

# **Navigating sustainability reporting: The leveraging role of digital technologies for regulatory intermediaries under emerging sustainability regulations**



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## **Abstract**

This thesis investigates the evolving role of regulatory intermediaries in sustainability reporting under the Corporate Sustainability Reporting Directive (CSRD), with a focus on the integration of digital technologies and the implications of regulatory change. Using a single-case holistic explanatory case study approach, the research draws on 13 semi-structured interviews with regulatory intermediaries based in the Netherlands. The findings reveal that while simple digital tools, particularly Excel and PowerPoint, are widely used, more advanced technologies such as AI and custom platforms are only partially integrated. These primarily serve internal efficiency rather than client-facing services. Adoption of these technologies is influenced by e.g. organizational maturity, cost and data quality. The recent introduction of the Omnibus proposal, which altered the scope and timeline of the CSRD, further complicates technology adoption by delaying compliance efforts and stalling tool development. This study contributes to the literature by providing an in-depth empirical analysis of the use of digital technology in sustainability reporting and highlighting the importance of regulatory stability for meaningful digital transformation. It also reinforces the central role of intermediaries in guiding firms through an increasingly complex and dynamic reporting environment.

**Geen inhoudsopgavegegevens gevonden.**

## 1. Introduction

With sustainability growing in importance, the European Union (EU) is increasingly steering towards more transparency and validity of Environmental, Social and Governance (ESG) reporting (European Union, 2021). The increasing significance of ESG reporting is embodied in the Corporate Sustainability Reporting Directive (CSRD), a framework established by the EU to facilitate the comparability of corporate sustainability performance while serving as a mechanism for accountability (European Union, 2024). The CSRD imposes stricter reporting obligations, presenting companies with significant challenges due to complex compliance requirements. Firms must collect data on all of the three ESG criteria (European Union, 2024). The general heightening of sustainability standards often lead to increased operational costs as businesses adapt to meet the new regulatory expectations (Bunget et al., 2024). Firms must collect and audit this ESG data, which adds financial and operational burdens (Ritchie et al., 2024). Moreover, the short implementation timeline pressures businesses to adapt quickly, while non-compliance can result in negative effects (Nava & Tampe, 2023).

Given the complexity and evolving nature of sustainability reporting requirements, many firms struggle to meet expectations. This is where regulatory intermediaries play a vital role in guiding them through the process. Regulatory intermediaries include “any actor that acts directly or indirectly in conjunction with a regulator to affect the behavior of a target” (Abbott et al., 2017). Regulatory intermediaries play a critical role in mediating between regulators and targets, as outlined in the Regulator - Intermediary - Target (RIT) model by Abbott et al. (2017). Their involvement enhances the credibility and reliability of ESG disclosures, which are increasingly critical for stakeholders (Showalter, 2023). In their guidance, regulatory intermediaries recognize the use of digital technologies and are increasingly using these in their practices (Aldasoro et al., 2024). One of the main arguments posed by the literature argues that these digital technologies can improve the collection, analysis and reporting of ESG data (Chen, 2024; Cerchiaro et al., 2021). Either through increased transparency or by improved quality (Almadadha, 2024; Chen, 2024). In doing so, ESG integration can enhance both sustainability and business performance (de Souza Barbosa et al., 2023; Cho et al. 2019; Taghian et al., 2015).

By examining how these actors navigate regulatory uncertainty and leverage digital technologies, this study contributes to a better understanding of the mechanisms through which ESG reporting can be improved in practice. This is particularly relevant given the European

Union's ambition to enhance the standardization and quality of sustainability reports (European Union, 2021). Since these regulatory efforts are ultimately aimed at serving societal interests, through the concept of ESG, this research indirectly supports the societal goal of fostering more sustainable and responsible corporate behavior. From a practical perspective, this research provides insights for both firms subject to sustainability reporting and the intermediaries who support them. As regulatory requirements evolve and digital technologies emerge as essential tools in compliance, organizations face pressing decisions regarding their sustainability strategy, with resource allocation for tool adoption as a key theme. The findings of this study offer a grounded perspective on how intermediaries navigate these developments, which can help businesses in the same environment better understand the conditions under which digital tools are successfully applied. In doing so, enhancing the effectiveness of sustainability reporting strategies.

