



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

**The Process of Sustainability Reporting Assurance: Exploring
The Big-4 Firms As Third-Party Assurers**

A qualitative interview study of Big-4 accounting firms in Europe

Authors: Philip Enow Mangieb & Abdoulie Sarr.

Supervisor: Lana Sabelfeld

Master's thesis in accounting and financial management

Spring 2025

Graduate School, School of Business, Economics and Law, University of
Gothenburg, Sweden.

Acknowledgments

We would not hesitate to express our sincerest appreciation to our supervisor Lana Sabelfeld for providing excellent support, inspiration, and meaningful discussions during the process. Furthermore, we want to extend our gratitude to all of the seminar group respondents of the master thesis for generously taking their time to contribute with meaningful discussions during the seminars. Lastly, we shall not forget the interview respondents who took out time from their busy schedules to give us 30 mins, 40 mins, 50 mins and 60 mins of interviews. We want to say thank you all for the sacrifices you made for this master thesis project to be a success.

Philip Enow Mangieb

Abdoulie Sarr

Abstract

Background, Problematization, and Purpose: The pressing need to achieve sustainable development demands significant changes and stronger commitments to sustainability communication. The verification of the sustainability reports of organisations therefore becomes crucial, causing standard-setters to put in place legislations that mandates external assurance of the sustainability reports of organisations. The Big-4 firms as third-party assurance providers can play a pivotal role in this new auditing space as they can leverage their extensive expertise in the traditional financial auditing to assure non-financial information. However, research on the processes employed by the Big-4 firms in sustainability assurance engagement is limited, necessitating further investigation. Sustainability information is qualitative and subjective and demands a lot of professional judgements from the Big-4 assurors, potentially causing tension that requires a deeper empirical research for a comprehensive understanding of the steps employed in the Sustainability reporting assurance process. The purpose of this master thesis project is to get an understanding of the processes employed by Big-4 firms when they provide sustainability assurance services to enhance proper sustainability communication.

Research Questions: The study addresses two questions: 1) What are the processes and methodologies employed by the Big-4 accounting firms when carrying out sustainability reporting assurance services? and 2) What are the challenges and opportunities/benefits faced by Big-4 accounting firms in providing third-party assurance for sustainability reporting?.

Methodology: The authors performed a qualitative interview study where 9 semi-structured interviews were conducted with respondents from the Big-4 firms operating across European countries. All 9 respondents are working in the audit and assurance departments of their respective accounting firms. The study uses a theoretical thematic analysis with the lens of institutional theory.

Conclusion: The results reveal that the process of Sustainability Reporting Assurance in B4s consists of similar but slightly different steps. These differences reflect variations in priorities that can be attributed to local regulations or client type. The most prevalent 7 steps employed are: Engagement acceptance and Planning; Understanding the client and Risk assessment; Evidence gathering and Testing; Evaluation and Analysis; Issue identification and Resolution; Conclusion and Reporting; and Follow-up and Continues improvement. The results further highlight several challenges that the Big-4 firms face in the process of sustainability assurance services. They include a) data quality & standardization issues, assuring qualitative and subjective data, b) internal control & governance structure, c) Gaps in reporting standards and metrics and knowledge gap and resistance to change. To overcome the challenges, B-4s employ early engagement and risk identification, engagements in training and capacity building programs and specialist involvement and continuous learning of sustainability discourse to mitigate the challenges. Lastly, the results shed light on the opportunities/benefits of SRA for Big-4s, such as reinforcing reputation, increasing market share and an opportunity to develop knowledge and expertise.

Keywords: Sustainability reporting assurance, Big-4 firms, Assurance Process, Institutional theory, Financial Accounting, Institutional pressure, Materiality, Non-financial audits. Assurors. Standards & Guidelines, Regulations

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Abbreviations:

Assurance Providers (AP)

Corporate Sustainability Reporting Directive (CSRD)

European Sustainability Reporting Standards (ESRS)

Global Reporting Initiative (GRI)

International Auditing and Assurance Standards Board (IAASB)

International Federation of Accountants (IFAC)

International Standards on Auditing (ISA)

International Standards on Assurance Engagement (ISAE)

Organisation for Economic Co-operation and Development (OECD)

Sustainability Reporting (SR)

Sustainability Reporting Assurance (SRA)

1. Introduction

1.1 Background

The concept of sustainable development has been in the spotlight in recent decades due to the growing concern for environmental and climate change, together with critical issues of poverty, increasing disparity between societies and the tensions brought by social inequalities (Giovannoni et al., 2013). Sustainable development was defined in 1987 as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (Brundtland, 1987). This perspective aims to promote economic development that balances economic interest with environmental protection and addresses social needs (Krasodomska et al., 2024). In this respect, corporations are called upon to act in a socially responsible manner thereby adhering to the model of corporate social responsibility, which consist of three elements; environmental, economic and social (Haynes et al., 2012). Sustainability reporting enables organisations to communicate their performance as well as their impacts on a wide range of sustainability topics (Yan et al., 2022). According to Alshali & Malagueno, (2022), Sustainability report issuance has been on a rapid growth for the past two decades despite its voluntary nature in most countries and a survey by KPMG shows that 96% of the world’s 250 largest global companies (G250) produce sustainability reports (KPMG,2020).

In March 2018, the European Commission introduced an action plan that has among its three categories of actions, the plan to foster sustainability disclosures and sustainable mechanisms of corporate governance (Hummel and Jobst, 2024). Parallel with these developments, the European sustainability disclosure legislation has also been evolving in Europe (García-Sánchez, Sierra-García, & García-Benau, 2022). After the first Non-Financial Reporting Directive (NFRD) was introduced in 2014, the EU commission replaced it by a more advanced Corporate Sustainability Reporting Directive (CSRD) in 2023 (European Parliament and Council of the EU, 2014, 2022). The adoption of CSRD lead to an increased in the number of companies that are mandated to report sustainability related information and also lead to the putting in place a more detailed reporting requirements which include; the obligation to disclose sustainability information in accordance with European Sustainability Reporting Standard (ESRS), Sustainability information should be integrated in management reports, the reported information should be digitally tagged and an external assurance requirement (Hummel & Jobst, 2024). According to the recent Omnibus proposal, the timeline for the implementation of the CSRD and ESRS was, however, proposed to be postponed, and some of the requirements for SMEs to be relaxed (European Commission, 2025).

The trend of publishing sustainability reports has given rise to another trend, which is the emergence of third-party assurance of the sustainability reports (Gillet, 2012). To many researchers, sustainability reporting assurance by a third-party assurance is related to; the improvement of the credibility of the disclosed information and reduced information asymmetry and agency cost (Simnett et al., 2009), enhanced reliability (Kolk, 2008), improve internal sustainability performance measurement and management control (Gürtürk, & Hahn, 2016) and significantly influences user’s perception of disclosure quality (Maroun, 2020; Karagiannis et al., 2022). A survey by KPMG shows that the proportion of sustainability reports that include assurance statements prepared by third-party has increased (KPMG, 2013) and this shows an adherence to the call of scholars for the recognition of the role of accounting technologies to support sustainable development (Bebbington, 2001; Frame & Cavanagh, 2009). However, according to O’Dwyer et al., (2011), the market for assurance provision is traditionally shared among professional accounting firms, specialist consultancies and certification bodies.

KPMG survey on corporate responsibility reporting shows that the large accounting firms are appointed in the majority of Sustainability assurance engagements from 58% in 2005 to 64% in more recent years (KPMG, 2015). Furthermore, the Big-4 accounting firms occupy a leading position within the professional services sector, and they provide a comprehensive suite of auditing, consulting, and advisory services to numerous clients, such as multinational corporations, government agencies, and

non-profit making organizations. Moreover, they strategically expanded their services to capitalize on emerging market trends and client demands (Kalaitzak, 2019). Their market power resulted from their 99.7% market share within the S&P 500 in 2022 and from the fact that they provide their auditing services to most of the world's largest publicly traded companies (Ideagen, 2023). Consequently, they can leverage their extensive expertise and global reach-out to influence standards, shape regulatory frameworks, and drive business transformation on a massive scale (Edgley et al., 2016).

1.2 Problem Statement

An overview of corporate sustainability reporting legislation in Europe presented by Hummel and Jobst (2024, p 7-8), shows that the CSRD had prescribed conditions for external assurance requirement such as: limited assurance for company's sustainability reporting, the reporting standards to comply with, the process of identification of reported information, the mark-up of sustainability reporting and the reporting requirements detailed in article 8 of Taxonomy regulation. Also, that the assurance services can be effectuated by statutory auditors but the member states can define different auditing firms other than the ones carrying out the statutory audit of the financial statement or independent assurance service providers are allowed to provide assurance on sustainability reporting (Hummel & Jobst, 2024). To the best of our knowledge, the prescriptions by CSRD did not give a detailed and chronological or step-by-step process of carrying out sustainability reporting assurance services. This assumption is made by drawing from Canning et al., (2019), who postulated that in order to enable practitioners audit the new auditing space (sustainability reporting), an auditability process which comprises of iterative establishment of formal and informal task and routines with, termed "audit technologies" with, which practitioners refine through iterative trial and error processes involving important negotiations and professional judgements (Power 1996, 1997) must be invoked.

Considerable number of academic scholars have critically scrutinised the content of sustainability assurance practice (e.g O'Dwyer & Owen 2005, 2007; Simnett et al., 2009; Kolk & Perego, 2010). Even though analysis of the content of sustainability assurance can allow researchers to make broad inferences about the underlying aspects of assurance practices, it does not give a perfect understanding of challenges encountered by the assurors. Other scholars (e.g O'Dwyer B, 2011; O'Dwyer et al., 2011; Channuntapitat et al., 2020) have engaged with assurors in order to get an understanding of the processes of the assurance practice as well as variations among the various assurors but this was done in a single country setting in Europe. As a result, there is a lack of in-depth research that has examined the chronological processes and methodologies employed by accounting practitioners within Europe.

Furthermore, Hummel & Jobst, (2024) emphasized how the rapid development pace of sustainability reporting in Europe and the diversity in the objectives and requirements can make it difficult for decision makers in organisations and researchers to keep track of the changes in legislations and reporting standards. Some researchers aligned with the above view. Stolowy and Paugam (2023), in their study, found heterogeneity in understanding sustainability among standard-setters and companies and concluded that there is a low probability of convergence in future sustainability reporting. On a similar vein, Baboukardos, (2023) observes a multiverse in sustainability reporting requirements which makes it difficult for researchers and practitioners to keep track. Unlike financial statement auditing, the field of corporate sustainability assurance has so far not been subjected to extensive regulation (Channuntapitat et al., 2020). As a result, financial audit-related concepts such as materiality, an inherently ambiguous concept (Edgley, 2014), need to be transferred into this new audit space. This transfer amplifies the ambiguity, as the concept is being applied in a different and evolving context (Canning et al., 2019). However, O'Dwyer (2011) warns of the inherent difficulty that assurors can face when transferring financial auditing-based methodologies to new auditing space. Despite the above postulations, Andon et al. (2015) argue that audit professionals have experienced mixed success in seeking to annex new audit spaces. However, there is limited research regarding the challenges and the opportunities/benefits that assurors would encounter in the process of effectuating sustainability assurance practices.

Moreover, as already seen above, the multiverse in sustainability reporting requirements would make implementation difficult for practitioners. Kolk and Perego (2012) further added that the promulgation of more stringent legislation on social and environmental reporting would increase regulatory pressure on practitioners. In this context, it is relevant to analyse institutional dynamics to understand how practitioners carry out the assurance processes (ibid).

Further exploration of this subject matter would endeavour to contribute to the regulatory bodies on what regulations to put in place due the multiverse in sustainability reporting requirements (Baboukardos, 2023). Furthermore, more research is needed to provide practical insights of challenges and solutions with sustainability assurance processes. This can be useful to reporting organizations in that it offers opportunity to facilitate a deeper understanding of the complexities underpinning actual assurance practice (O'Dwyer et al., 2011), and as such, it can be of help in the process of preparing the verification content, enhancing engagement with the available regulations and standards for sustainability reporting. Research is also needed to develop a roadmap for other assurance providers to understand the processes and methodologies to employ in sustainability reporting assurance, which is still a nascent practice (ibid).

1.3 Study Purpose

The purpose of the study is to explore and analyse the processes and methodologies that the Big-4 accounting firms employ when carrying out sustainability reporting assurance services within Europe.

Based on the problem statement and the purpose, the study explores the following research questions:

- *What are the processes and methodologies employed by the Big-4 accounting firms when carrying out sustainability reporting assurance services?*

and

- *What are the challenges and opportunities/benefits faced by Big-4 accounting firms in providing third-party assurance for sustainability reporting?*

2. Literature Review

2.1 Defining Sustainability Reporting Assurance in Financial Accounting/Auditing

Sustainability reporting is defined by the Global Reporting Initiative (GRI) as: “*the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance toward the goal of sustainable development*” (GRI, 2006, p. 3), is now a common way for organizations to inform stakeholders about their actions and performance on ESG matters (Fonseca et al., 2014; Hahn & Kühnen, 2013; Junior et al., 2014; Perego & Kolk, 2012). Whether these reports are of good quality depends on the level of transparency and how closely they follow important guidelines like materiality, including stakeholders and completeness (GRI, 2013). To reduce greenwashing and ensure ESG reports are reliable and useful, the use of third-party assurance has become important (Simnett et al., 2009; Boiral et al., 2019). An independent auditor checks the accuracy and credibility of sustainability data, either with involvement from stakeholders or without (Park & Brorson, 2005). AccountAbility (2008 p. 23) explains that assurance checks whether the sustainability disclosures and systems of an organization comply with established criteria, aiming to improve and verify the information users can trust.

These two standards, AA1000AS and ISAE 3000, are the main guidelines for sustainability assurance. AccountAbility, with the AA1000 Assurance Standard in 2003, aims to enhance stakeholder involvement and learning about sustainability at organizations. On the other hand, ISAE 3000 which was released by the IAASB in the same year, offers guidance for professional accountants conducting non-financial assurance activities. While ISAE 3000 is similar to financial audit standards, AA1000AS focuses more on ethical behavior and including all stakeholders (Boiral et al., 2019). Nevertheless, both frameworks are built on essential audit principles such as independence, well-specified assurance scope and assurance levels. The reliability of sustainability assurance depends on the provider that is involved. Big-4 accounting firms are considered reliable providers of assurance because they are devoted to global rules, ethical behavior and strict controls (Simnett et al., 2009). Financial management and assurance skills are important in CSR, including testing and reviewing internal controls and perceived independence of auditors improves trust among stakeholders (Dixon et al., 2004; Mock et al., 2007; Perego, 2009). Independent assurance helps boost the levels of confidence among stakeholders, mainly during the early years of starting to report (FEE, 2002, 2006; Carey et al., 2000).

On the other hand, consultants are often consulted because they can bring more expert knowledge and valuable qualitative feedback (Simnett et al., 2009; O’Dwyer & Owen, 2005, 2007). However, the control that top brands have over the market raises questions about using trust as a marketing tactic (Ball et al., 2000). Around two-thirds of all engagements are carried out by accounting firms (Moroney et al., 2012; De Beelde & Tuybens, 2015; King & Bartels, 2015). This is an example of shifting audit norms into CSR and fueling the growth of an audit society, where financial auditing standards are seen in sustainability reports (Boiral & Gendron, 2011; O’Dwyer et al., 2011; Wong & Millington, 2014; Boiral et al., 2019).

Quality audit improves trust among stakeholders and reduces the chances of hiding important information. As mentioned in GRI (2013, p. 10), assurance aims to confirm that sustainability information is reliable, free from major mistakes and created using recognized guidelines. To ensure transparency and accountability to stakeholders, it is necessary to produce accurate and detailed SR disclosures (Boiral et al., 2019; Gray, 2010; Milne & Gray, 2013; KPMG, 2015; Stocker et al., 2020). Independent assurance matters more when people are skeptical about sustainability reporting (Adel et al., 2019). From the outside, financial reporting supports better understanding between businesses and major investors (Blackwell et al., 1998) and from the inside, it assists in monitoring and controlling activities by different departments (Abdel-Khalik, 1993).

