standardi/

FIBS. (2021, December 2). Jyrkkä muutos suomalaisyritysten vastuullisuustyössä. https://fibsry.fi/ajankohtaista/jyrkka-muutos-suomalaisyritysten-vastuullisuustyossa/

FIBS Frontpage. (2022). FIBS. https://fibsry.fi/

Fortum. (2021). Sustainability Report.

Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, *5*(4), 210–233. https://doi.org/10.1080/20430795.2015.1118917

García-Sánchez, I.-M., Hussain, N., Aibar-Guzmán, C., & Aibar-Guzmán, B. (2022). Assurance of corporate social responsibility reports: Does it reduce decoupling practices? *Business Ethics, the Environment & Responsibility*, *31*(1), 118–138. https://doi.org/10.1111/beer.12394

Global Sustainability Standards Board. GRI - Global Sustainability Standards Board. (2023). Retrieved January 14, 2023, from https://www.globalreporting.org/standards/global-sustainability-standards-board/

GRI. (2022, June 30). Consolidated Set of the GRI Standards. Global Reporting Initiative. https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/

GRI 2: General Disclosures 2021. (2022). GRI 2: General Disclosures 2021. https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/

GRI 3: Material Topics 2021. (2022). GRI 3: Material Topics 2021. https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/

Gürtürk, A., & Hahn, R. (2016). An empirical assessment of assurance statements in sustainability reports: Smoke screens or enlightening information? *Journal of Cleaner Production*, *136*, 30–41. https://doi.org/10.1016/j.jclepro.2015.09.089

Hahn, R., & Reimsbach, D. (2021). Bringing Signaling Theory to Intermediated Voluntary Disclosure. Commentary on ‘Detecting False Accounts in Intermediated Voluntary Disclosure’ by Patrick Callery and Jessica Perkins. *Academy of Management Discoveries*, *7*(1), 155–157. https://doi.org/10.5465/amd.2020.0015

Hammond, S., Gyles, N., & Michaelides, M. (2021, December). *Globally consistent reporting for sustainability-related information Australian perspectives. Australian Accounting Standards Board and Australian Auditing and Assurance Board*. https://www.auasb.gov.au/media/p3ajvhqe/aasb-auasb_sustainabilityreporting_12-21.pdf

Han, S. H., Lee, B.-S., & Song, M. (2014). Frequent Stock Repurchases, False Signaling, and Corporate Governance: Evidence from Korea. *Corporate*

Governance: An International Review, *22*(6), 482–500. https://doi.org/10.1111/corg.12069
Hazaea, S. A., Zhu, J., Khatib, S. F. A., Bazhair, A. H., & Elamer, A. A. (2022). Sustainability assurance practices: A systematic review and future research agenda. *Environmental Science and Pollution Research*, *29*(4), 4843–4864. https://doi.org/10.1007/s11356-021-17359-9
Hodge, K., Subramaniam, N., & Stewart, J. (2009). Assurance of Sustainability Reports: Impact on Report Users' Confidence and Perceptions of Information Credibility. *Australian Accounting Review*, *19*(3), 178–194. https://doi.org/10.1111/j.1835-2561.2009.00056.x
Hummel, K., Schlick, C., & Fifka, M. (2019). The Role of Sustainability Performance and Accounting Assurors in Sustainability Assurance Engagements. *Journal of Business Ethics: JBE*, *154*(3), 733–757. https://doi.org/10.1007/s10551-016-3410-5
Humphrey, C., & Lee H.K., B. (2004). *The Real Life Guide to Accounting Research: A Behind-the-Scenes View of Using Qualitative Research Methods* (Vol 1). Elsevier Science. https://web-p-ebscohost-com.ezproxy.jyu.fi/ehost/ebookviewer/ebook/bmxlYmtfXzExNzE4N19fQU41?sid=185218cd-761d-4fe7-8add-bec9b679c9eb@redis&vid=0&format=EB&rid=1
IAASB. (2011) *ISAE 3000 (Revised), Assurance Engagements Other Than Audits or Reviews of Historical Financial Information*.
Jolink, A., & Niesten, E. (2021). Credibly reducing information asymmetry: Signaling on economic or environmental value by environmental alliances. *Long Range Planning*, *54*(4), 101996. https://doi.org/10.1016/j.lrp.2020.101996
Kananen, J. (2008). Kvali: Kvalitatiivisen tutkimuksen teoria ja käytänteet. Jyväskylän Ammattikorkeakoulu. Jyväskylän yliopistopaino, Jyväskylä.
Kesko. (2021). Annual Report.
Kleffel, P., & Muck, M. (2023). Aggregate confusion or inner conflict? An experimental analysis of investors' reaction to greenwashing. *Finance Research Letters*, *53*, 103421. https://doi.org/10.1016/j.frl.2022.103421
Kone (2021). Sustainability Report.
Larrinaga, C., & Bebbington, J. (2021). The pre-history of sustainability reporting: A constructivist reading. *Accounting, Auditing & Accountability Journal*, *34*(9), 162–181. https://doi.org/10.1108/AAAJ-03-2017-2872
Machado, B. A. A., Dias, L. C. P., & Fonseca, A. (2021). Transparency of materiality analysis in GRI-based sustainability reports. *Corporate Social Responsibility and Environmental Management*, *28*(2), 570–580. https://doi.org/10.1002/csr.2066
Mahoney, L. S., Thorne, L., Cecil, L., & LaGore, W. (2013). A research note on standalone corporate social responsibility reports: Signaling or greenwashing? *Critical Perspectives on Accounting*, *24*(4–5), 350–359. https://doi.org/10.1016/j.cpa.2012.09.008