While the literature acknowledges that regulatory intermediaries are integrating digital technologies, there is limited research on the practical implementation (Pizzi et al., 2023). This thesis aims to uncover the role of regulatory intermediaries while practically implementing digital technologies in light of the unstable reporting requirements by the EU. In doing so, the study tries to shed new light on the Twin Transition as introduced by Narayan (2024). The twin transition refers to the simultaneous pursuit of a digital transformation and sustainability transformation, both reinforcing each other in their search. This research aims to research the twin transition by asking the question below.

How do regulatory intermediaries leverage digital technologies to support firms in navigating sustainability reporting requirements as part of the Corporate Sustainability Reporting Directive (CSRD)?

To address the research question, this study used an explanatory holistic single-case design and two data collection methods to enable triangulation. The primary method involved 13 semi-structured interviews, supported by secondary quotes in the appendix to strengthen validity. Additionally, non-academic sources were consulted to cross-verify and contextualize interview insights. Interviews were guided by a theoretical framework, included in the appendix.

This study contributes to the literature in two key ways. First, it examines how regulatory uncertainty, particularly stemming from the Omnibus proposal, slows digital innovation and complicates tool adoption, highlighting the need for regulatory stability in enabling digital transformation. This challenges prior work that assumes a stable regulatory environment (Abbott et al., 2017; Short & Toffel, 2011; Kivimaa et al., 2019). Second, the study offers a practical account of how digital technologies are currently used in sustainability reporting, detailing the tools applied, phases of use, and barriers to adoption. This extends the work of Saxena et al. (2023) on transformative digital use and addresses the empirical gap noted by Pizzi et al. (2023) regarding real-world implementation. It also challenges Tseng & Shang's (2021) claim that digital tools could replace intermediaries, aligning instead with Holland et al. (2024), who argue that technology complements rather than substitutes human expertise in regulatory intermediation.

The execution of the thesis is structured as follows. The introduction has outlined the relevant research concepts, the problem to be researched and the research relevance. The theoretical framework delves further into key concepts being regulatory intermediaries and digital technologies in light of sustainability reporting, drawing on relevant literature to establish the foundation for analysis. The methods section explains the research design, which explains the qualitative approach this study follows. This is followed by the analysis, examining how regulatory intermediaries leverage digital tools under emerging sustainability regulations, specifically the CSRD, to support reporting firms in their sustainability strategy. The findings section presents the results of the research, while the discussion reflects on these findings in contrast to the existing literature.



## 2. Theoretical Framework

### 2.1. Regulatory intermediaries

To understand regulatory governance, it is important to understand regulatory intermediaries and their role in successful regulation (Abbott et al., 2017; Scott, 2004). Regulatory intermediaries are defined as “any actor that acts directly or indirectly in conjunction with a regulator to affect the behavior of a target” (Abbott et al., 2017). Regulatory intermediaries play a crucial role in sustainability regulations. They address information gaps and misinformation that hinder sustainable investment and corporate responsibility (Kivimaa et al., 2019; Bergquist & Söderholm, 2011).

The research draws further on the Regulator - Intermediary - Target (RIT) model by Abbott et al. (2017) theorizing the concept of regulatory intermediaries. This research builds on years of prior work by the authors and others on orchestration within the context of transnational governance. The RIT model expands on the traditional regulatory framework Command and Control (CAC) where the authority sets legal requirements, enforced through regulatory mechanisms (Cole & Grossman, 1999). This approach has been widely adopted in environmental policy to manage negative environmental effects, and involves two actors and a one-way stream of information (Zhou et al., 2023). The RIT-model extends past the traditional two-party regulatory framework, by arguing the model is too simplistic, introducing a third party of regulatory intermediaries (Abbott et al., 2017). “In a three-party regulatory system, feedback flows through multiple channels. Targets provide feedback directly to regulators; intermediaries provide feedback based on their own experiences; and intermediaries receive information and advice from targets and pass those on to regulators.” (Abbott et al., 2017). This multidirectional communication enhances regulatory effectiveness by allowing intermediaries to interpret and adapt regulations, offer practical feedback to regulators, and ensure that regulatory approaches remain relevant and effective. It becomes evident that regulatory intermediaries are not passive facilitators but active participants in shaping regulatory environments. Their role goes beyond simply enforcing compliance. They help interpret regulations, disseminate important information with targets and regulators and adjust governance approaches to changing needs. This makes them key players in shaping sustainability regulations over time (Kourula et al., 2019).