2.2 Corporate sustainability Assurance Processes and Methodologies

Corporate sustainability assurance has become a central feature of the expanding audit landscape, fueled by growing demand for audit-style approaches in non-financial areas (Power, 1996, 1997; O'Dwyer et al., 2011; Andon & Free, 2012; Andon et al., 2014, 2015). The International Auditing and Assurance Standards Board (IAASB) defines an assurance engagement: “[...] in which a practitioner aims to obtain sufficient appropriate evidence in order to express a conclusion designed to enhance the degree of confidence of the intended users other than the responsible party about the subject matter information (that is, the outcome of the measurement of evaluation of an underlying subject matter against criteria).” (IAASB, 2013). The sustainability assurance process involves practitioners collecting evidence to issue conclusive statements that enhance stakeholder confidence (International, 2013). It is a critical mechanism for ensuring assurance quality (Kolk & Perego, 2010). Given its confidential and complex nature, Yan et al. (2022) categorize the process into sub-steps, including the selection of assurance providers, identification of assurance principles, verification of content, validation of methods, and final evaluation. Boiral and Heras-Saizarbitoria (2020) emphasize that assurance statements typically focus on practitioner professionalism, the verification process, and assurance outcomes. Collectively, these insights suggest that corporate sustainability assurance follows a structured, multi-step process, as detailed in sections 2.2.1–2.2.5.

2.2.1 Selection of Assurance Provider.

The corporate sustainability assurance process begins with selecting an assurance provider, a decision shaped by various internal and external factors (Yan et al., 2022). Research identifies two main themes in this selection: provider characteristics and selection criteria. Firms seek alignment between their own criteria and the attributes of assurance providers (Moroney et al., 2012). External considerations include the provider’s professionalism, legal frameworks, industry norms, and peer firm behavior (Edgley et al., 2010; Yan et al., 2022; Boiral & Heras-Saizarbitoria, 2020). Internally, selection is influenced by management perceptions, industry type, governance, and stakeholder expectations. Additionally, the commercialized nature of some assurance providers marked by close client relationships or dual roles in auditing and consulting may exert undue influence on provider choice, although the extent of this impact remains unclear (Boiral et al., 2019a; Yan et al., 2022). Assurance providers are generally categorized into accounting firms and consulting firms, with professionalism influencing reporting firms’ selection (Yan et al., 2022; Diouf & Boiral, 2017; O’Dwyer et al., 2011). Both types demonstrate professionalism through their knowledge of assurance procedures, client operations, and sustainability issues (Boiral et al., 2020; International, 2013). Accounting firms typically have deeper involvement in assurance processes and stronger understanding of client businesses, while consulting firms excel in corporate sustainability expertise (Farooq & De Villiers, 2019; Jones & Solomon, 2010). These internal and external factors shape firm choices between the two provider types. This study focuses on the Big Four accounting firms due to their extensive assurance experience and client knowledge (Farooq & De Villiers, 2019; Jones & Solomon, 2010), as well as their dominant market presence with, KPMG (2015) reports their share in sustainability assurance engagements rose from 58% in 2005 to 64% recently.

2.2.2 Identification of Basic Assurance Principles

In the second part of corporate sustainability assurance, you need to define the assurance level, standards and the objectives to be achieved (Yan et al., 2022; Kolk & Perego, 2010; Boiral et al., 2018). If assurance is regarded as reasonable (high), it means there is a high degree of verification and few demands for error tolerance. Commonly, AA1000AS is adopted by consultancies because it provides guidelines on accountability and stakeholder inclusion. On the other hand, accounting auditors usually apply ISAE 3000 as it addresses the chance of misstatements and uses quantitative methods (Alsahati & Malagueno, 2022; Safari & Areeb, 2020; Tsalis et al., 2020). Sustainability reports are often assessed using the GRI guidelines, making the reports more credible (Wallage, 2000;

Dando & Swift, 2003). There are disagreements about the objectives of assurance because different stakeholders have competing interests (Boiral et al., 2018). GRI stresses increasing confidence in a company's sustainability efforts, while Romero et al. (2014) point to the importance of clear and reliable information about sustainability. According to Hoang and Trotman (2021), assurance is used to minimize the risk of managers seeking personal gains at the expense of their organization. This research supports Hummel et al., (2017), suggesting that Big-4 firms seek to make improvements in their operations and reputation by pursuing sustainable practices. If stakeholders involved in sustainability verification have contrasting goals, it can create problems like mismatched checks and unsatisfied participants (Yan et al., 2022). As an example, auditors might concentrate on verifying the data and checking for compliance with guidelines, whereas report users might be interested in learning about sustainability performance and how to improve. Despite the assurance level, standards, and objectives, there are criticisms in terms of the gap between the theoretical principles and real-world practices (Yan et al., 2022). It is argued that the existing professional guidelines, specifically develop assurance requirements and grounds for identifying the extent to which the sustainability reports conforms to these requirements (Boiral et al., 2019b; Boiral et al., 2020; Farooq and De Villiers, 2017; Maroun, 2020). Critics argue that assurance engagements frequently rely on superficial, checklist-like procedures that mimic financial audit norms, leading to statements with limited substantive analysis and minimal stakeholder value (Clarkson et al., 2019; Maroun, 2020).

2.2.3 Verification of the content

The third stage of the corporate sustainability assurance process involves verifying the content to be assured, guided by the assurance principles identified in the previous stage (Yan et al., 2022). This step establishes the verification scope determining what is included or excluded based on the assurator's expertise. For firms new to assurance, pre-assurance services are recommended to help define a meaningful and validated verification scope, thereby supporting a comprehensive assurance engagement (Channuntapipat et al., 2019; Gillet, 2012). During pre-assurance services, assurers test the integrity and relevance of information systems to reduce the risk of missing data or irrelevant verification, thus minimizing uncertainty in subsequent assurance steps (Yan et al., 2022). The verification scope, closely tied to misstatement risk, significantly influences user confidence (Simnett et al., 2009b). According to GRI (2013), scope determination should consider whether the disclosed content is significant to stakeholders and how that significance is reflected in both reporting and assurance. This research emphasizes on misstatement risk, operationalized through the concept of materiality whether omissions or inclusions influence user decisions (Messier et al., 2005; Eilifsen & Messier, 2015; Moroney & Trotman, 2016; Canning, 2019). Power (1996, 1997b) frames materiality adaptation as the development of "audit technologies," refined through professional judgment and iterative routines. To render new assurance domains require diverse expertise, financial auditors often employ multidisciplinary teams (Power, 1997a; Swift et al., 2000; O'Dwyer, 2011). However, Power (1997a, 1997b) cautions that integrating different professional disciplines is complex and not as seamless as often presumed. In the Big-4 firms, what matters most is financial audit which often sidelines non-accountant assurance specialists and their expertise is recognized mostly as a way to support others' work (Canning et al., 2019; Power, 1996, 2003). Due to this, financial auditors can direct the development of new audit sectors by relying on the trust in experts based on their objectivity instead of their unique backgrounds (Power, 1996, 2003). As noted by Andon et al. (2015), non-accountant professionals in financial auditing usually fit into the system by adopting relevant practices, successfully reforming what they do in the workplace (consult Pentland, 1993). Although the idea of materiality is supposed to benefit users, there are uncertainties about how auditors and preparers decide on the materiality threshold and if stakeholders all agree on this (Brennan & Gray, 2005).

2.2.4 Validation of Verification Method.

The fourth stage of the corporate sustainability assurance process involves validating the verification methods and assessing associated risks (Yan et al., 2022). Disputes exist over the auditing techniques used, with consultancy firms typically employing more diverse, qualitative methods such as

stakeholder process reviews, risk assessments, media analysis, and interviews while accounting firms tend to apply more standardized, quantitative procedures like inquiries, observations, and inspections (Gillet, 2012; Channuntapipat et al., 2019; Boiral et al., 2018). Verification methods are broadly categorized into qualitative (e.g., employee surveys, document analysis, and internal discussions) and quantitative (e.g., computations, observations, inspections) approaches, which must be validated accordingly (Hummel et al., 2017; Wallage, 2000). Assurors must also assess verification risks, including error risk (errors in the data), detection risk (undetected errors), inherent risk (errors arising from system weaknesses), and control risk (failure to detect errors despite monitoring), which can ultimately undermine the verification process (Albersmeier et al., 2009; Gillet, 2012). Maroun (2017) and Prinsloo & Maroun (2020) suggest that diverse methods improve the assurance opinion by accounting for stakeholder significance and environmental complexity. However, standardized methods prioritize data accuracy but may overlook broader contextual relevance. For this research, a focus on accounting firms' less diversified approaches is justified, as these enhance data accuracy, help mitigate opportunistic behaviours (Fonseca et al., 2014), and reduce assurance risks such as time, control, and detection risks (Albersmeier et al., 2009).

2.2.5 Evaluation of the Assurance

According to Yan et al. (2022) and Boiral and Heras-Saizarbitoria (2020), the fifth and final stage of the corporate sustainability assurance process involves evaluating the outcome, typically presented in the form of an assurance statement (Boiral et al., 2019a; Gillet, 2012; Hummel et al., 2017; Kolk & Perego, 2012). At this stage, assurors issue two types of documents. The first is a public assurance statement, which includes the assurance opinion, outlines the risk level and engagement context of the reporting firm, and provides justification for the evidence-gathering procedures (Channuntapipat et al., 2019; Farooq & De Villiers, 2019; O'Dwyer et al., 2011; O'Dwyer, 2011). This statement may contain various types of opinions: unqualified (confirming fair presentation without material error), qualified (noting exceptions to accounting principles), adverse (indicating significant deviations from standards), and disclaimer (not providing an opinion due to limitations) (Yan et al., 2022). These opinions are particularly important to report users, although they may be worded strategically to avoid negative connotations, leading to ambiguity (Channuntapipat et al., 2019; Ball et al., 2000). The second is a private statement, which addresses potential and actual risks encountered during the assurance process and identifies areas requiring improvement to enhance sustainability performance (Albersmeier et al., 2009; Channuntapipat et al., 2019).

2.3 Challenges Faced by Assurors in Carrying out the Assurance Process

A challenge that assurors can face when carrying out SRA is the fact that sustainability reporting is a relatively new issue for many companies, and establishing a clear strategy for incorporating such disclosures into external reports remains challenging. This therefore implies the misalignments between companies' environmental management systems and their accounting information systems complicate the integration of sustainability metrics into sustainability reporting assurance processes (Gunnar & Jonäll, 2013). Many companies use impression management strategies when disclosing information about negative impacts of their activities, leading to partial reporting or the omission of certain incidents (Blanco-Zaitegui et al., 2024). The absence of standardized metrics and consistent methods for measuring sustainability interactions fosters divergent reporting practices, complicating assurors' ability to interpret and evaluate the quality and credibility of sustainability disclosures (Elliot et al., 2024). Furthermore, the complexities associated with effectively communicating corporate sustainability impacts highlight the need for improved frameworks and standardized approaches in sustainability reporting assurance (Elliot et al., 2024; Boiral et al., 2017). Boiral et al., (2017) further emphasize that issues such as difficulties in accessing or verifying data, unclear information, data entry errors, or missing documentation further complicate the verification processes. Many disclosures lack specific metrics or actionable plans, raising concerns about the effectiveness of such reporting in driving tangible sustainability assurance outcomes. This suggests that while some companies may report on sustainability, the disclosures may not lead to meaningful actions in the SRA process (Moses & Yahaya, 2024). Another central challenge is the variability in how materiality is defined and applied

across reporting standards, complicating the determination of what aspects of sustainability assurance assurors should prioritize for analysis and reporting. The lack of uniformity in reporting requirements across standards contributes to inconsistency and confusion, impeding the development of a cohesive reporting landscape (Elliot et al., 2024). These scholars also emphasise that ensuring the accuracy, reliability, and comparability of sustainability assurance data is another significant obstacle that comes as a result of the fact that current practices often lack rigorous methodologies and robust validation processes in the assurance process which therefore undermines stakeholder confidence in the reported information (Elliot et al., 2024).

Conclusively, another challenge faced by assurors in the SRA process is unclear and variability in the objectives of the reporting organisations (Deegan et al., 2006). According to these scholars, the objectives of financial statement audit are generally clear. For instance, at international levels, ISA 200 Objective and General Principles Governing an Audit of Financial Statements States: *“The objective of an audit of financial statements is to enable the auditor to express an opinion whether the financial statements are prepared in all material respects, in accordance with an identified financial reporting framework.”*. In contrast, no specific objectives are specified by assurance providers in their reports. It implies different objectives are agreed on in different engagements by the reporting organisation through a consultation with their stakeholders (Deegan et al., 2006). This therefore implies that the assurors of sustainability assurance would not have one specific approach in their process of sustainability assurance due to variability in the objectives of the reporting firms

2.4 Opportunities/Benefits of Assurors for carrying out third-party SRA.

Despite these challenges, there are significant opportunities/benefits to assurance providers in general and more specifically to the Big-4 accounting firms for providing corporate sustainability assurance services. Previous research has highlighted the relationship between the type of assurance provider and the quality of external verification, particularly emphasizing that investors tend to assign greater credibility to accounting professionals, especially those from the traditionally recognized Big-4 accounting firms (Pflugrath, Roebuck, & Simnett, 2011). The Big-4 accounting firms are regarded as highly reputable and reliable due to their established expertise, capabilities, and competencies in the financial auditing market, which are easily transferable to the sustainability assurance field (Hodge, Subramaniam, & Stewart, 2009). From the perspective of the Big-4 accounting assurors, getting into corporate sustainability assurance services is more likely to be considered an instrument to build their reputation in the field of corporate sustainability as already built in financial audits and at the same time a new type of income (Comyns et al., 2013; O’Dwyer et al., 2011; Orazalin and Mahmood, 2019). A study carried out by Fernandez-Feijoo et al, (2016) on the assurance market of sustainability report with the aim of investigating if the Big-4 accounting firms leverage the network of their financial audit customers to enter the sustainability assurance market shows that the Big-4 accounting firms find an opportunity in providing assurance services to their financial auditing clients. From the perspective of the reporting firms, the rationale might be attributed to that of economic criterion, that is due to the existence of common processes in both financial auditing services and sustainability assurance services that might allow for fees reduction. But equally, from the perspective of the assurance providers, the rationale could be based on a marketing strategy from the Big-4 accounting firm. This is because the provision of sustainability assurance services can further improve or increase their loyalty to their clients and automatically add up barriers of entering to other assurance services suppliers (Fernandez-Feijoo et al., 2016). Conclusively, another opportunity that the Big-4 accounting firms would get in carrying out sustainability assurance is that of gaining more knowledge about corporate sustainability. This is deduced from the fact that accounting firms are very much vested with assurance procedures and client businesses and operations meanwhile the consulting firms are knowledgeable with corporate sustainability (Farooq and De Villiers, (2019); Jones and Solomon, (2010). This implies the more they carry out sustainability assurance engagements, the more they would be opportune to learn or know more about corporate sustainability because this endeavor involves sustained negotiations, the building of relationships with other actors, and connecting to a variety of sustainability-related discourses (Power, 2005).

2.5 Institutional Pressures and Isomorphism.

Institutional theory suggests that organizations modify their methods to remain accepted or considered proper by the people or groups around them (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). This adaptation tends to involve synchronizing organizational structures, activities and reports with the expectations of society and the industry (Boiral & Gendron, 2011). This theory specifically emphasizes isomorphism which describes how similar practices spread among organizations. DiMaggio and Powell (1983) explain that isomorphism is observed through three methods: compliance, imitation of major players and being influenced by professional codes and rules. We can observe these dynamics in sustainability reporting and assurance, with companies hiring financial auditors to ensure their reports are trusted and recognized (Fernandez-Feijoo et al., 2016). According to Martínez-Ferrero and García-Sánchez's (2017) study, national, legal and cultural settings play major roles in determining voluntary sustainability assurance, with normative factors having the strongest effect, then coercive and finally mimetic forces. Similarly, Gürtürk and Hahn (2016) noted that assurance statements are standardizing, largely due to the impacts of norms and imitation. Accordingly, this study points to normative pressures as the most influential force behind assurance practices, while coercive and mimetic pressures play less of a role (Martínez-Ferrero & García-Sánchez, 2017).

2.5.1 Institutional Theory and SRA Process

Carpenter and Feroz (2001) applied institutional theory to auditing and concluded that auditors maintain legitimacy by aligning with societal norms and values. Foreign corporations increasingly influence audit policymaking due to global economic integration, international agreements, and the expansion of local firms (Eltweri et al. (2022; Abdullatif & Al-Rahahleh, 2020). International bodies like the European Commission also exert coercive pressure through regulations such as the CSRD (Balsmeier & Vanhaverbeke, 2018). This reflects coercive isomorphism, where actors emulate ethically successful peers to gain legitimacy (DiMaggio & Powell, 1991; Mizruchi & Fein, 1999). The adoption of ISA and their harmonization are thus influenced by exposure to foreign trade and investment (Elmghaamez & Elmagrhi, 2022), signaling commitment to global standards and enhancing legitimacy in international markets (Eltweri et al., 2022). Consequently, regulatory pressures shape how Big-4 firms conduct sustainability assurance (SRA). Normative isomorphism reflects shared beliefs, norms, and values shaping organizational behavior, grounded in the logic of appropriateness rather than regulation (Negash & Lemma, 2020; Scott, 2014). According to DiMaggio and Powell (1983) & Negash and Lemma (2020), these norms are institutionalized through education and professional networks, such as university training and industry conferences, which influence the practices of Big-4 firms in sustainability assurance (SRA). Mimetic isomorphism, by contrast, is driven by the logic of orthodoxy and arises when organizations, facing uncertainty, imitate perceived successful peers to adopt familiar cognitive frames and professional ideologies (Negash & Lemma, 2020; Scott, 2014). This tendency enables Big-4 firms to adopt practices from peer organizations they view as effective. Together, these institutional mechanisms coercive, normative, and mimetic demonstrate a complex relationship between institutional theory and the evolving processes of SRA, highlighting the need to understand how such pressures shape Big-4 practices. The coercive, normative and mimetic isomorphism are underpinned by the logics of instrumentality, appropriateness and orthodoxy respectively (Scott, 2014).