Manetti, G., & Becatti, L. (2009). Assurance Services for Sustainability Reports: Standards and Empirical Evidence. *Journal of Business Ethics: JBE*, *87*, 289–298. https://doi.org/10.1007/s10551-008-9809-x
Manetti, G., & Toccafondi, S. (2012). The Role of Stakeholders in Sustainability Reporting Assurance. *Journal of Business Ethics: JBE*, *107*(3), 363–377. https://doi.org/10.1007/s10551-011-1044-1
Marquis, C., Toffel, M. W., & Yanhua Zhou. (2016). Scrutiny, Norms, and Selective Disclosure: A Global Study of Greenwashing. *Organization Science*, *27*(2), 483–504. https://doi.org/10.1287/orsc.2015.1039
Metso Outotec. (2021a). Financial Review.
Metso Outotec. (2021b). GRI Supplement.
Minutolo, M. C., Ivanova, A., & Cong, M. (2021). Signaling sustainability: Impact that learning how to report has on enrollment, endowment and emissions of North American higher education institutions. *Sustainability Accounting, Management and Policy Journal*, *12*(5), 1140–1158. https://doi.org/10.1108/SAMPJ-06-2020-0224
Neste. (2021). Sustainability Report.
Nokia. (2021). Sustainability Report.
Nordea. (2021). Annual Report.
O'Dwyer, B. (2011). The Case of Sustainability Assurance: Constructing a New Assurance Service*. *Contemporary Accounting Research*, *28*(4), 1230–1266. https://doi.org/10.1111/j.1911-3846.2011.01108.x
O'Dwyer, B., & Owen, D. L. (2005). Assurance statement practice in environmental, social and sustainability reporting: A critical evaluation. *The British Accounting Review*, *37*(2), 205–229. https://doi.org/10.1016/j.bar.2005.01.005
OMXH15. Kauppalehti. (2023). Retrieved January 14, 2023, from https://www.kauppalehti.fi/porssi/indeksit/OMXH15
Orion. (2021). Sustainability Report.
Overview for OMXH15. (2020). Nasdaq. https://indexes.nasdaqomx.com/Index/Overview/OMXH15
Rossi, A., & Tarquinio, L. (2017). An analysis of sustainability report assurance statements: Evidence from Italian listed companies. *Managerial Auditing Journal*, *32*(6), 578–602. https://doi.org/10.1108/MAJ-07-2016-1408
Sarajärvi, A., & Tuomi, J. (2018) Laadullinen tutkimus ja sisällönanalyysi. Tammi.
Segal, M. (2023, April 20). *ESG Tied to Stronger Growth and Profitability, Bain and EcoVadis Study Finds*. ESG Today. https://www.esgtoday.com/esg-tied-to-stronger-growth-and-profitability-bain-and-ecovadis-study-finds/
Simnett, R. (2012). Assurance of sustainability reports. *Sustainability Accounting, Management and Policy Journal*, *3*(1), 89–98. https://doi.org/10.1108/20408021211223570
Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, *87*(3), 355–374. https://doi.org/10.2307/1882010

Stiglitz, J. E. (2000). The Contributions of the Economics of Information to Twentieth Century Economics. *Quarterly Journal of Economics*, *115*(4), 1441–1478. https://doi.org/10.1162/003355300555015

UNDP. (2023). Sustainable development goals: United Nations Development Programme. Retrieved May 25, 2023, from https://www.undp.org/sustainable-development-goals#:~:text=What%20are%20the%20Sustainable%20Development,people%20enjoy%20peace%20and%20prosperity.

Walton, D. (2005). *Abductive Reasoning*. University of Alabama Press. http://ebookcentral.proquest.com/lib/jyvaskyla-ebooks/detail.action?docID=1687320

Xu, W., Li, M., & Sen, X. (2023). Unveiling the "Veil" of information disclosure: Sustainability reporting "greenwashing" and "shared value". *PLoS One*, *18*(1), e0279904. https://doi.org/10.1371/journal.pone.0279904