Building on this conceptual foundation, it is important to understand why intermediaries occupy such a central position in regulatory processes, particularly within complex and evolving policy landscapes such as sustainability (Abbott et al., 2017; Scott, 2004; Kourula et al., 2019). Their involvement is not incidental, but grounded in the specific capacities they bring to the relationship between regulators and targets. These are regulatory capacities that regulators either do not have or can provide more efficiently and cost-effectively (Short & Toffel, 2011; Abbott et al., 2017). They support firms in navigating sustainability reporting by contributing with their four categories of capacities; operational capacity, expertise, independence and legitimacy. They bring specialized knowledge and practical capabilities that regulators may lack, enabling effective service delivery, compliance monitoring, and support for targets (Short & Toffel, 2011). Although expertise is often seen as a subsidiary to operational capacity, the article differentiates the two to highlight its importance as a single capacity. Intermediaries often maintain a degree of independence from both regulators and targets, enhancing their credibility and allowing them to act as impartial assessors. Additionally, their ability to engage with a broad range of stakeholders, which regulators may lack, can increase their legitimacy and effectiveness in implementing regulatory goals (Abbott et al., 2017).

By using these capacities, regulatory intermediaries play pivotal roles in the management of complex regulatory requirements (Short & Toffel, 2011). Where for some targets, the complexity becomes too much to handle, regulatory intermediaries act as the helping hand that connects regulators with its targets. Abbott et al. (2017) present a triplicity of roles; implementation, monitoring and enforcement. Implementation is where the intermediaries facilitate compliance and involve other sub-roles like translating where they simplify the requirements to become understandable and actionable. Moreover, assisting in implementation through training or advice but also run financial analyses to ensure cost efficiency. Monitoring is done through proactively overseeing, enforced by reactively responding. In this process, activities like dispute resolution and rule interpretation are usually handled.

Havinga & Verbruggen (2017) highlight that a single actor can perform multiple of these functions within a single role in the regulatory process, implying a “chameleonic nature” for intermediaries (Havinga & Verbruggen, 2017). Although the RIT model and the role-based framework categorize the three main actors as distinct and clearly defined, their roles can often overlap. This is particularly evident when they take on regulatory functions themselves or when they also serve as targets of regulation.

## *2.2. Digital technologies in sustainability reporting*

In light of their pivotal role in shaping, translating, and implementing regulations, it becomes increasingly important to examine how regulatory intermediaries respond to a rapidly digitizing environment. As sustainability reporting becomes more data-intensive and reliant on digital infrastructure, these actors are not only tasked with interpreting regulations but also researching the adoption of technological solutions for the process. While the role of regulatory intermediaries in sustainability governance has received increasing scholarly attention, the integration of digital technologies into their practices remains underexplored (Pizzi et al., 2023). Meaning, there is limited academic insight into how these technologies are operationalized within intermediary work. As such, this study draws on the broader literature on digital technologies in sustainability reporting. The broader body of work on digital technologies in sustainability reporting provides the foundation for understanding how such technologies influence intermediation.

To contextualize the theoretical relevance of the use of digital technologies in intermediation, it is necessary to examine which digital technologies are actually applied in the practice of sustainability reporting. While the previous section discussed the shaping of adoption, the following section zooms in on the concrete tools that have emerged in the literature as most impactful. Moreover, digital technologies in sustainability reporting incorporate advanced digital technologies that enhance sustainability reports (Gavrila & Ancillo, 2020; Savic, 2019). They do so either through increased transparency or by improved quality (Almadadha, 2024; Chen, 2024). According to a review of the literature by Guandalini (2022), the literature shows that digital transformation enhances sustainability but research remains fragmented. The process of sustainability reporting entails multiple stages of collecting, analyzing and reporting the data (Dewan, 2023). These digital technologies can be used in different stages of the process of sustainability regulation reporting. Measuring impact, through digital technology, in sustainability reporting is done in three key areas: environmental/social, financial, and compliance (Ciulli et al., 2020). Within these areas, regulatory compliance is tracked through quantifying the extent to which a company adheres to sustainability standards (Kong et al., 2024; Olesiewicz et al., 2021).