2.5.2 Institutional Influences On SRA process

Sustainability assurance is largely a voluntary process, typically funded by the reporting organizations themselves and guided by discretionary standards (Manetti & Toccafondi, 2012; Manetti & Becatti,

2009). These standards vary by origin developed by NGOs (e.g., AccountAbility), international accounting bodies (e.g., IAASB, FEE), and national organizations (e.g., FAR in Sweden, GBS in Italy) and differ significantly in scope and content. Among them, ISAE 3000, issued by the IAASB, is the primary reference for accounting firms like the Big-4. It emphasizes formal audit elements, including determining assurance levels (limited or reasonable), managing audit risks, deploying interdisciplinary teams, and applying control procedures (Manetti & Toccafondi, 2012; Hasan et al., 2005; Deegan et al., 2006a,b). Due to the complexity of sustainability data, which includes both quantitative and qualitative elements, assurers often adopt a hybrid approach combining limited and reasonable assurance (Hasan et al., 2005). ISAE 3000 also seeks to protect assurers by reducing professional risk and closing the expectation gap (O'Dwyer & Owen, 2007). In contrast, standards like AA1000AS focus more on stakeholder engagement and inclusivity.

Stakeholders can influence the assurance scope through consultation, especially since sustainability assurance is not legally mandated in many jurisdictions. Organizations can determine whether assurance applies to the full report or specific sections, often based on geography, business type, or performance dimensions (Deegan et al., 2006a,b). At the national level, countries like Sweden use guidelines from FAR (a member of IFAC) that align with both limited and reasonable assurance levels, with a strong emphasis on the information needs of users (FAR, 2017). In summary, sustainability assurance processes are shaped by a mix of international, national, NGO-driven standards and stakeholder input (Manetti & Toccafondi, 2012; Deegan et al., 2006a,b).

2.6 Summary of previous literature

According to previous literature, sustainability reporting assurance has developed as a tool to increase the credibility and veracity of ESG disclosures (Simnett et al., 2009; Boiral et al., 2019). Assurance is commonly taken by an external third party evaluating the sustainability disclosures, and systems, of a company (AccountAbility, 2008; Park & Brorson, 2005). There are two critical standards that regulate SRA practice: ISAE 3000, an SA mainly in use by professional auditors for non-financial information (Boiral et al., 2019) and AA1000AS emphasizing stakeholder inclusiveness and more often used by consultants (Boiral et al., 2019). Although ISAE 3000 puts emphasis on risk and compliance, AA1000AS is more stakeholder-oriented (Safari & Areeb, 2020). Yan et al. (2022) systematically divide assurance process into five primary levels:

(1) **Assurance provider selection:** Selection is influenced by internal factors (e.g., governance, stakeholder pressure) and external factors (e.g., provider professionalism, regulatory norms) (Edgley et al., 2010; Boiral & Heras-Saizarbitoria, 2020). (2) **identification of assurance principles:** Core principles include defining assurance levels (reasonable or limited), applicable standards (e.g., ISAE 3000 and AA1000AS), and the objectives of assurance (Yan et al., 2022; Kolk & Perego, 2010). (3) **verification content assessment** (The scope of assurance depends on what is material and significant to stakeholders. It involves pre-assurance services to identify and refine report content (Yan et al., 2022; Channuntapipat et al., 2019). (4) **validation of methods**, (involves the validation of verification methods, which is critical for ensuring methodological robustness (Yan et al., 2022). (5) **evaluation of outcomes:** Includes Public assurance statements detailing the assurance scope, the level of risk, and the methodologies used. (Boiral et al., 2019a; Channuntapipat et al., 2019; Farooq & De Villiers, 2019; O'Dwyer, 2011). Whilst a private statement focuses on internal risks, unresolved issues, and recommendations for improvement in sustainability performance (Albersmeier et al., 2009; Channuntapipat et al., 2019).

Prior research identifies numerous challenges faced by assurers when conducting sustainability reporting assurance. The absence of standardized metrics and inconsistent methodologies further exacerbates interpretation difficulties (Elliot et al., 2024). Technical challenges such as data inaccessibility, ambiguity, and missing documentation also impede the verification process (Boiral et al., 2017), while vague disclosures lacking concrete metrics weaken assurance outcomes (Moses & Yahaya, 2024). Compared to the financial audit domain, where objectives are standardized (e.g., ISA 200), sustainability assurance engagements are often guided by varying, stakeholder-influence

objectives, complicating methodological consistency (Deegan et al., 2006). However, corporate sustainability assurance presents strategic benefits for assurers, particularly the Big-4 accounting firms. Research shows that assurance quality and credibility are often linked to provider type, with investors placing more trust in Big-4 firms due to their established auditing reputations (Pflugrath et al., 2011; Hodge et al., 2009). Engaging in sustainability assurance allows these firms to enhance reputational capital and diversify revenue streams (Comyns et al., 2013; O'Dwyer et al., 2011; Orazalin & Mahmood, 2019). Institutional theory serves as a foundational framework for understanding how Big-4 firms adapt assurance practices to align with external pressures and societal legitimacy expectations (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). Through mechanisms of coercive, mimetic, and normative isomorphism, firms conform to legal mandates, imitate industry leaders, and adhere to professional norms (Boiral & Gendron, 2011; DiMaggio & Powell, 1983). Studies find normative pressures to be most influential in shaping SRA practices, followed by coercive and mimetic pressures (Martínez-Ferrero & García-Sánchez, 2017; Gürtürk & Hahn, 2016). Additionally, the influence of international and national institutions such as the European Commission and national professional bodies on the harmonization of assurance standards (Balsmeier & Vanhaverbeke, 2018; Eltweri et al., 2022) serves as the institutional pressure that act on the assurers when carrying out SRA engagement. Figure (1) below shows the various institutional pressures acting on the process that assurers adopt during SRA engagements with the help of isomorphic mechanisms. This conceptual framework shows a five steps process and is believed to be from the perspective of the reporting firm which begins with the selection of an assurance provider and ends with evaluation of outcome. The Left side of Figure (1) shows the various activities that occur in the various steps and the right side of figure (1) shows aspects that arise from each step.

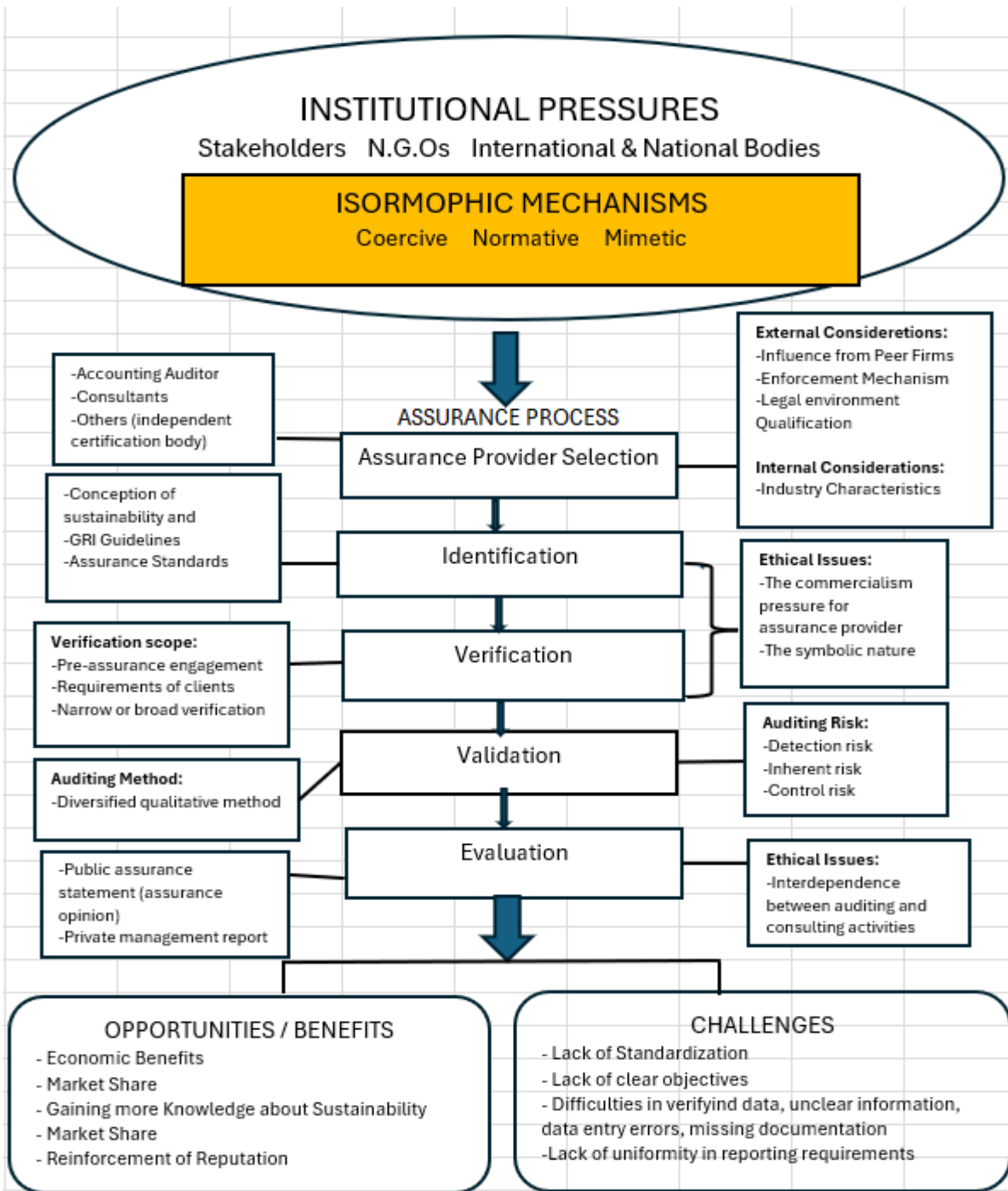


Figure 1 : Conceptual model for analysis of sustainability reporting assurance

Source: Own development based on previous research

3. Methodology

3.1 Research Approach and Design

Drawing on the research purpose and research questions, this study employs a qualitative approach because it allows for a better understanding and exploration of the topic of interest (Bell et al., 2019). Particularly, the qualitative study approach permits the exploration of sustainability assurance in its practice setting, from the perspective of the Big-4 accounting firms who are actually engaged in the practice (Channuntapitat et al., 2020). Furthermore, the motivation behind the use of a qualitative approach in this research lies in its ability to help the researchers understand and analyze the participants' view and reflections in research that centers around gathering and understanding written or oral information as well as non-numerical data (Bryman et al., 2017).

The requirement for external assurance of sustainability reports under the CSRD (Hummel & Jobst, 2024) is a recent development. Given the importance of capturing the perspectives of the Big-4 firms, who serve as key external assurance providers, this study adopts a semi-structured interview approach. This method is chosen for its flexibility, both in designing and refining the interview guide, and in conducting the interviews themselves. This technique gives the researchers the possibility to weigh the credibility of the responses and explore some of the underlying motives more directly as well as question some of the responses. On the other hand, it allows for the interviewees with ample space, explaining their thoughts and to emphasize areas of particular interest and expertise that they believe they had (Horton et al., 2004). Bryman et al (2017) further added that semi-structured interview allows for a focused conversation and at the same time provides ample room for other possible ideas that may cross the minds of the interviewees which may further enhance understanding of the subject-matter.

Thus semi-structured interviews have the potential to encourage assurance providers from the Big-4 accounting firms to talk about their own experiences in the SRA process such as processes employed, methodologies used, challenges and opportunities/benefits encountered during assurance engagements and the regulatory pressures that surrounds the SRA process without the influence of the researcher's prior assumptions. Additionally, Falkenberg et al. (2023) highlight the need for expert interviews to gain deeper insights into field-specific challenges. In line with this, semi-structured interviews with assurance practitioners from the Big-4 allow researchers to explore the key challenges and opportunities these providers face during assurance engagements. The flexibility of the semi-structured interview that was also highlighted by Adams (2015), allowed the researchers to explore unexpected avenues arising during the interview process and this flexibility can be valuable in performing an in-depth analysis.

3.2 The Big-4 Accounting Firm - the choice of firms

In this study, we chose the Big-4 accounting firms (Deloitte, EY, KPMG, and PwC) as part of the third-party assurance providers. This is because they dominate the global auditing landscape, holding over 90% of market share in most OECD countries and other key economies (Big-4, 2013). Furthermore, they have a reputation rooted in their strong brand identity, superior audit quality, and extensive expertise, which foster client trust and market dominance (Aronmwan et al., 2013; Sucher et al., 1999). Also, because of their institutional structure, they can integrate global networks with national regulatory environments, enabling them to adapt to varying institutional demands across countries (Malhotra et al., 2006). Research shows that firm-specific factors such as size, profitability, complexity, and risk, drive companies to select Big-4 auditors over non-Big-4 auditors as the former provide higher audit quality (DeAngelo, 1981; Wang and Xin, 2011). Moreover, their robust assurance methodologies, adherence to ethical standards, and use of frameworks like ISAE 3000 contribute to their perceived superiority (Liu et al., 2024; Boulila Taktak and Mbarki, 2014). Additionally, as companies increasingly disclose environmental, social, and governance (ESG) information to meet rising stakeholder demands, the Big-4 have extended their expertise into

sustainability assurance (Liu et al., 2024), by leveraging their financial audit networks which have enabled them to gain a competitive advantage in offering sustainability assurance services. Conclusively, by leveraging their extensive global networks and expertise, play a pivotal role in advancing ESG assurance practices and in this regard, they independently assess organizations' sustainability disclosures, ensuring methodological rigor and building stakeholder trust in corporate sustainability efforts (Elliot et al., 2024).

3.3 Data Collection

The empirical material consists of primary data that have been gathered through semi-structured interviews with relevant firms as described above. We contacted the potential respondents in two ways. The potential respondents were identified by searching on each of the Big- 4 accounting firms' offices in each of the countries within Europe and the UK. Some of most of the Big-4 accounting firms have branch offices in each of the major cities in various countries. We searched for each of the branch offices and sent an email or filled a contact form to the audit and assurance department. During this process, 100 emails and messages were sent. The content of these emails and messages contained a voluntary interview request and an overview of our research. Those who agreed to participate were provided with an interview guide through subsequent emails and requested for a convenient interview date. In total, 21 potential interviewees responded to our emails and 9 of them agreed to participate in an interview (see details table 1). All interviews were conducted via Teams and the interviewees were all asked for permission to record the interviews and they all agreed. All the interviews were individual interviews conducted between March 15th to April 15th 2025 and lasted between 30-60 minutes. Additional notes were taken during and after the interview, and we (researchers) had a small meeting immediately after the interviews discussing what had been achieved and the way forward. All interviews were transcribed and ethical principles were upheld throughout both the interview and data analysis processes.

3.3.1 Selection of Respondents

The selection of the interview respondents is vital for the outcome of the study. Our selection was based on the following criteria. Firstly, the respondent must be an employee of the Big-4 firm operating in Europe or UK and is currently working in the audit and assurance department. Secondly, the respondent should have recently been involved in the sustainability assurance process of a company operating in Europe. Some of the respondents were obtained through the snowball sampling method (Parker et al., 2019). That is after the interview, the interviewers ask the interviewee if he/she knows a colleague in the same department of audit and assurances most preferably in a different European country who works either in the same accounting firm like he/she or in one of the Big-4 accounting firms.

Table 1 shows the current positions of the respondents to indicate how knowledgeable the respondent is in the topic of discussion. The respondents are from different European countries representing a European perspective. The firms are anonymised and are given codes Accounting firm "A", Accounting firm "B", Accounting firm "C" and Accounting firm "D".