Recent research emphasizes the growing role of digital technologies in supporting sustainability reporting across organizations (Saxena et al., 2023). These technologies are increasingly adopted and leveraged to improve the accuracy of ESG disclosures (Irianto et al., 2025; Spigarelli et al., 2024). The framework introduced by Pizzi et al. (2023) further emphasizes that digital tools not only support data collection and analysis but also enhance the standardization and comparability of sustainability reports. As these tools increase accuracy and verifiability, intermediaries are better equipped to guide firms in producing more trustworthy and transparent reports, something manual methods often fail to achieve (Pizzi et al., 2023; Chen, 2024).

However, technology adoption in organizations is rarely influenced by a single factor. Rather, it is shaped by a combination of technological, organizational, and environmental dimensions (Tornatzky & Fleischer, 1990). Within the organizational context, maturity plays a critical role, firms with strong leadership, a skilled workforce, and well-developed internal structures are generally more inclined to adopt new tools (Ifinedo, 2011). This is particularly relevant in the context of intermediation, where more mature organizations tend to be better equipped to implement digital solutions (Ladu et al., 2024). Externally, factors such as regulatory pressure are key drivers of adoption behavior across various industries (Yan & Ge, 2024). In the realm of sustainability, these dynamics are further complicated by the presence of regulatory intermediaries, who not only interpret regulatory demands but also help ensure firms are organizationally prepared to implement the necessary technologies (Kanda et al., 2025). However, as Feroz et al. (2021) argue organizations should be wary about, the full potential of digital technologies cannot be realized without appropriate organizational capabilities and strategic alignment. This tension is particularly evident in smaller firms. Dorhetso (2025) highlights that in small and medium-sized enterprises (SMEs), digital tools enable more consistent and cost-effective sustainability assurance processes, particularly when organizational resources are limited. By automating data collection and structuring reporting workflows, these technologies support firms in achieving compliance while reducing manual workload (Varghese & Buyya, 2018). Similarly, Irianto et al. (2025) argue that digital platforms play a crucial role in aligning sustainability reporting with ethical business conduct and economic transformation. They show how integrated platforms help firms meet both internal ESG goals and external regulatory requirements by enhancing the accessibility and usability of sustainability data. De Silva et al. (2025) add that digital integration and digital knowledge significantly influence sustainability reporting quality. Their study finds that higher

levels of digital capability in an organization correlate with better sustainable accounting and assurance outcomes, particularly when digital tools are embedded into strategic decision-making processes. Spigarelli et al. (2024) further show how technologies like blockchain can support transparency and collaboration in sustainability ecosystems. However, they also note that the role of intermediaries remains important in guiding firms through the complexity of digital transformation and ensuring that technologies are effectively aligned with sustainability objectives.

However, while the broader benefits of digital technologies for sustainability reporting are increasingly well documented, there is still limited empirical insight into how regulatory intermediaries themselves engage with these tools. This is also given as a theoretical gap by Pizzi et al. (2023). Despite their growing role in shaping ESG reporting, largely contributing to broader corporate sustainability, little is known about how these actors leverage digital technologies in their work. This gap is particularly relevant given their position between regulation and implementation, and it raises questions about how digital transformation is actually unfolding in practice.

While the role of intermediaries in digital technologies remains underexplored, an opposing thought is given by Tseng & Shang (2021) arguing that emerging technologies such as blockchain and AI could diminish the need for traditional intermediaries by enabling trustless transactions and automated compliance mechanisms. In light of the research question, instead of the belief that intermediaries can leverage DTs to transform and improve their role as brokers, their influence would become less. Blockchain in particular is believed to remove the need for institutional oversight by replacing it with the decentralized trustworthiness of the technology. Contrary to this thought, the findings showed that their function has evolved from manual verification to technology-enhanced oversight, where they act as trusted facilitators (Kuznetsov et al., 2024). This aligns with the argument made by Holland et al. (2024) proposing that intermediaries are leveraging DTs to transform their role in sustainability reporting. While existing literature acknowledges that regulatory intermediaries can effectively leverage these tools to facilitate more ESG compliance, as given by Holland et al. (2024) the practical implementation remains undiscovered which gap this thesis aims to fill (Pizzi et al., 2023). This study does so by addressing the question: “How do regulatory intermediaries

leverage digital technologies to support firms in navigating sustainability reporting requirements as part of emerging sustainability regulations?").



### **3. Methods**

#### *3.1 Case setting*

The CSRD serves as the unit of analysis to explore how digital technologies support intermediary sustainability practices in evolving regulatory settings. Introduced in 2024, the CSRD replaced the NFRD, which faced criticism for its limited scope and lack of consistency (Hummel & Jobst, 2024). Like many regulations, it first targeted multinational corporations due to their influence and resources (Zhang & Zhou, 2023). Despite its wide reach, many still find the CSRD's requirements unclear. Key aspects of the CSRD include data collection, compliance, training, and transparent reporting. ESG criteria, central to the directive, measure sustainability performance and ensure accountability across environmental, social, and governance domains, each supported by EU legislation (European Parliament, 2022; European Union, 2024). The CSRD substantially increases reporting complexity by requiring detailed ESG reports.

During the course of this study, major changes to the CSRD were introduced via the Omnibus proposal (April 2025), which revised its timeline and scope (European Commission, 2025). Aimed at easing administrative burdens and supporting innovation, the Omnibus nonetheless introduced regulatory uncertainty. This study incorporated the Omnibus as an analytical dimension, as its impact on digital adoption and intermediation processes proved significant.

To understand how these intermediaries function in the CSRD, it is useful to briefly outline the consulting process within which they operate. Although not the primary focus of this study, this process forms the practical context where regulatory expectations and digital technologies converge. The CSRD consulting trajectory generally follows a standard sequence of steps: establishing internal support for sustainability efforts, conducting a double materiality assessment (DMA), prioritizing material themes, setting target indicators, and developing a sustainability strategy (CSRD Software, 2024; Berenschot, n.d.). This is followed by a gap analysis, assessing which data points are already available, identifying missing information, and aligning data with material topics to produce a final reporting output. Despite the common structure, the level of intermediary involvement varies depending on client needs and internal capacities. Some intermediaries adopt a full-service model, guiding clients through the entire process from understanding the CSRD to final reporting. This approach is common among organizations with limited internal expertise. Others operate in a more collaborative role,

providing periodic feedback and guidance to clients managing the process themselves. Lastly, some firms engage intermediaries solely for verification purposes, seeking external validation of internally developed reports to ensure compliance and credibility.

### *3.2 Data Sources*

This study adopts an explanatory holistic single-case study design (Yin, 2018). An explanatory case study aims to explain cause-effect relationships or underlying mechanisms behind a phenomenon. A holistic case study looks at the case as a whole, without dividing it into sub-units. A single-case focuses on one case only. With that explained, the design of this study is a single-case study since it focuses solely on the field of regulatory intermediaries operating under the CSRD. While the sample involved intra-organizational- and extra-organizational intermediaries, the study does not compare the two. The design is holistic, as it does not have an in-depth analysis per organization or individual, but rather draws insights across the case as a system. The case is explanatory in nature, aiming to understand the underlying use of digital technologies in an established relationship between regulatory intermediaries and sustainability reporting firms under evolving regulatory conditions.

The primary data collection method consisted of 13 semi-structured interviews with regulatory intermediaries involved in sustainability strategy and digital technology adoption (Appendix Table A1). While regulatory intermediaries can include a broad range of actors, this study focuses specifically on CSRD advisors, 10 from external consultancy firms and 3 internal intermediaries. Their direct involvement with targets and familiarity with both regulation and technology made them especially relevant for this research. To support the reliability of the findings, a set of secondary quotes was included (Appendix Table A2) that reinforces the primary quotes used in the analysis.