Big-4 Accounting Firm	Respondents	Country of Respondent's Location	Position/Role of Respondent	Interview Duration
Accounting firm "A"				
	A1	Norway	Senior Manager	52 mins
	A2	Germany	Senior Manager	50 mins
Accounting firm "B"				
	B1	Netherlands	Environmental Strategy	55 mins

	B2	Denmark	Senior Associate	45 mins
Accounting firm "C"				
	C1	Sweden	Senior Associate Audit & Sustainability Service	30 mins
	C2	Finland	Leader Audit & Assurance	45 mins
Accounting firm "D"				
	D1	France	Senior Manager	60 mins
	D2	Sweden	Senior Associate	45mins
	D3	Germany	Senior Manager	50 mins

Table 1: List of the study's interview respondents from the Big-4 firms.

(See Appendix 1) 3.3.2 Interview Guide

To prepare for an interview with the respondents, an interview guide was developed (**Appendix 1**). To design the type of questions in the interview guide that would need to be asked in order to permit the researchers explore the major reasons for the research, the researchers took a thorough review of the theoretical framework and in reference to academic readings on the subject matter (Gillet 2012). This preparatory brainstorming was initially done by one of the researchers then independently reviewed by the other researcher and added some of the questions which all felt naturally under particular themes. The interview guide contained open-ended and semi-structure questions with specific focus on the views and experiences of the respondents on sustainability assurance processes (Maroun and Solomon, 2014). In the interview guide, the researchers also assured respondents of anonymity and confidentiality. The questions were posed around their activities in sustainability reporting assurance process such as their chronological /step-by-step processes employed when carry out SRA process, the importance of sustainability assurance, methodologies used, standards and guidelines that they follow, challenges and opportunities/benefits that this practice might bring to them as practitioners and possible recommendations. The interviewees were informed of possible questions outside the interview guide primarily for probing purposes. The interview guide was very useful in asking key questions during the interview process as it ensures that the content of the interview aligns with the research purpose (Bell et al., 2019). The interview guide was sent to respondents weeks or days before the scheduled date of the interview. This was to permit respondents to start reflecting on the subject matter beforehand. This helped in minimising the risk of the respondent not fully understanding the subject matter since they must have gotten enough time to go through the questions and can definitely get back to the researchers via email if something is unclear.

3.4 Data Processing and The Analytical Process.

A thematic approach was adopted for data analysis in which the transcribed interviews were processed through data reduction, data display and conclusion processes (O'Dwyer 2004). To make sure that no information provided by the respondents was misplaced and to allow that full focus of the study be placed on the responses of the respondents, the interviews were also recorded with an mp3 recorded. All interviews were transcribed and the transcripts were manually adjusted with the help of replaying the recordings and reading the notes written by the interviewers. This was done with the purpose of minimising errors and thereby improving the quality of the interview transcripts.

This analysis would follow a theoretical thematic analysis which tends to be driven by the researchers' theoretical or analytical interest in the subject-matter, and thus is more explicitly analyst-driven. This form of thematic analysis gives less description of the overall data but more detailed analysis of some aspects of the data (Braun & Clarke, 2006). The approach is consistent with Saunders et al. (2016, p.533) who explained that the use of a deductive approach is underpinned by the need to specify

theoretical propositions before the commencement of data collection and its analysis. That said, the researchers employ the six-steps framework developed by Braun & Clarke (2006) to carry out the theoretical or deductive thematic analysis that surrounds around four themes that can be observed from the analytical framework and include : the processes adopted in the assurance process, the challenges encountered during the process, opportunities/benefits to the assures and drivers of the processes adopted by assurers. This framework fits the purpose of this research and to Maguire & Delahunt, (2017) is the most cited and used framework in thematic analysis. Table 2 below shows the six phases of the framework of Braun & Clarke (2006).

Phase	Description of the process
1. Familiarizing yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Table 2: The Phases of Thematic Analysis by Braun & Clarke, (2006).

In this research, the six phases of the above framework would be carried out in 3 main levels . Level1; data reduction, level 2; data display, and level 3; conclusion processes.

Level 1: Data Reduction. Data reduction includes summarising and simplifying the data collected and/or selectively focusing on some parts of this data (Saunders et al., 2016).

This consists of effectuating phase 1 and phase 2 of the framework. That is, familiarising with the data and generating initial codes respectively. According to Braun & Clarke (2006), familiarizing yourself with the data implies that the researcher has to get acquainted with the depth and content of the material that needs to be analyzed (Braun & Clarke, 2006). In this research, the researchers achieved this by manually adjusting and reading all the transcripts gotten from the interviews with the interviewees as shown on table1 above. This gave the researchers a first impression of the content of the transcripts and noted the main categories that the transcripts contained. Generating initial codes implies the development of initial codes from the transcripts. To Guest et al, (2014), codification implies identification of data that is seen as interesting with respect to the subject matter. Braun & Clarke, (2006) further added that, when it is theoretical thematic analysis, the researchers might approach the data with specific questions in mind that you wish to code around. In that regard, the researchers coded around the two research questions of this research that bring about four themes outlined in figure 1 above. The Nvivo software was used to facilitate the coding process. Just after the code generation process, the researchers had a brainstorming meeting to deliberate on the list of codes that were seen as important and relevant for the studies. An example of the coding process can be seen from table 3 in appendix 2

Level 2: Data Display. involves organising and assembling your data into summary diagrammatic or visual displays (Saunders et al., 2016)

This consists of effectuating phase 3, phase 4 and phase 5 of the framework. That is, searching the themes, reviewing themes, and defining and naming themes respectively. According to Braun & Clarke, (2006), the third phase of the thematic analysis process consists of regrouping or categorising the various codes that have been generated from the previous stage into potential themes. The essential

in this phase is for the researchers to analyse the codes, get an understanding of how they are related to each other and combine them to form Candidate themes (Braun & Clarke, 2006). But since this is a theoretical theme analysis, the researchers just aligned the various codes around the already known themes forming the candidate themes. Reviewing themes implies to identify categories that do not really qualify to be themes or can be merged up (Braun & Clarke, 2006). At this stage the researchers double check if the various themes represent the codes that have been aligned around them. To conclude with this phase, the researchers had a discussion among them concerning the candidate themes to get an understanding and evaluate if the themes are good to go with or they need to be put together with some similar themes. Defining and naming themes implies to define and refine the themes to obtain the final objects of the analysis (Braun & Clarke, 2006). The researchers went through this by having a discussion on all the candidate themes that have been gotten as a result of the research questions and are shown on in figure 1 above. In that respect, the researchers got all themes that represent the subject matter of this research with the respective codes surrounding the themes and a few examples of the texts that lead to the generation of the codes. All these aspects are displayed on table 3 in (Appendix 2).

Level 3: Conclusion of processes. Recognising relationships and patterns in the data, as well as drawing conclusions and verifying these with the help of data displays (Saunders et al., 2016).

This consists of effectuating phase 6 of the framework. According to Braun & Clarke, (2006), the last and final phase of the framework entails the production of the reports with the analysis of the transcripts from the interviewees as seen on table 1 above. The goal here is for the researchers to tell the story of their data in a concise, coherent, logical, and non-repetitive way (Braun & Clarke, 2006). This implies the empirical data from the interviews in combination with the theoretical framework and the analytical model is then the foundation for the results and analysis presented further down in this report. For orderly presentation, the result of this final phase would be presented in the next chapter of this research.

3.5 Limitations and Ethical Considerations

One limitation of this research is that it focuses only on the Big Four accounting firms as public accounting assurance providers. This excludes other firms that could also provide valuable insights on the topic. However, we chose the Big Four because of their economic success and their ability to expand into new and potentially profitable business areas. They have successfully built on their core expertise in financial auditing to develop services in areas like e-commerce assurance and environmental auditing (Power 1997). Second limitation to this study is time constraint. Due to time scarcity or limitation, the researchers could not conduct interviews with respondents from all the countries in Europe. But this limitation was handled by the fact that the interviews that were conducted were enough to depict the study purpose and were somehow spread across a good number of European countries and therefore the results can perfectly reflect the European case. Another limitation of the research could be the fact that the researchers were co-creators of the empirical materia. As students, we may have predetermined the assumptions as well as expectation for the answers of the respondents. However, this limitation was taken care of by continuously working with recommendations and feedback at the seminar with other participants and the supervisor.

According to Saunders et al., (2016), ethical considerations refer to the standards of behavior that guide your conduct in relation to the rights of those who become the subject of your work, or are affected by it. To this effect, one of the main ethical considerations carried out in this research method was keeping the respondents anonymous and confidential. This was included in the interview guides that were sent to respondents before having the interview with them. Also, this was still re-emphasize before the beginning of the interview and they were actually informed of the recording of the interviews and that it would be deleted immediately the researchers are done with this research. Anonymity can encourage a greater freedom of expression for the respondents in the study and confidentiality equally ensures that the information provided cannot be traced back to the respondents or their accounting firm. In a nutshell, keeping the respondents anonymous can inherently bring about

a limitation of not perfectly giving the audience the possibility to contextualise the respondents of this research. This was addressed by briefly describing the Big-4 firms, which follow similar practices, and by providing respondents' job titles and locations in Table 1. Ethical considerations included ensuring voluntary participation. According to Collis and Hussey (2014), participants must be well-informed to decide whether to take part. Potential interviewees received an interview invitation explaining the purpose and the content of the interview. This allowed them to understand the study and make an informed choice about participating.

3.6 Reflection on Research Quality

3.6.1 Credibility of research findings

Reflecting on the credibility of the research findings which is considered as the most important factor for ensuring trustworthiness (Kakar et al., 2023), the researchers have thoughts of not knowing if the evidence and conclusions stand the test of time. But the least they could do is to reduce the possibility of getting wrong answers. That said, the researchers paid attention to two particular emphasis on the research design: reliability and validity (Saunders et al., 2016). In these regards, the researchers introduced a high degree of structure to the interview schedule when conducting the interviews. The intention is to reduce errors and bias. To avoid errors and bias, both of the researchers were present during the interviews and this implies that the empirical material was observed by two individuals allowing the researchers to compare the consistency between the registrations in the observations. This minimized the risk of misunderstanding the respondents' answers. Also both researchers participated in asking the questions and using the same interview guide in different ways so as to elicit the answers (Saunders et al 2016). Furthermore, the credibility of these research findings was greatly enhanced by peer debriefing from colleagues and the supervisor as they helped the researchers understand the weaknesses as well as control perceptions and biases (Guba, 1981).

3.6.2 Dependability

Dependability in qualitative research can be challenging due to its subjective and context-specific nature (Marshall & Rossman, 1999). However, it is a key criterion for trustworthiness and reflects the consistency of findings throughout the research process (Kakar et al., 2023). In this study, dependability was strengthened by providing detailed descriptions of the research approach, data collection, and analysis methods (Amin et al., 2020). Feedback from colleagues and the supervisor during seminars also helped improve and clarify the research design, making the study more transparent and reproducible (Ahmed, 2024).

3.6.3 Transferability

This study focuses on the European context, but the issues explored, such as the Big-4's SRA processes, challenges, and opportunities, are global in nature (Gillet, 2012). The European case can therefore offer insights applicable beyond the region, as Europe plays a key role in the global economy (Stake, 1994). To enhance transferability, the researchers provided a thick description of the data, including background information and the Big Four's expansion into the "new audit space," allowing others to assess the relevance to their own contexts (Guba, 1981).

3.6.4 Neutrality / Conformability

The researchers were all aware of the fact that being neutral in this research will improve the trustworthiness of the research. Therefore, the presented material and analysis in this study was supported by the inclusion of direct quotes from participants in the analysis, which helped ensure and demonstrate the neutrality of the findings (Kakar et al., 2023).

4. Empirical Findings and Analysis

4.1 The Processes and Methodologies of SRA.

Table 4 (See Appendix 3) provides an overview of the processes and methodologies of Sustainability Reporting, which is further detailed and explained in the following sections

4.1.1 The Steps Employed In The Process of SRA

In Step 1, all the respondents except B2 and D3, begin the process with engagement acceptance and planning. This involves assessing client integrity, ensuring compliance with ethical requirements, understanding the client's sustainability reporting framework, identifying KPIs, and assessing risk based on the client's industry and also, they evaluate their own competences and resources. In contrast, Respondent B2 begins by evaluating whether the client falls under national or EU-regulated entities before defining the engagement scope and signing an engagement letter. Respondent D3 starts with risk assessment and materiality analysis. The respondents who begin the assurance process with engagement acceptance and planning like A1 explained that they usually decide on the objectives, the standards and the level of assurance.

“Once accepted, we set the standards, goals and what level of assurance is required (limited or reasonable)”. (A1)

In Step 2, all respondents except D3 engage in understanding the client's processes and control or assess their risks. This implies, respondents A1, C2 and D1 emphasis on understanding the client's processes and control meanwhile A2, B2, C1, and D2 are engaged in risk assessment. Then, respondent B1 combines both approaches (understanding the client's processes and control and risk assessment). In this step, they carry out interviews with client management, review data collection and reporting processes and risk assessment as explained by respondent B12 and A1.

“We gain a deep understanding of the client's internal controls, data collection systems and governance around sustainability reporting processes” and “conduct a risk assessment to pinpoint areas where misstatements in sustainability data or disclosures are likely.” (B1)

“We conduct walkthroughs and interviews with client personnel to evaluate the design and effectiveness of controls over sustainability data.” (A1)

In Step 3, respondent B2 and D3 complete their process by reviewing the final sustainability report to ensure alignment with evaluated data and background information, ultimately issuing an assurance statement that outlines the procedures undertaken and presents a professional opinion. Meanwhile, respondents A1 and D1 continue with the materiality risk assessment phase, A2 and C1 proceed with the control and process evaluation as described previously. Respondents B1, C2, and D2, focus on evidence gathering and testing as such validating data through site visits, virtual inspections and third-party confirmations and analytical procedures and inquiries. Respondent B1 acknowledges that the intention of assurance providers in the assurance process at this stage is to validate the reported information.

“Our teams gather evidence through interviews, site visits, document reviews, and data analytics, testing the reliability and accuracy of reported information.” (D2)

“We use assurance procedures to test whether the data is accurate, reliable and complete”. (B1)

In step 4, Respondents C2 and D2 carry out evaluation and analysis while B1 carry out evaluation and conclusion. Respondent A1, A2, C1, and D1 carry out testing that has already been done in the previous step. Meanwhile, B2 and D3 have already ended their assurance process at the previous step. This implies evaluation and analysis is carried out in this step which include evaluating test findings

for misstatement or control deficiencies and discussing findings with clients in relation to relevant reporting standards with the purpose of achieving transparency as explained by both respondents C2 and D2.

“We assess whether the sustainability information is free of material misstatement, comparing it against the chosen reporting criteria”. (C2)

“We evaluate the data against the chosen assurance framework, checking for consistency, completeness, and adherence to principles like transparency.” (D2)

In step 5, respondents A1 and C1 are carrying out evaluation of findings and conclusion, meanwhile respondents B1 and D2 are in the reporting phase and A2, C2 and D1 are carrying out the issue identification and resolution, post-engagement phase and assurance criteria respectively. Since the fourth step, evaluation and analysis have been showcased, it would be appropriate to outline some issues that have arisen from the evaluation and analysis and then engage clients with some recommendations for improvements as emphasized by respondent A2.

“We discuss findings with the client, providing recommendations for corrections or process improvement”. (A2)

In step 6, respondent A1, A2, C1 and D1 carry out assurance reporting and communication. This phase is where these respondents focus on creating documents that show the scope, methodology and assurance level in the conclusions. The assurance report development process for A1 C1 and D1 includes client requirement adjustments and standards alignment through ISAE 3000. B1 and D2 focus on post-engagement activities by providing improvement recommendations and supporting regulatory compliance while refining internal methodologies to demonstrate their commitment to continuous improvement and client support after the assurance delivery. The respondents express their opinions in the reporting and communication step as expressed by the following respondents A1, A2 B1 and D2 respectively.

“We prepare an assurance report outlining the scope, procedures, findings and level of assurance provided”. (A2)

“We conclude whether the sustainability information is free of material misstatement based on the evidence gathered.” (A1)

“We provide a management letter outlining observations, such as recommendations for improving data quality or controls, to enhance future reporting.” (B1)

“We draft an assurance report, detailing our findings, conclusions, and any recommendations, which is then reviewed internally for quality control”. (D2)

In step 7, respondents A1, A2 and D1 who are the only respondents to reach this phase, focus on follow-up and continuous improvements. As part of their services, clients receive recommendations to strengthen their sustainability reporting while the assurance providers conduct internal reviews on themselves to update their methodologies and standards or technologies. This can be seen as expressed by A1 below.

*“At post-engagement, we provide feedback to the client on opportunities to strengthen their sustainability reporting processes, such as enhancing data automation or stakeholder engagement”
(A1)*

“We also conduct an internal review to refine our methodology, incorporating lessons learned and updates to standards or regulations, especially as aligns with evolving EU sustainability requirements”. (A2)

4.1.2 Assurance Frameworks

When all respondents from accounting firms A, B, C, and D who reside and work in different European countries as shown in Table 1 were asked to briefly describe the chronological or step-by-step processes they employ to carry out sustainability assurance in their respective countries, they all acknowledged that these processes must adhere to or align with international standards, national regulatory requirements, and regional legislation.

Our process aligns with international standards, such as International Standards on Assurance Engagements (ISAE) 3000, and is organised to meet client needs and country regulatory requirements, including EU directives like the Corporate Sustainability Reporting Directives (CSRD)”. (Accounting firms: A, B, C, D)

“At.... Netherlands, a sustainability assurance engagement process follows a structured, risk-based approach aligned with international standards, like ISAE 3000 and, where applicable, frameworks like AA1000AS or specific client requirements”. (B1).

However, Respondent A1 operating from Norway selects ISAE3000 as their baseline framework since it maintains versatility and matches EU and Norwegian requirements but prefers ISAE 3410 or AA1000AS for unique or stakeholder centered projects. The firm chooses specific frameworks based on how specialized the nature of their client engagements becomes. The use of ISAE 3410 becomes appropriate for assurance over greenhouse gas emissions when the focus is exclusively on Scope 1–3 emissions due to the framework's technical emphasis on emissions reporting requirements.

“The decision is collaborative, involving discussions with the client and our internal risk and quality teams to ensure the standard meets all relevant criteria”. (A1)

Because sustainability reporting as a practice is still under development and, as defined by the respondents, a process of continuous evolution, accounting firms face significant challenges in the auditing process. Accounting firms adapt flexible assurance processes to match the particular reporting systems used by their client organizations.

“We have distinct audit methodologies for financial audits and sustainability assurance, each tailored to their respective assurance standards. However, they share many similarities, as they both draw from the same foundational principles”. (C2)

According to Respondent C1 the assurance methods adjust to match the reporting system selected by the client where GRI-based reports follow GRI criteria but EU Taxonomy engagements employ EU Taxonomy rules. The assurance standards used by Respondent D2 include ISAE 3000 for general non-financial assurance alongside AA1000AS for stakeholder inclusivity, the GRI Standards, and ESRS under the CSRD.

Other respondents followed the same procedure. When providing non-financial assurance we use frameworks including GRI along with SASB and TCFD and AA1000AS according to client reporting specifications explained B1. Clients choose the framework based on their goals, sector-specific requirements, regulatory demands, and stakeholder expectations, which are identified during planning sessions with the engagement team B1.

Respondent C2 highlighted that the upcoming IAASB 5000 standard will enhance clarity and specificity for sustainability assurance practices through its expected implementation. The EU's omnibus regulatory process continues to evolve which results in potential delays for the upcoming implementation of the framework.

“However, a new standard IAASB 5000 is currently in development and expected to replace or supplement ISAE 3000 in the future”. (C2)

The AA1000 Assurance Standard (AA1000AS) functions as an open-source framework which auditors use to improve assessments of stakeholder engagement. Auditors implement principles from the AA1000AS to evaluate if clients properly address stakeholder concerns. Auditors must assess the strength of stakeholder involvement initiatives and match these assessments with materiality results before integrating them into their final assurance statements through professional expertise. By implementing AA1000AS sustainability assurance extends beyond traditional ISAE 3000 procedures by merging qualitative quality control aspects such as responsiveness and inclusivity into assurance evaluation methods. Below excerpts from the interviews confirm this perspective

“We don't treat AA1000AS and ISAE 3000 as mutually exclusive. Instead, we use AA1000AS principles to enhance the depth and relevance of our ISAE 3000 based assurance”. (C2)

“ISAE 3000 is preferred for its compatibility with financial auditing principles and its global recognition among regulators and investors. However, in cases where stakeholder inclusiveness and ethical accountability are central especially in sustainability or social impact reporting the firm may also reference the AA1000 Assurance Standard (AA1000AS)”. (D3)

“We define materiality in sustainability assurance as information that may impact stakeholder decision-making, considering both financial and non-financial effects in line with CSRD's double materiality concept”. (C1)

4.1.3 Risk Assessment

To handle subjective data and imprecise measurements and potential biases which could mislead stakeholders throughout qualitative data audits, auditors used a system of flexible structure. All respondents agreed on a multi-dimensional approach to detect misstatements in qualitative non-financial data through integration of client interviews and document reviews alongside professional judgements.

Stakeholder analysis and materiality assessments stand as fundamental steps in risk assessment according to Respondents A1, A2, B1, C1, and D1. The auditors A1, A2, and B1 stressed that identifying material topics impacting key stakeholders such as investors, regulators, and customers helps determine both audit strategy and potential misstatement evaluations.

“We assess the risk of misstatements in qualitative, non-financial data by evaluating the consistency, transparency, and reliability of the underlying information”. (C1)

“Stakeholder feedback and materiality assessments help identify high-risk areas”. (B1)

Respondents B2, C2, D2 and D3 underscored the importance of making sustainability disclosures adhere to internationally recognized reporting frameworks which include GRI, ESRS and CSRD. The alignment process improves both the credibility and comparison potential of qualitative disclosures while addressing changing regulatory and stakeholder expectations for clients' reporting. Through multiple assessment techniques organizations implement a risk-based approach which strengthens sustainability assurance efforts.

“The adequacy and clarity of the methodology used to collect and report qualitative data is also assessed for reliability and consistency”. (D2)

“We integrate Finnish regulatory expectations and EU CSRD requirements to ensure relevance.” (C2)

“For example, when assessing completeness, if a company makes certain claims, we must ensure they have included all relevant entities, such as subsidiaries. We then verify their calculations as part of the assessment process. If the company has performed estimations or used an established methodology, we independently recalculate the reported KPIs to confirm their accuracy.”. (B2)

4.2 Challenges Encountered by Big-4 when Carrying out SRA

4.2.1 Data Quality and Standardization Issues

Every respondent admitted the difficulties that come with assessing sustainability disclosure content. The respondents worked in different departments and industry areas and hence provided distinct understandings and professional experiences. One of the main obstacles to sustainability assurance is inconsistent data quality explained by Respondent C2 who holds the title of Regional Assurance Managing Partner for accounting firm C in the Nordics and continues to work with clients directly. He pointed out that this issue mostly affects manufacturing and forestry businesses. The absence of standardization affects sustainability data quality through incomplete methods of data collection and reporting frameworks and unverified information disclosures. The combination of vague audit tracking systems with indirect measurement methods exposes audits to higher risks of recorded errors alongside incorrect documentation which intensifies expert judgment requirements in assurance processes.

“The broad spectrum of sustainability reporting assurance goes beyond just monetary figures”. (C2)

Respondents A2 and B1 acknowledge they actively prompt clients toward developing meaningful relevant indicators. The absence of established industry standards results in the absence of definite guidance regarding required actions. The auditors can guide improvements but client transparency regarding methodology and limitations allows them no strict enforcement mechanisms for sample selection. When companies provide detailed descriptions about their methodologies and specify coverage levels, auditors will accept and endorse the reporting.

The perspectives on reporting from auditors and stakeholders are significant to Respondents B2 and D2. Auditors focus on checking if the company presents its methodology in a clear manner and this provides sufficient validity for their assurance tasks. Analysis from stakeholder viewpoint reveals that companies claiming to track similar metrics through their reporting systems could present meaningful variations because of methodological discrepancies. Lack of Standardized guidelines and metrics together with consistent procedures across the industry represent one of the largest obstacles sustainability assurance has to overcome right now as emphasized by the respondents.

“It is indeed a complex issue.” (B1)

“You can't easily compare two companies because there are no standard accounting policies or procedures. Often, two companies might report on the same KPI or metric but use different methodologies for calculating it, making their results incomparable.” (B2)

“The evolving regulatory landscape, such as the CSRD, adds complexity.” (D2)

4.2.2 Assuring Qualitative and Subjective Information

According to respondent C1 the validation process for subjective sustainability data proves more challenging than traditional financial audits because of its natural subjectivity. The assurance process demands novel professional competencies which focus on understanding context and ensuring alignment between sustainability strategies. Qualitative information demands advanced professional interpretation skills due to its inherently subjective nature. An assurance system designed for sustainable disclosures needs to promote transparent and balanced communication which provides meaningful and relevant information to all stakeholders.

“Validating qualitative data requires a more judgment-based, contextual approach but still grounded in evidence and documentation”. (C1)

When asked about auditor accountability, respondent B1 declared auditors must address all types of topics whether financial or non-financial. The compensation arrangement between auditors and their audit clients creates potential biases because auditors are directly paid by these companies. Auditors perform exhaustive and trustworthy reviews through comprehensive issue detection which reflects the depth of their professional work. The requirement to meet deadlines also means auditors need to work collaboratively with clients in order to solve issues quickly. Financial matters often dominate when issues arise because they occupy a more institutionalized position as well as attracting higher priority status. Non-financial issues tend to get less emphasis during integrated audits.

“There’s always a balance to strike:” (B1)

4.2.3 Internal Controls and Governance Structures

Respondent D1 and D3 both highlighted that insufficient ESG metric internal control systems create challenges in verifying sustainable information reporting with certainty. The internal control measures standard in financial auditing do not match the manual processing and scattered governance mechanisms that sustain data collection. Lack of formal controls within ESG metrics creates many possibilities for errors as well as estimation biases and incomplete disclosures. In such cases assurance providers draw upon professional expertise while using supplementary evidence to establish solid bases for their assurance statements.

“This inconsistency makes it difficult to form a clear, aggregated view of an organization’s ESG performance”. (D1)

4.2.4 Gaps in Reporting Standards and Metrics

The respondents from the accounting firm C emphasized the difficulties that emerge when sustainability metrics and reporting frameworks lack commonly agreed operational guidelines. The assessment of sustainability information faces obstacles because of inconsistent data collection methods together with qualitative disclosures that inherently depend on subjective interpretations according to respondent C1. Different approaches used in different departments and business units create data inconsistencies which complicates the assurance process. The assessment process requires assessors to verify the fairness and balance of internal interpretations contained within disclosures because subjective elements of strategic narratives make objective verification difficult. Meanwhile, to respondent C2, incomplete data frequently presents itself as a widespread problem within Finnish SMEs when reporting on complex areas such as Scope 3 emissions and biodiversity due to inadequate

data precision and transparency. Respondent B1 works with clients to establish significant measurement tools but acknowledges that lacking standardized industry standards creates obstacles in this process. Auditors can motivate clients to enhance disclosure practices, yet such push gets less effective when firms showcase clear reporting methods and their known restrictions. Auditors will approve reporting when companies explain their approach and quantify both the range of their impact coverage and reporting scope correctly.

“Difficulty accessing complete or reliable data”. (C1)

“Yes, I’d say the biggest current challenge is adapting to the shift toward CSRD and building the necessary competencies both within our firm and on the client side. Since it’s a new requirement, there’s no clear benchmark yet, making it difficult for both us and our clients to navigate. The volume of new regulations is substantial, and although we receive a lot of training, it takes time to fully understand the standards and know exactly what we’re auditing.” (C1)

“It is indeed complicated”. (B1)

4.2.5 Knowledge Gaps and Resistance to Change

According to respondent C2, the process analysis shows that sustainability reporting remains at its beginning stages which causes senior auditors to not fully grasp its value yet which restricts the growth of non-financial assurance services internally. The performance of high-quality non-financial audits requires specialized training and expertise which currently remains lacking in the field. The respondent further emphasized that the main obstacle in sustainability assurance stems from the risk elements inherent in sustainability reporting which produce a mismatch between expectations and reality. The absence of reasonable assurance marks sustainability assurance unlike financial audits because it relies on scant evidence along with qualitative and assumption-based assessments.

According to sustainability services expert respondent C1, most auditors treated sustainability reporting as isolated from their primary responsibilities and did not show much interest. Senior colleagues demonstrate limited understanding about sustainability being integral to the complete audit process. Auditors usually focused on swift progress without making substantial resource investments into sustainability issues.

Respondent A1 noticed that sustainability has become a key priority within organizations compared to the past. The Omnibus proposal uncertainty along with EU ongoing CSRD implementation discussions have resulted in continuing client operational uncertainties. The outcome shows that new sustainability reporting fields such as biodiversity which lack well-established protocols are negatively impacted because of insufficient planning and resource distribution.

“How well it is understood what it actually means when we provide a reasonable assurance or limited assurance opinion, and what it does not mean”. (C2)

“Yeah, I think there used to be some differences in opinion”. (C1)

I think about a year ago, there was also some hesitation among partners to even bring up the topic of increasing the client’s budget for sustainability reporting. (C1)

“It was more about just ticking boxes and moving on”. (C1)

“Regarding biodiversity as a theme, I would say the main challenges are the general lack of understanding about the importance of biodiversity, as well as a lack of knowledge on how to track it and assess the impact business activities have on nature. I think awareness is improving, but overall, there is still significantly less knowledge about this topic compared to areas like climate accounting.”

(A1)

However, despite the challenges to SRA, the Big-4 accounting firm implemented different strategies to handle the problems of sustainability assurance data quality together with standardization issues according to survey respondents. The assurance process begins with early engagement and identification of risk which results in enhanced understanding of client-operated data systems according to respondent B1. Applying preventative measures allows organizations to detect reporting flaws in advance and minimize delays in needed corrective actions.

“We begin by engaging early with clients to thoroughly understand their data collection processes”.
(B1)

Additionally, respondent A1 stressed that building both training programs and policies plays an essential role in sustainability assurance. The basic sustainability assurance training process is strong but provides insufficient details regarding specific measures for biodiversity conservation. Additional training programs with precise objectives should be implemented to advance staff understanding throughout less developed areas. Internal training programs have enabled respondent C1 to explain how knowledge transfer occurs throughout the Swedish department network. The quality of assurance work receives enhancement through firm-wide collaboration according to their description. They emphasized that involving specialists during engagements produces better quality results.

“Nevertheless, we do have modules that cover different areas of sustainability, including biodiversity. For example, as of yesterday, we had specialized training on how to conduct assurance engagements according to the new E4 standard”. (A1)

“I think the biggest thing we do is the training as I mentioned, like trying to share competences within ourselves”. (C1)

Respondent B1 discussed the challenge financial accountants face when evaluating sustainability reports because these topics remain less established which leads to limited expertise with the material. Financial auditors require extensive education about all sustainability topics because they serve as assessors of sustainability reports in their client evaluations. The team builds foundational knowledge using e-learning tools together with classroom instruction as explained by Respondent B1. The firm conducts an annual summer school dedicated to detailed sustainability education. The firm supports general training initiatives through a specialized team dedicated to sustainability assurance activities. Sustainability assignments within engagement teams are led by multiple specialists who direct sustainability work together with financial auditors during the process.

“Yes, I think it definitely requires specific expertise.” (B1)

Furthermore, to respondent A1, it is vital to develop assessment skills which allow critical evaluation of company sustainability reports while identifying risks and performing effective disclosure challenges. The delivery of high-quality assurance reports and field progression in sustainability assurance depends heavily on more experience as well as enhanced expertise.

“I would say that, as an industry, we need to improve our own education and deepen our understanding particularly when it comes to less matured areas.” (A1)

4.3 Opportunities/Benefits Encountered by Big-4 firms for carrying out SRA

4.3.1 Economic Benefits

Respondents emphasized sustainability assurance's critical role in today's business landscape together with its resulting strategic options. Respondent C1 stated that senior partners at his firm have begun to understand sustainability as a fundamental corporate value. The firm takes advantage of this strategic

move to provide financial assurance services along with non-financial assurance which drives multiple revenue streams while fueling business development. This is consistent with Respondent B2 who emphasizes that the sustainable assurance segment of professional services is experiencing rapid growth because of increasing stakeholder demands and investor needs. Accounting firms that establish strong expertise and capability in this field will secure long-lasting recurring income from present and future clients.

“I think the most obvious reason firms pursue sustainability assurance work is the monetary benefit”.
(B2)

The accounting firm's sustainability assurance sector has experienced significant expansion due to rising requirements for transparent and credible ESG disclosure which results from EU CSRD framework enforcement. The accounting firm sustainability momentum finds new support from their strategic alliances with SAP (Systems, Applications, and Products in Data Processing) and other entities that aim to enhance sustainability reporting solutions. The accounting firm demonstrates sustainable value through its proprietary software tool that delivers complete solutions which assist businesses in their sustainability efforts and drive innovative development. Respondent C2 observed how sustainable audit services operate within the market structure since large multinational companies primarily select the Big-4 while smaller service providers deliver sustainable audits to SMEs. Regulatory data show there exists a distinct split in the market where major companies operate alongside specialized providers which maintain different service levels according to client size and sophistication.