Each interview lasted 30–50 minutes, was recorded with informed consent, and transcribed using TurboScribe AI. Transcripts were reviewed and corrected by the researcher to ensure data validity. All interviews were coded in ATLAS.ti using the structured inductive method outlined by Gioia et al. (2013). Participants were informed about the use of recordings and received their transcripts upon thesis completion. The interviews followed a guide based on the theoretical framework, covering two core themes: the role of the intermediary and the use of

digital tools in sustainability reporting. The full guide is available in the appendix table A5. Personal and company names were anonymized.

To further enhance validity, 21 publicly available non-academic sources, primarily blogs, were consulted. These were selected for their general relevance rather than links to specific organizations, in line with the study's goal of identifying broader patterns across the field. The interview findings were cross-verified with these materials to ensure triangulation. An overview of all data sources and quantities is provided in Appendix Table A3.

### *3.3 Data analysis*

The data was analyzed in a three-step coding tree as introduced by Gioia et al. (2013) facilitating qualitative rigor by structuring raw data into a three-tier coding system. The full data structure is presented in a visual diagram, illustrating the linkage between empirical data and emerging theoretical insights. See table A4 in the appendix.

The analysis began with open coding of interview transcripts, identifying first-order codes that closely reflected participants' language. Examples include "Garbage in, garbage out" (data quality concerns) and "cherry-picking their best aspects" (selective reporting). In total, 25 quotes were collected as shown in Appendix Table A4, each supported by a second quote to ensure validity (Appendix A2).

These codes were then grouped into second-order themes by identifying patterns and interpreting underlying meanings (Gioia et al., 2013), resulting in nine themes. For the aggregate dimension Navigating regulatory uncertainty, three themes emerged: Changing CSRD requirements, Reacting to changing requirements, and Ambiguous reporting requirements, reflecting shifting rules, unclear expectations, and varying responses. Under Challenges in the adoption of digital tools, codes were grouped based on whether barriers stemmed from data management, organizational challenges, or intermediary size. The dimension Digital intermediation practices captured how intermediaries practice digital tools, resulting in themes: Relying on general-purpose tools, Advising or implementing reporting companies' digital tools, and Benefitting from tools in reporting.

Lastly, the second-order themes were synthesized into aggregate dimensions that capture the overarching patterns in the data (Gioia et al., 2013). Firstly, grouping changing requirements and ambiguous standards under this dimension made analytical sense because both themes reflect how uncertainty in the regulatory environment creates pressure and requires more interpretive work. The responses by different actors were a recurring theme that could be added under one aggregate named Navigating regulatory uncertainty. Secondly, challenges in the adoption of digital tools, brings together different but complementary barriers that collectively explain why digitalization in sustainability reporting is difficult. These challenges come together in how they affect reporting, by inhibiting effective and widespread digital tool use. Lastly, themes describing how intermediaries engage with digital tools were grouped into Digital intermediation practices, as they all reflect observed recurring patterns in shaping the current digital intermediation process.



### *3.4. Research ethics*

Within qualitative research, ethics are considered of utmost importance. This research was conducted in strict adherence to ethical guidelines, ensuring that all interactions with interview participants were handled with integrity and transparency. Ethical considerations were integrated into every stage of the research process, from participant recruitment to data analysis and reporting. This research has done so by adhering to the interviewees' wishes with the greatest respect. Before all interviews, interviewees will be informed on the research that would be conducted, by sending them the interview questions. After, transcripts were provided to the same people to ask for approval of the interview outcome. Furthermore, the research has been completely anonymized to ensure the conservation of participants' privacy. Lastly, the researcher agrees to have remained transparent throughout the research and avoided plagiarism.



## 4. Findings

This chapter begins by outlining the key challenges in the current regulatory environment, with a focus on the ambiguity and evolving nature of the CSRD. It then examines how these regulatory uncertainties impact the implementation of digital technologies by both technology providers, reporting companies and intermediaries. It draws further on challenges in the reporting process, by providing organizational challenges to digital implementation. Finally, the chapter explores how digital tools are currently being used in practice, highlighting their role in supporting sustainability reporting despite ongoing limitations. This structure offers a layered understanding of how regulatory and technological developments together shape the intermediary role. To support and triangulate the interview findings, relevant secondary sources have been included throughout the analysis.