4.3.2 Market Share

The growth segment for strategic sustainability assurance represents an essential priority mentioned by Respondent D3. European businesses face growing demand for assurance activities under the CSRD and worldwide compliance standards continue to develop alongside rising stakeholder requirements. Accounting firms see sustainability assurance as a means to gain new streams of revenue and establish advisory services differentiation whereas it also supports lasting partnerships with clients. C1 also highlighted how a shift in senior management perception of sustainability enabled an increment in growth and expansion of their sustainability assurance team.

“It is a fast-growing segment, especially with emerging mandatory assurance under EU CSRD.” (D3)

“Our Climate Change and Sustainability Services team is expanding rapidly, with over 3,400 professionals globally dedicated to ESG-related services”. (C1)

The market share distributions reveal that no single company exceeds the 30% threshold and therefore maintains less than 40% or 50% dominance. Each firm exists in a balanced competitive position because no single entity controls more than 30% market share. This trend in sustainability assurance aligns with financial audit practices because audit teams perform both financial and sustainability audits for their clients which leads to both firm and client convenience.

The CSRD departed from previous sustainability reporting practices where companies could decide whether to report voluntarily, says Respondent C2. Since the introduction of independence requirements, accounting firms must separate consultation services from assurance activities relating to sustainability reports. The requirement for independent accounting firms creates difficulties for clients because they must deal with dual providers even when independence standards remain in place resulting in many clients selecting one provider for all services. EU rules require audit firm rotation following a 10-year term although clients can request to extend it to 20 years based on specific criteria according to Respondent C2. An extended relationship between audit firms and clients enables deeper client understanding which improves the consistency and quality of financial and sustainability assurance services.

“So, while market share remains relatively stable at around 25%, this rotation ensures periodic changes in audit firms, maintaining a competitive balance in the market”. (C2)

Under EU policy the requirement for a 10-year assurance engagement creates enduring alliances between clients and assurance providers. The extended relationships built through long-term assurance programs enable providers to develop enhanced trust while facilitating collaboration while comprehensively tracking client sustainability development according to Respondent C1.

“Offering sustainability assurance strengthens client relationships by enhancing trust and credibility in their non-financial disclosures, positioning us as a strategic partner in their sustainability journey”. (C1)

4.3.3 Reputation Reinforcement

B1 explained how sustainability assurance services fit the firm's purpose of building trust in society and simultaneously strengthening its reputation while adding value through talent acquisition and client retention with customers who focus on ESG. The accounting firm uses its strategic approach to seize business opportunities related to sustainable practices which are rising across global markets. B1 indicated how sustainability assurance services provide strategic value that enhances firm credibility in the expanding market as an advisor trusted by clients. Strong regulatory changes within the CSRD framework and rising client needs for trustworthy ESG disclosures drive this process.

“This strategic focus positions us to capitalize on the increasing global emphasis on sustainable business practices.” (B1)

However, accounting firm C sets itself apart from competitors through extensive ESG performance analytics delivering superior value to clients which might result in extended 10-year customer relationships. Long-term client relationships present risks of developing conflicts of interest which become a potential disadvantage despite providing strategic benefits.

“A conflict of interest arises if the company were to audit work it has previously assisted in preparing”. (C1)

“Assurance providers must remain independent, which means we are not allowed to prepare or assist in preparing the company’s sustainability reporting. Independence rules strictly prohibit auditors from auditing their own work”. (C2)

To mitigate this risk, both respondents from Company C emphasized that the firm ensures auditor independence is maintained by strictly adhering to professional standards and ethical guidelines.

“We separate sustainability assurance from other advisory services to avoid conflicts of interest, ensuring that our work remains objective and impartial, in line with both regulatory requirements and our internal policies”. (C1)

“This clear separation of advisory and assurance roles ensures objectivity and maintains trust in the assurance process”. (C2)

Respondent B2 emphasized that the dual role of auditing and advising creates many business opportunities, especially with complex topics like biodiversity or sustainability in general. This suggests that their strong market position stems from clients appreciating their insights when recommendations are provided, they are audit-compliant, giving clients confidence that their sustainability disclosures will withstand external scrutiny. However, there are strict rules that prohibit auditors from advising clients in ways that would lead them to audit their own work. To manage this carefully, ethical safeguards are implemented by categorizing clients into two distinct groups.

“Channel One, which includes our audit clients, and Channel Two, which includes non-audit clients”.
(B2)

Respondent A1 claims that employing the same service provider for assurance does not create conflicts because evaluation functions operate separately and maintain strict privacy boundaries. A1 indicates that having one provider handle both assurance and implementation functions provides valid support for combined service delivery. We reformulated our initial question to determine if evaluative advice is incorporated within assurance procedures. A1 clarified that audit and assurance work includes limited guidance but not advice seeking. Auditors expose deficiencies and non-compliance points within sustainability practices but do not offer guidance to enhance future performance. Auditors signal weaknesses by noting the absence of key performance indicators (KPIs) and required standards. They furnish essential information but refrain from presenting recommendations regarding needed KPI selection along with design specifications. The identification of requirements and gaps alongside a deliberate avoidance of solution recommendations constitutes a vital boundary for auditors to maintain their professional independence.

“Their role is to communicate what needs to be addressed, not how to implement it.” (A1)

According to Respondent A2 their main task consists of verifying a client's sustainability report's accuracy and reliability while refraining from direct input on report content. During and after assurance engagements, professionals offer recommendations that support clients in enhancing their reporting content and decision-making while maintaining professional independence. Professionals follow rigorous procedures to sustain their independent status which both ISAE 3000 standard and professional ethics regulations require.

“In some cases, advisory services are provided separately by the firm’s consulting teams.” (A2)

“A long-term relationship can enhance audit quality by providing deeper insights into the client’s operations”. (A2)

Respondent B2 highlighted that sustainability assurance presents strategic opportunities and opens doors for future business. This suggests that, for example, if a firm already has an audit relationship with a client and that client needs support in developing sustainability strategies, it creates opportunities to offer additional services. Being their auditor helps build strong relationships, which often lead to more work over time. B2 further emphasized that expanding involvement with clients where appropriate supports overall business growth. While the firm’s largest client base remains on the assurance side, since they are auditors first and foremost, this position also enables them to provide advisory services. Achieving such recognition and visibility in the sustainability space would be difficult if they focused solely on assurance. Respondent B2 added that, as a result of this growth, accounting firms like C and B are increasingly being evaluated based on their performance in sustainability and are receiving industry recognition and awards.

“Presents strategic opportunities”. (B2)

“But that position also enables us to do advisory work”. (B2)

“These accolades help strengthen our market position.” (B2)

However, Respondent C2 stressed that the Big-4 firms do not need to build their reputations from scratch in this space. Respondent C2 further noted that while these firms offer a wide range of services, assurance remains at the core of what they do. This implies that their brand already conveys independence and the ability to provide trust and confidence; what changes is simply the subject matter from financial to sustainability information. While sustainability assurance may seem like a new field, it is fundamentally aligned with their long-standing role in ensuring trust in corporate reporting.

“We’re not entering a completely new business, we’re extending the principles of the trust and assurance model we’ve always been part of.” (C2)

4.3.4 Gaining More Knowledge about Sustainability

According to B1 the accountancy profession shows generalized support for having one entity verify financial and non-financial reporting. These considerations support such an approach and demonstrate both commercial advantages and operational benefits from a single review process. The absolute quality of assurance processes improves when the same team handles both financial and non-financial reporting because they understand the client's operations comprehensively. Despite inherent risks, the single-party model delivers clear advantages through enhanced efficiency and consistency while delivering superior knowledge of client operations. Many organizations endorse it as their recommended method because of its practical advantages.

“That’s why I believe many firms advocate for it as the preferred model.” (B1)

“Sustainability assurance is a strategic growth area, aligned with global sustainability regulation. It allows us to innovate and serve clients more holistically”. (D1)

“We view it as both a standalone service and an enhancer of our audit offerings, with projections showing steady growth through 2030.” (D2)

Respondent A1 explained that companies require a Big-4 firm during sustainability assurance engagements especially when examining less familiar issues. Sustainability information auditing requirements currently require the specialized expertise and dedicated teams that only Big-4 firms possess. Working with a Big-4 firm provides increased assurance and scrutiny through their auditing procedures since their auditors conduct in-depth assessments rather than surface-level inspections. The distinctive nature of sustainability reporting and emerging subject areas demands extensive competence to identify reporting flaws and contradictions.

“I’ve had clients who initially worked with smaller audit firms but eventually switched to us because they felt they weren’t being sufficiently challenged and lacked confidence in the results.” (A1)

“I also believe that using a Big-4 firm serves as a mark of quality. Our assurance reports carry more weight and offer greater credibility compared to those from smaller firms.” (A1)

4.4 Institutional Influences on the SRA Process

According to Respondent A1 the drive for sustainability assurance comes from regulatory mandates rather than immediate profit goals. “From my perspective the main benefit stems from regulatory requirements”. The demand for assurance comes clearly from the companies applying the CSRD framework and aiming to obtain assurance on their reports while this process is assumed to lead to better quality of reporting.

“I believe it’s these requirements that are actually driving the change.” (A1)

“What helps the most, in my opinion, is the regulatory push.” (A1)

In a follow-up interview question, Respondent A1 explained that Big-4 audit firms serve as the main drivers in industry-standard development. The report signature serves as an indicator to companies about proper audit procedures that enables them to enhance their practices. To properly evaluate reporting quality the Big-4 must demonstrate powerful competencies which separate unreliable information from valid reliable disclosures.

“It’s important for the Big-4 to have strong expertise so they can distinguish between poor reporting and accurate, reliable disclosures.” (A1)

The sustainability assurance field demonstrated rising levels of standardized practices according to Respondent A1's observation. The combination of company-specific differences and global partnership efforts driven through standards and expectations reveals increasing uniformity in sustainability assurance practices. An alignment of methods among Big-4 firms takes place through their shared utilization of ESG analytics tools and standardized approaches to risk evaluation along with reporting practices.

“Yes, I’ve observed increasing standardization and similarities in sustainability assurance practices across the Big-4 globally.” (A1)

The Big-4 firms experience rising worldwide uniformity in their sustainability assurance practices based on current findings from Respondent D1. Sustainability assurance alignment primarily results from three factors including the CSRD regulatory frameworks and the development of ISAE 3000 professional assurance standards and the requirement of multinational clients seeking uniform audit quality and reporting standards in different jurisdictions. The Big-4 companies continue to standardize their internal assurance approaches and unify reporting terms while standardizing the delivery formats of their assurance products. Global coherence standards enable stakeholders to have better cross-border comparison capabilities while improving internal training and resource sharing operations and developing entity-specific tools and templates.

“This alignment is largely driven by regulatory frameworks such as the CSRD, evolving professional assurance standards like ISAE 3000, and the shared multinational clients who seek consistency in audit quality.” (D1)

Respondent A2 emphasized how the ethical requirements of their field together with peer-established industry rules drive their work-related pressures. Professional standards present sufficient pressure which pushes assurance providers to maintain rigorous quality standards and consistent delivery and reliable credibility levels. The company takes part in industry gatherings and enhances internal training and technology investments to maintain staff professional capabilities.

“These pressures drive assurance providers to uphold quality, consistency, and credibility.” (A2)

Respondent B2 highlighted that the Big Four do meet and collaborate. This implies that if there is something that needs to be standardized even if it’s not legally required it is discussed among firms in an effort to reach a consensus on what should be accepted from an audit perspective, given that no audit guidelines are currently mandated by law. For instance, in Denmark, there are industry associations that play a role. One such group is the Danish Industry Association, which includes members from various industries and trade unions. They possess significant insight into how different sectors operate, and there is collaboration between them and the auditors. This allows auditors to gain a better understanding of what could constitute a standardized report, especially when a certain type of information is being reported by many companies.

“In such cases, we try to align our thinking and determine the most appropriate audit approach.” (B2)

The practice of sustainability reporting is expected to develop further because colleagues establish foundational knowledge about sustainability, according to Respondent B1. The Big-4 possess great potential to standardize less standardized fields like biodiversity reporting. The current absence of standardized processes provides the Big-4 with positioning power to direct organizations towards delivering sustainable information with enhanced quality and unified measurement standards.

“So, I think we’ll see sustainability reporting become increasingly common.” (B1)

The scope of work expanded continuously for respondent C1 because they now concentrate on EU Taxonomy and CSRD implementations. The project has extended its operations past confirming the presence of sustainability reports and their compliance with Swedish Annual Accounts Act requirements. The work now requires auditors to conduct in-depth assessments of EU-level regulations. Auditors now need to analyze data alongside organizational processes and sustainability narrative sections because the sustainability assurance landscape continues evolving into deeper reporting assessments that move past basic compliance verification.

“The work has expanded significantly and is focusing on EU Taxonomy and the CSRD”. (C1)

Respondent C2 emphasized that with the introduction of the CSRD in the EU recently enacted and adopted by member states the landscape has significantly changed. This implies that the CSRD is now mandatory for large public-interest entities within the EU, and the associated ESRS have become the primary reporting standards. As a result, the majority of audit or review work related to sustainability reporting now involves auditing or reviewing CSRD-aligned reports. Within the CSRD, the concept of double materiality determines which ESRS standards are relevant for each company. However, the requirement under the CSRD is for limited assurance, not reasonable assurance as applied to financial statements. Limited assurance represents a lower level of assurance and is currently conducted under the ISAE 3000 standard. This suggests that firms are being influenced by both regulatory and professional pressures.

“The introduction of the CSRD in the EU, the landscape has changed; however limited assurance is a lower level of assurance and is currently based on the ISAE 3000 standard.” (C2)

5. Discussion

5.1 Overview of the Discussion.

Our empirical findings and analysis, based on interviews with nine professionals from different Big-4 accounting firms in different European countries, revealed several key insights, some of which are consistent across responses, while others reflect differing approaches. Firstly, most of the Big-4 accounting firms interviewed follow a range from 3 steps to 7 steps in their sustainability assurance process. However, this does not indicate a lack of resources or expertise. Given that companies across various industries adopt different reporting frameworks and standards (Elliot et al., 2024; Boiral et al., 2017), Big-4 auditors are required to continuously expand their knowledge and expertise to keep pace with evolving trends. Furthermore, the variability in the number of steps taken in the assurance process among the Big-4 firms can be attributed to the aspect of the Big-4 knowing that the assurance is of significance to the stakeholders or the organisations and the extent to which this significance is to be reflected in the assurance which is consistent with the perspective of GRI (2013). According to the Empirical material, they assess the risk of misstatements in qualitative non-financial data by evaluating the consistency, transparency, and reliability of the information disclosed by the audited companies. Secondly, all interviewees acknowledged challenges in the assurance process, particularly the lack of concrete, industry-wide sustainability assurance (SA) standards that allow for comparability. Due to the subjective nature of non-financial data, auditors rely on their professional judgment, flexibility, and expertise with various frameworks and standards to form an opinion on the company's disclosures. That is, the criteria for evaluating narrative disclosures in sustainability reports remain underdeveloped (O'Dwyer, 2011; Cohen & Simnett, 2015). However, the interviewees also outlined specific approaches used to mitigate these challenges. Thirdly, the interviewees identified several opportunities and benefits in providing both financial and non-financial assurance services most notably economic incentives (Comyns et al., 2013; O'Dwyer et al., 2011; Orazalin and Mahmood, 2019). While no conflicts of interest were found in offering both services, the interviewees emphasized the importance of addressing ethical considerations to preserve auditors independence. Finally, we observed differing views on the institutional pressures driving change. The results indicate that regulatory (coercive) and professional (normative) pressures are the main drivers, whereas mimetic pressures appear to be relatively weak.

5.2 The Processes and Methodologies of SRA

Step 1: Engagement Acceptance and Planning. The empirical findings reveal that the Big-4 accounting firms begin the sustainability assurance process with an engagement acceptance and planning. This entails that when the Big-4 firms receive a contract to offer their services or carry out a sustainability assurance, they (Big-4s) have to first assess whether to accept the engagement by considering factors like the integrity of the client, their own competence, resources and their independence (avoid conflict of interest). After this process, they (Big-4s) define the objectives, the assurance level and the standards of the assurance process. This is consistent with "the identification of basic assurance principles" (Step 2) of Yan et al., (2022). The step 1 in the empirical findings differs with that in the empirical material. This is due to step 1 in the empirical material being adopted from the perspective of the reporting firm who needs to first of all begin by selecting an assurance provider while step 1 in the empirical findings is adopted from the perspective of an assurance provider. The definition of the objectives, standards and the assurance level is heavily influenced by the logic of instrumentality (coercive isomorphism) Scott (2014). This implies the Big-4s would follow the objectives given to them by the reporting firm who have been in consultation with their stakeholders, the level of assurance set by the CSRD (Balsmeier & Vanhaverbeke, 2018) and the standards provided by the standard setters (GRI guidelines, AccountAbility and IAASB). The logic of appropriateness (Normative isomorphism) Scott (2014) would minimally influence the Big-4s in

selecting and applying the standards. This implies their own professional knowledge is needed to either select from the standards provided by standard setters or combine the standards.

Step 2: Understanding The Client's Processes, Controls and Risk Assessment. The empirical findings showed that the Big-4s carry out interviews with client's management, reviewed data collection and reporting processes (governance structure, data management system and internal control for ESG metrics). This enables the Big-4s to properly verify the content of their client's sustainability report guided by the objectives, standards and assurance level from the previous step (Yan et al, 2022). They establish the scope of the assurance by determining what is to be included or not to be included based on their professional expertise. They proceed by assessing risk through identifying risk of material misstatement (qualitative and quantitative). This is consistent with verification of the content (step 3) of Yan et al., (2022). The logic of appropriateness Scott (2014) which implies that normative isomorphism enables the Big-4s to determine the scope of verification content due to their educational background. Also, since risk assessment requires professional judgements (Power 1996, 1997b), normative isomorphism would enable the Big-4s to carry out the risk assessment in this step. The main consideration of the Big-4 firms is to align the clients' report with national requirements and EU standards.

In step 3: Evidence Gathering and Testing. The empirical findings revealed that The Big-4 firms first gather evidence in this step to validate (Hummel et al., 2017; Wallage, 2000) the information obtained. This is done by visiting the sites of their clients, virtual inspections (Gillet, 2012; Channuntapipat et al., 2019; Boiral et al., 2018) and by having confirmation from third parties. Furthermore, the appropriateness of the client's reporting criteria such as the GRI standards and SASB is assessed to double check whether disclosures align with frameworks such as EU CSRD. Secondly they carry on testing (Maroun, 2017 and Prinsloo & Maroun, 2020) by applying analytical procedures and inquiries to achieve data reliability, accuracy and completeness. What is done in this step by the Big-4 firms is consistent with the "validation of verification method" (step 4) of Yan et al., (2022). According to Scott (2014), the logic of appropriateness (normative isomorphism) is the underlying logic that permits the Big-4s to be able to carry out all the activities that this step requires. This is because of the intelligence that they have acquired from the same training/education and seminars or associations.

In step 4: Evaluation and Analysis. The empirical results show that for the purpose of transparency, the Big-4 firms carry out an evaluation of the test findings from the previous step. This entails that evaluations are done for misstatement or control deficiencies. Additionally, they (Big-4s) discuss any issue(s) found with the client in relation to relevant reporting standards such as GRI and ESRS. This step is not consistent with Yan et al., (2022). This step is new and important as it permits the Big-4s to also focus on evaluative approaches and attempt to provide discussions on completeness, fairness and overall balance rather than merely verifying data collection procedures (O'Dwyer and Owen, 2005). The logic of appropriateness (normative isomorphism) and orthodoxy (mimetic isomorphism) according to Scott (2014), enables the Big-4s to perfectly carry out this step. This is because with their professional background and educational knowledge, they can apply the necessary measures needed to evaluate the findings. Since the consultancy firms are practically good in evaluative approaches, they can adopt by mimicking some practices from them.

In step 5: Issue Identification and Resolution. The empirical results reveal that after the analysis has been done in the previous step, the Big-4s would want to address findings that have been identified by documenting misstatements or identify non-compliance issues in the previous steps but be mindful of their independence. All the identified issues are then discussed with the clients and the provision of recommendations for corrections or how the processes would be improved. Significant issues can also be taken to senior management or audit committee if there is possibility. This is not consistent with any of the steps advanced by Yan et al., (2022). This step is also new and significant in the sustainability assurance process, as it enables the Big-4 firms to adopt more strategic approaches such as identification and resolution and contributes to an increase in the variety of approaches used by accounting firms. This aligns with consultancy firms, which typically employ a broader range of

methods due to their use of the AA1000AS standard (Yan et al., 2022) As the Big-4s are capable of combining ISAE3000 and AA1000AS (Manetti and Toccafondi, 2012), it implies they can apply the AA1000AS in this step. The logic of instrumentality (coercive isomorphism), appropriateness (normative isomorphism) and orthodoxy (mimetic isomorphism) Scott (2014) enables the Big-4s to achieve this step. By instrumentality, the Big-4s follow the instructions of the standards, by appropriateness, they use their professional background gained from their education and associations to apply the standards and at a very minimal level of mimicking adopted from the consultancies on how to apply the standards.

In step 6 Conclusion and Communication. According to the empirical results, at this step, the Big-4s conclude whether the sustainability data is material misstatement free or not based on the gathered evidence. For limited assurance as the case normally is, they provide a negative assurance statement such as “Nothing has come to our attention” and the assurance report is prepared with respect to national and international standards and includes the scope of the assurance, performed procedures and a conclusion which is tailored towards the reporting requirement of the client. Additionally, the Big-4s communicate the findings to client management and if applicable to the audit committee and also highlight recommendations for improving the quality of data. This step is consistent with “ Evaluation of Assurance “ step 5 of Yan et al., (2022). The logic of instrumentality (coercive isomorphism) Scott (2014) heavily enables the Big-4s to carry out this step by strictly following the national and international standards when preparing the assurance reports. The logic of appropriateness Scott (2014) minimally influences the Big-4s as they require professional and educational background knowledge to interpret or understand the standards, and the reporting requirement of the reporting clients.

In step 7: Follow-up and Continuous Improvement. The empirical results reveal that the Big-4s carry out a post-engagement activity where they provide feedback to the clients with the aim of strengthening the client’s sustainability reporting process such as data automation enhancement or their engagement with stakeholders. The Big-4s also conduct their own personal internal reviews on how to re-shape their methodologies, take-in lessons learned during the process and updates to standards and regulations especially when there is an evolving EU sustainability reporting requirement. This step is not at all in the process outlined by Yan et al., (2022). However, for the Big-4s, it is considered important for the reporting organisation due to the valuable guidance provided by the assurors (O’Dwyer et al., 2011 and Gillet, 2012). This step is influenced by the logic of appropriateness (normative isomorphism) Scott (2014). This implies, the Big-4s would use their professional and educational background training to give their clients feedback about their sustainability reporting processes and at the same time re-examine their own methodologies with respect to evolving standards and regulations.

5.3 The Challenges faced by the Big-4 firm during SRA

Numerous difficulties linked to sustainability assurance processes present great challenges to auditors. The outcomes revealed some issues with standardization of reporting frameworks, inconsistencies in data and subjectivity of the qualitative disclosure especially in developing areas like biodiversity and Scope 3 emissions and the requirements for professionals’ competencies focusing on contextual understanding and congruence with sustainability strategies. These findings are in line with Boiral et al. (2017), which highlights how the lack of standards and consistency in disclosure methods not only affects the quality and credibility of sustainability disclosures but the past literature by Elliot et al. (2024), which demonstrates the complexities in effective communication of corporate sustainability impacts using reporting processes. This implies that there is a lot of professional judgment used by the Big-4 firms and they tend to tailor the methodologies of financial audits to non-financial situations. Additionally, these restrictions highlight the need for stronger methodologies and a more articulated assurance system to enhance the reliability and consistency of sustainability assurance practices. From the standpoint of stakeholders, auditors will need to determine the level of involvement initiatives. Although two companies report the same KPI or metric, they may vary widely should there be different methodologies used to compute them, making the results incomparable. These results align

to those obtained by Elliot et al. (2024), where such discrepancies in the assurance process may compromise stakeholder confidence in the information provided. Such an observation is corroborated by Moses & Yahaya (2024), who state that even in the cases where companies reveal sustainability information, such revelation does not necessarily translate into real actions during the SRA process. The contrast may result from the fact that the methodological details required to interpret data variations are not analyzed by numerous readers. With the limited nature of sustainability assurance (rather than reasonable assurance), readers should put emphasis on the methodical approach followed when conducting the assurance process rather than focus only on end results for comparability.

Accounting firms adapt flexible assurance processes to match the reporting systems used by their client organizations. Similar results were obtained by (Deegan et al., 2006) which the authors underscore that different objectives are agreed on in different engagements by the reporting organisation. This means that the clients engage with their stakeholder to ensure that the goals and scope of their disclosures fits the priorities and expectations of its key stakeholders. However, some previously literatures suggested otherwise as (GRI, 2013) underscores that external assurance should be for enhancement of the report user's confidence in relation to sustainability performance of the audited company; (Romero et al, 2014), emphasizes that, assurance practices is to give guidance on economic activities by improving the credibility of information rather than protection of the interests of stakeholders; (Hoang & Trotman, 2021) highlighted that, the purpose of sustainability assurance is to play a monitoring role so as to reduce the opportunistic behaviour of managers. This implies that different authors have different views regarding the objectivity of sustainability assurance practices, but nevertheless sustainability assurance practices should consider the impact of the business on the environment and improve the credibility, reliability and transparency of the information which builds trust between stakeholders and businesses. The compensation agreement between auditors and their audit clients has potential biases since they are directly compensated by the companies. To expand, Ball et al. (2000) advocated that it was possible to alter the language of opinions in statements to avoid disallowed negative wording that may lead to a lack of clear opinions. This implies that as a result of the returns generated to the accounting firm and the cutthroat nature of the assurance market, firms may be tempted to produce a favourable opinion on the client's disclosure. Additionally, according to the results, firms pay attention to post-engagement actions, such as improvement recommendations and compliance aid for regulation, while polishing the internal methodologies to outline a dedication to ongoing improvement and client assistance once the assurance has been delivered. Similar findings were also found by Albersmeier et al. (2009) and Channuntapipat et al. (2019) who noted that assurors should also produce a private statement document that addresses the potential and real risks as well as room for improvement to improve corporate sustainability performance. This goes on to imply a strong association between firm-client loyalty relationship after engagement, which presents a risk of familiarity threat.

However, improved standardization, starting the assurance process early to enable complete client engagement, building training programs and policies with clear objectives, and involving specialists during engagements lead to better quality results. Similar findings were reported in previous literature by Elliot et al. (2024) and Boiral et al. (2017), which emphasize the need for improved frameworks and standardized approaches in sustainability reporting assurance. Further approaches must be implemented to mitigate the challenges. This suggests that while standardization as a regulatory approach is important, it is not sufficient on its own. The general knowledge of all staff, especially in the financial department, as well as the specialist skills required, particularly in less mature areas, are more critical for executing the SA process.

5.4 Opportunities/Benefits encountered by Big-4 firms for carrying out SRA

In this context, the Big-4 accounting firms have created opportunities for themselves by establishing independent departments within their consulting teams to advise clients on sustainability reporting, which benefits the firms. The empirical findings highlight that Big-4s have positioned themselves to capture the strategic potential of both financial and sustainability assurance. The results widely acknowledge that integrating sustainability services into their broader audit portfolios has opened new

revenue streams and enhanced firm competitiveness. This aligns with previous literature by Comyns et al. (2013), O'Dwyer et al. (2011), and Orazalin and Mahmood (2019), which suggest that such integration will both enhance their reputation and increase their income. Fernandez-Feijoo et al. (2016) also highlighted in their studies that the Big-4s have the opportunity to leverage the networks of their financial audit clients to gain a foothold in the assurance market. However, there is a difference in opinion in our empirical material, as the Big4 firms do not need to build their reputation from scratch; their brand already speaks for itself, conveying independence and the ability to provide trust and confidence. This implies that in the third-party sustainability assurance market, regulations and policies have enabled the provision of both services. Due to their size, reputation, and resources, accounting firms hold a competitive advantage over non-accounting firms, which brings them more economic benefits. However, due to their conflicting role, the big four should be extra cautious with regards to the perceived conflicts of interest. Empirical findings describe strong internal controls and ethical mechanisms to ensure independence, but the use of a single firm for both financial and non-financial assurance has been established as a danger factor in prior literature by Boyd (2004), Reiter and Williams (2004), and Sethi et al. (2017), which highlights fears regarding auditor independence and This means that there is a conflict of interest threat whenever auditors are auditing the reports while at the same time advising or assisting on the preparation of the reports. Auditor independence is ensured by strictly following professional standards as well as ethical guidelines.

Sustainability assurance presents strategic opportunities, opens doors for future business and helps the firm to grow and expand in the global market. These results differ from previous literature by Farooq and De Villiers (2019) and Jones and Solomon (2010), which emphasize that carrying out sustainability assurance enables the Big-4 to gain more knowledge about corporate sustainability. Power (2005) further highlighted that this endeavor involves sustained negotiations, building relationships with other stakeholders, and engaging with a variety of sustainability-related discourses. The difference can be attributed to the resources available to the Big-4, as regular training is conducted to improve staff knowledge, and they already have specialists in place for every area of assurance. This implies that the primary objective is to retain existing clients, attract potential clients, and create opportunities for their advisory teams, which are managed by their independent consulting departments. This is more of a strategic move to increase their economic benefits.

5.5 Institutional Influences on the SRA Process

Furthermore, the drivers of the Big-4 in the accounting industry are influenced by various factors, and the empirical findings show different results based on the respondents' opinions. In this section, we will highlight these differences in opinions and provide further insights from our results. The drive for sustainability assurance comes more from regulatory mandates than from immediate profit goals, and with the introduction of the CSRD in the EU, the associated ESRS have become the primary reporting standards. Similar findings were reported in previous literature by Mizruchi and Fein (1999), which emphasizes that coercive isomorphism is a key factor driving standardization. Additionally, Manetti and Toccafondi (2012) further elaborated that different assurance service standards and guidelines have been developed by various institutional bodies, ranging from not-for-profit organizations to the IAASB of the IFAC, as well as national bodies from both the accounting sector and other mixed or heterogeneous sectors. These results indicate that these standards and guidelines are part of the institutional bodies influencing the processes that practitioners adopt when conducting sustainability assurance engagements. All large public-listed companies in the EU are required to follow the same guidelines, mandatorily disclosing their sustainability reporting information to the public and stakeholders. This is backed by previous literature from (Elmghaamez and Elmagrhi, 2022), which laid a strong emphasis that the more a country is open to foreign investment and foreign trade, the greater its exposure to international best practices.

However, there is a difference in opinion as guidelines and standards are developed and implemented. The empirical results emphasize that the Big-4 audit firms serve as the main drivers in industry standard development, as professional standards exert sufficient pressure that pushes assurance providers to maintain rigorous quality standards and ensure consistent delivery and reliable credibility.

Similar findings were reported by Deegan et al. (2006a,b), which underscore that it would be appropriate for assurance providers to seek assistance from parties with various types of expertise. This acknowledgment highlights that assurance providers (the Big-4) organize seminars on topics that require standardization, especially in less mature areas, even if these topics are not legally guided by national or institutional bodies. This helps to ensure global uniformity across the industry. Similar observations were emphasized by (DiMaggio and Powell, 1983; Negash. & Lemma., 2020), which they highlighted that, the uniformity is influenced through the Big-4 amongst themselves sharing the same channel of training/education or professional networking/association. This further indicates that, for instance, the Big-4 participate in industry gatherings, enhance internal training, and invest in technology to maintain the professional capabilities of their employees.

Finally, institutional theory provides a valuable theoretical lens for understanding how the Big-4 accounting firms respond to external pressures by shaping their assurance processes to perform sustainability assurance engagements. The key influences and drivers of the sustainability assurance process are illustrated in Figure 2 below. A central concept within institutional theory is isomorphism, which explains the increasing homogeneity of organizational practices across firms and industries (DiMaggio & Powell, 1983). This suggests that Big-4 accounting firms are expected to comply with established standards and guidelines, maintain consistent professional capabilities, and, in some cases, follow similar procedures particularly when standards are not clearly defined or externally imposed. To gain trust, credibility, and, most importantly, maintain independence, ethical considerations must be integrated throughout the assurance process. These considerations refer to the standards of behavior that guide practitioners in relation to the rights of those who are the subjects of their work or affected by it (Saunders et al., 2016).

The Extended model of the Sustainability Reporting Assurance process in Big-4 firms (Figure 2) illustrates institutional pressures as the primary drivers influencing assurance providers. The center of the figure presents a revised chronological step-by-step depiction of the assurance process, offering a clearer and more detailed analysis. The right-hand side indicates issues that arise as of the assurance process. The left-hand side provides an overview of each stage of the process, while the lower section highlights the key challenges and opportunities faced by assurance providers, along with the potential benefits that may be realized.

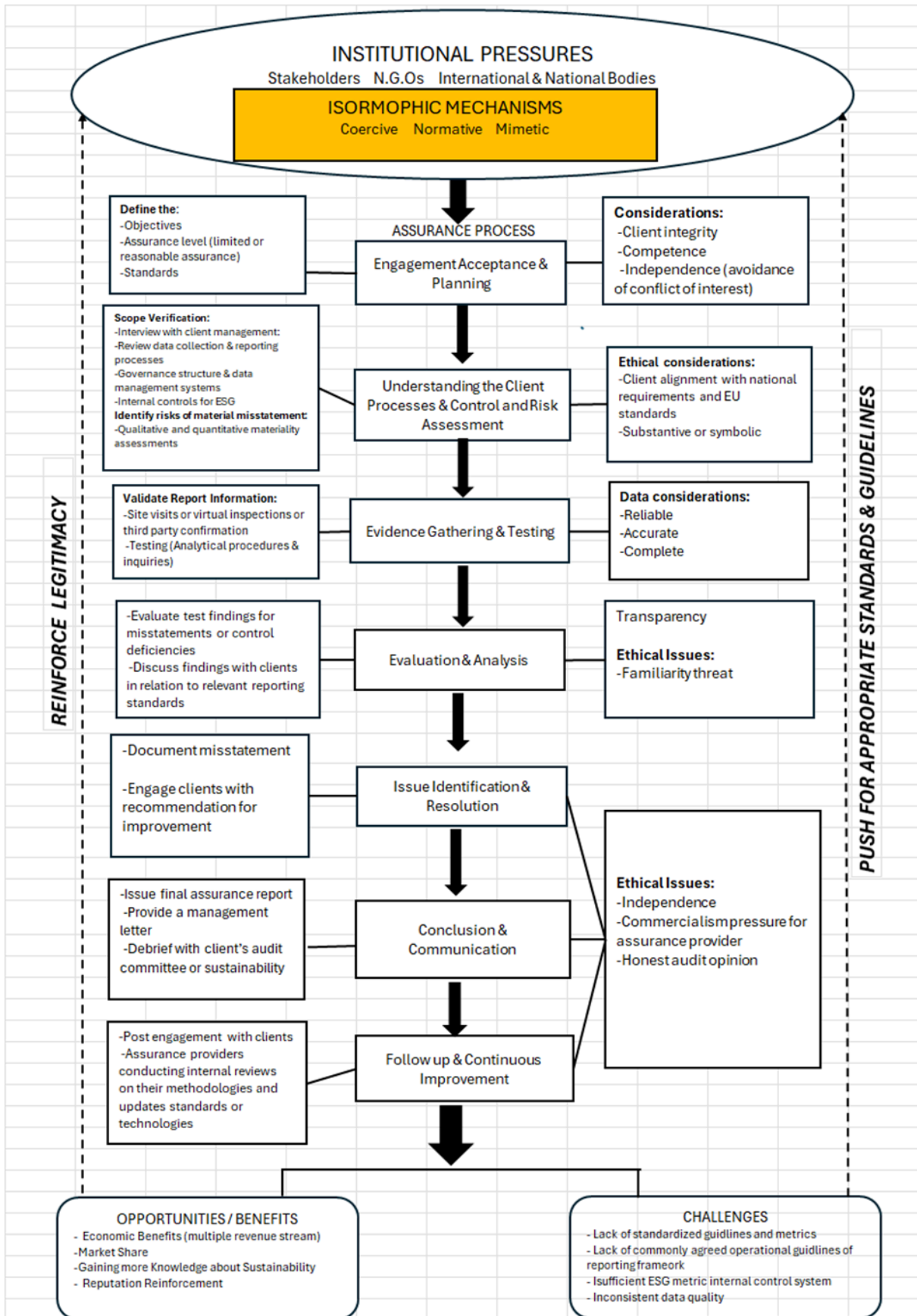


Figure 2 : Extended model of the Sustainability Reporting Assurance process in Big-4 firms
Source: Own development based on the Study's results

6. Conclusion

6.1 Concluding Remarks on Key Findings

The purpose of this study is to explore the various steps of the assurance process used by the Big-4 accounting firms in Europe when providing sustainability reporting assurance services, particularly as this practice is still in its early stages (Manetti & Toccafondi, 2012). The study also aims to explore the challenges and opportunities these firms encounter during the process. To answer the research questions, the study offers both theoretical and practical insights.

The first research question is: *What are the processes and methodologies employed by the Big Four accounting firms when carrying out sustainability reporting assurance services?*

The empirical findings show that while the Big-4 firms across different European countries follow broadly similar processes, there are slight variations between and within them. These processes typically follow seven steps, as outlined in Table 4. The first step is **engagement acceptance and planning**, where the firm evaluates whether to take on the engagement by assessing the client's integrity and its own capabilities. At this stage, the objective, scope, level of assurance, and a detailed timeline are also defined. The second step involves **understanding the client and assessing risks**. The aim of this step is to determine the scope of verification. This includes interviews with management to understand the client's internal controls, data collection systems, and sustainability governance, followed by identifying key risk areas in the report. The third step is **evidence gathering and testing**, where firms validate reported data through site visits or third-party confirmations, especially from the supply chain, and test the data for accuracy, reliability and completeness. The fourth step, **evaluation and analysis**, involves assessing the results of testing, discussing findings with the client, and evaluating the data for material misstatements against applicable reporting standards such as GRI or ESRS. The fifth step is **issue identification and resolution**, where any misstatements are documented and discussed with the client, with recommendations for improvement. The sixth step is **conclusion and reporting**, where the firm determines whether the data is free from material misstatement and issues a formal assurance report with, negative for limited assurance and positive for reasonable assurance. Finally, the seventh step is **follow-up and continuous improvement**, in which the firm provides feedback on areas for enhancement and prepares the client for potential regulatory changes

The second research question that this study is set to answer is: *What are the challenges and opportunities/benefits faced by Big-4 accounting firms in providing third-party assurance for sustainability reporting.*

The study identifies several challenges the Big-4 firms face in conducting SRA. Based on the findings and existing literature, these challenges fall into three categories: regulatory challenges (e.g., lack of standardized frameworks), challenges within the assurance firms (e.g., knowledge gaps and resistance to change), and challenges from reporting companies (e.g., weak internal controls and governance). Despite these obstacles, the Big-4 firms have adopted strategies such as early engagement, risk assessment, staff training, specialist involvement, and continuous learning to address them. However, they still emphasize the need for unified standards and reporting frameworks to strengthen the assurance process.

Regarding opportunities, the findings show that offering SRA services provides the Big-4s not only with a new revenue stream beyond financial audits but also a way to boost their reputation, expand market share, and deepen their understanding of sustainability. The study also highlights the role of institutional pressures and isomorphism: reporting firms, in consultation with stakeholders, decide which parts of their reports to have assured, while assurance providers follow standards set by NGOs and regulatory bodies. This indicates the powerful role of the normative standards and regulations, shaping the assurance process.

6.2 Contribution to Literature

One of the main contributions in this study is the potential of the empirical findings to add three new steps employed by the Big-4s for the SRA process in Europe, especially in the context of the recently introduced CSRD. This study excludes step one, “selection of Assurance provider” from the steps outlined by Yan et al., (2022) as it is adopted from the perspective of a reporting firm. From the perspective of an assurance provider, this study adds three new steps to the existing four remaining steps outlined by previous literature, making a total of seven steps as shown on figure 2 above. The three new steps are “Evaluation and Analysis” step (4), “Issue Identification and Resolution” step (5) and Follow-up and Continuous Improvement” step (7). The fourth step permits assurors to apply evaluative approaches and discuss with clients on data fairness, completeness and overall balance, the fifth step gives the Big-4s the possibility to adopt more strategic approaches and discussed improvements with clients and the seventh step gives the Big-4 an opportunity to strengthen the client's sustainability reporting process and improve on their own methodologies with respect to changes in standards and regulations.

Secondly, this study also contributes by showing some challenges and mitigations, considering the recent context of the new regulations for sustainability reporting that have not been articulated before.

Thirdly, our study showcases a clear connection between the sustainability assurance process and institutional and regulatory pressures coming from the EU commission. It finds that the new European regulations present both challenges and opportunities for the Big-4 firms, highlighting the need for further discussion on how these regulations might be adjusted to tackle the challenges. In this regard, the study partly answers the recent call of Yan et al. (2022) by exploring the assurance process at institutional, regulatory and corporate levels.

6.3 Implication For Practitioners

Based on the ambiguity of some financial auditing related concepts such as materiality (Edgley, 2014) and for the fact that the ambiguity would amplify as the techniques of financial auditing is been transferred to sustainability auditing (Canning et al., 2019), this study of the SRA processes in the Big-4 firms would help to develop a road map for the rest of the assurance providers. Furthermore, the empirical findings of this study are also relevant to the management of reporting firms by helping them to understand the SRA process. This knowledge can possibly help corporate reporters and managers to align the content of their sustainability reports with assurors perspectives.

6.4 Future Research

This study highlights the need for further research on the SRA process, not only because of the fact that sustainability is under development, but also that sustainability assurance is a complex professional practice that is still in the embryonic phase (Manetti & Toccafondi., 2012). While most of the existing studies focus on SRA by Big-4s, we suggest future research to extend the studies of SRA processes beyond the scope of the Big-4 accounting firms. Furthermore, Literature and empirical material shows that the AccountAbility standard (AA1000AS), mostly applied by the non-accounting assurance providers, gives more attention to the audit process (Manetti & Toccafondi., 2012). Hence, it would be interesting to see more explorations of SRA processes in non-accounting firms.

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Appendix 1: Interviews Questions Guide

The processes and Methodologies that the Big-4 firms employ during SRA process

1. In your view, what are the main factors that lead clients to select Big-4 firms for sustainability assurance?
2. Can you elaborate on the step-by-step processes that you take when carrying out the sustainability assurance? Walk me through the typical/chronological steps involved in a sustainability assurance engagement at your firm?
3. What kind of methodologies are being used in the assurance processes?
Follow up: Which standards does your firm typically apply, and how do you decide which to use?
4. What are the key assessment processes in sustainability assurance
5. How does your firm define and determine materiality in sustainability assurance engagements?
6. What methods do you use to assess the risk of misstatements in qualitative, non-financial data?
7. How do you assess the reliability and completeness of sustainability related disclosures?
Follow up: What are the key financial and non-financial indicators used to evaluate sustainability reporting audits?

Opportunities to the Big-4 as assurance providers.

8. As one of the Big-4 assurance firms, what opportunities/benefits do you gain as when providing both financial and non-financial auditing?
Follow up: In some literature that we went through, we've learnt that providing both assurances helps to increase the Big-4 reputation and market share. Can you elaborate on that aspect?
Follow up: Providing both the financial and non-financial audits service isn't there a conflict of interest?
9. Do you find that offering sustainability assurance strengthens client relationships or creates barriers for competitors?
Follow up: If it strengthens client relationships, does it affect the independence of the auditor?
10. Does your firm or the Big-4s advise companies on what to do in the assurance process?
Follow up: What role do the consultants play?

Challenges faced by Big-4 firms when carrying out the assurance process

11. What are the challenges that you face as auditors regarding the sustainability assurance auditing?

Follow up: What are the most significant challenges your firm faces in assuring sustainability disclosures?

Follow up: Research has found that as auditors are being directly paid by the reporting company, the assurance provider might not hit hard on the reporting company if they discover some negative impact due to fear of losing business? Can you elaborate on that?

Follow up? As assurance auditors, how can you identify that a report is symbolic or substantial and how do you go about mitigating it?

12. To what extent do regulatory bodies influence sustainability assurance practices?

13. Do you look at the stakeholder's perspective in providing the assurance, or is it what the organisation is giving you?

Institutional Influences on the Assurors

14. From your experience, what kind of institutional pressures influence the auditors when carrying out the sustainability assurance services of their clients?

15. How do you come up with the standards/guidelines especially in areas that are less mature? Do you get in contact with the other Big-4 firms, or do you discuss it like to come up with the same practice?

16. In your experience how has the demand for sustainability assurance evolved over the years?

a. Follow up: Lastly, how do you see the role of the big four evolving by the assurance over the next 5 to 10 years?

Note: We would like to assure all respondents that we shall keep them anonymous and their information shall be kept confidentially. Also, at the end of this research, all their information shall be deleted.

Appendix 2

Candidate Themes	Categorised Codes	Examples of Text
The Processes and Methodologies of SRA Process	<ul style="list-style-type: none"> ● The Steps Employed ● Assurance Frameworks ● Risk Assessment 	<ul style="list-style-type: none"> ● <i>“So we go through these three steps with the client to understand what their procedures are and what their ambitions are” B2</i> ● <i>“At.... Netherlands, a sustainability assurance engagement process follows a structured, risk-based approach aligned with international standards, like ISAE 3000 and, where applicable, frameworks like AA1000AS or specific client requirements”. (B1)</i>
The Challenges Encountered by Big-4 Firms	<ul style="list-style-type: none"> ● Data Quality & Standardization issues. ● Assuring qualitative & Subjective information. ● Internal control & governance structure. ● Gaps in reporting Std & Metrics. ● Knowledge gap and Resistance to change. 	<ul style="list-style-type: none"> ● <i>“The evolving regulatory landscape, such as the CSRD, adds complexity.” (D2).</i> ● <i>“Validating qualitative data requires a more judgment-based, contextual approach—but still grounded in evidence and documentation”. (C1)</i> ● <i>“This inconsistency makes it difficult to form a clear, aggregated view of an organization’s ESG performance”. (D1)</i>
Opportunities/Benefits encountered by Big-4 firms in SRA Process	<ul style="list-style-type: none"> ● Economic Benefits. ● More Reputational Gains. ● Market Share ● More Sustainability Knowledge Gain 	<ul style="list-style-type: none"> ● <i>“I think the most obvious reason firms pursue sustainability assurance work is the monetary benefit”. (B2).</i>

		<ul style="list-style-type: none"> • <i>“So having some client as an auditor gives us an opportunity to build very good relationships and then we usually build upon it to do more and more work for the same client” (B2).</i> • <i>“We're not entering a completely new business—we're extending the principles of the trust and assurance model we've always been part of.” (C2)</i>
Institutional Influence	<ul style="list-style-type: none"> • Stakeholders. • International & national bodies • NGOs 	<ul style="list-style-type: none"> • <i>“These pressures drive assurance providers to uphold quality, consistency, and credibility.” (A2)</i> • <i>“The work has expanded significantly and is focusing on EU Taxonomy and the CSRD”. (C1)</i> • <i>“ For non-financial assurance, we typically apply ISAE3000 alongside others like GRI,TCFD,SASB or AA1000AS depending on the reporting needs of the client” (B1).</i>

Table 3 : The Thematic Table .

Appendix 3

STEPS	Accounting Firm A		Accounting Firm B		Accounting Firm C		Accounting Firm D		
	RA1	RA2	RB1	RB2	RC1	RC2	RD1	RD2	RD3
1	Engagement Acceptance and Planning	Engagement Acceptance and Planning.	Engagement Acceptance and Planning	A process walk through with a client.	Engagement, Planning and Scoping	Pre-engagement and Planning	Engagement Planning	Planning & Scoping	Risk Assessment & Materiality Analysis
2	Understanding the Client's Processes and Controls.	Risk Assessment and Planning	Risk Assessment and Understanding the Client's Processes	Risk Assessment.	Risk Assessment and Materiality Analysis	Understanding the Client's Processes	Materiality Assessment	Risk Assessment	Data Validation & Testing
3	Risk Assessment and Materiality Determination.	Process and Control Evaluation	Testing and Evidence Gathering	Provide an audit or Assurance statement.	Internal Control and Reporting Processes	Testing and Evidence Gathering	Risk Assessment	Data Collection & Testing	Issuing Statement
4	Testing and Evidence Gathering.	Substantive Testing	Evaluation and Conclusion		Data Testing and Substantive Procedures	Analysis and Evaluation	Evidence Gathering	Evaluation & Analysis	
5	Evaluating Findings and Performing Additional Procedures.	Issue Identification and Resolution	Reporting and Communication		Evaluation of Findings and Conclusion	Post-engagement Phase	Assurance Criteria	Reporting	
6	Concluding and Reporting.	Reporting and Communication	Follow-Up and Continuous Improvement		Issuing the Statement		Assurance Reporting	Follow-up	
7	Follow-Up and Continuous Improvement.	Follow-Up and Continuous Improvement					Feedback & Follow-up		

Table 4: outlines the chronological steps followed by each respondent's firm in the sustainability assurance (SA) process.