### *4.1 Navigating regulatory uncertainty*

As sustainability reporting requirements continue to evolve, specifically under the CSRD, regulatory uncertainty has emerged as a major challenge for both the reporting organizations and the intermediaries that support them. This section explores how shifting regulations, especially the changes introduced through the Omnibus, have affected the role of the intermediary. It further examines how ambiguous standards complicate compliance efforts, influence the development and implementation of digital tools and reshape the intermediary's role in guiding firms through their sustainability practices.

#### 4.1.1. Changing requirements

As briefly introduced above, the shifting regulatory landscape surrounding the CSRD has had a significant impact on the work of regulatory intermediaries. The introduction of the Omnibus significantly altered the scope of the directive, resulting in many companies that were initially considered in-scope no longer falling under its immediate obligations (Sociaal Economische Raad, 2025). For reporting companies, the frustration becomes evident when building reporting frameworks, only to see those expectations change with the Omnibus.

Another big issue is the desire for clarity in legislation. Some companies were actually relieved when CSRD came along, because it gave them something concrete to work

with, even though it was a lot of work. But then it changed again, which was frustrating. (Intermediary\_5)

Reporting companies are struggling and want clarity in the legislation. This regulatory instability, as illustrated above, complicates the advisory process, but also undermines business strategies of intermediary firms, especially smaller ones (Dougherty, 2025). A large portion of the market that had been considered in-scope under the CSRD has now either been excluded and placed on hold, reducing the client base that many smaller consultancies had anticipated serving.

Yes. Initially, we had about 30 CSRD clients. Roughly 80% have since been phased out. (Intermediary\_6)

This sudden reduction in scope illustrates how reporting companies' ability to plan ahead is being directly affected by changing regulatory boundaries.

#### 4.1.2. Ambiguous requirements

While most empirical data acknowledged that the CSRD standards in theory are advantageous in the way they reflect sustainability priorities, it also emphasized that in practice, these standards are highly ambiguous (Jong & Peters, 2025). As evidenced by the quote below, the standards require a high degree of interpretation. This often leaves targets and intermediaries uncertain about how to translate regulatory principles into concrete reporting practices. The requirements contain definitions that lack clarity, leaving too much room for interpretation in how these should be complied to.

The standards themselves provide guidance, a structure for what needs to be reported, and often include references like, use this or follow that. But there's still a lot of interpretation required to apply those standards to a client's individual context. For example, the climate change section in CSRD says to report on scope 3 emissions using the GHG protocol. That is all it says (Intermediary\_2).

This example illustrates how vague references within the standards can leave both intermediaries, but especially the companies looking to be compliant, uncertain about how to act, particularly when facing complex topics such as emissions reporting. In addition, although

the CSRD obligations have been postponed or narrowed in scope for many companies, this does not mean that reporting requirements have been eliminated altogether. Organizations are still subject to other frameworks, but there is considerable uncertainty regarding what exactly needs to be reported. This, again, creates confusion.

And to your earlier point, there are other laws and regulations that require companies to act, like energy-saving obligations. The CO<sub>2</sub>-neutral 2050 target still stands, so it's not like companies are off the hook (Intermediary\_5).

This quote underscores that even in the absence of immediate CSRD obligations, companies remain under pressure to comply with broader sustainability regulations. This ambiguity results in companies struggling to understand what is being asked of them, as the absence of clear regulations makes it difficult to interpret regulatory expectations and align those with reporting practices accordingly (Husain, 2024). This is shown in the quote below.

Specifically for CSRD, it's that it's very complicated. They don't always understand what's being asked. It's not clear what they're supposed to do (Intermediary\_9).

This highlights how the complexity of the directive, coupled with limited internal knowledge, leaves many companies uncertain about the status of being compliant. As a result, they often seek external guidance to ensure that their reporting aligns with CSRD requirements. Outside of the impact this regulatory ambiguity has on technology providers and reporting companies, it also creates a substantial grey area for intermediaries to operate in (Telesto, 2024). The division of responsibilities, specifically who is authorized to carry out particular tasks within the reporting process, is also not clearly defined in the CSRD standards. This lack of the division of functions contributes to further uncertainty for both reporting entities and the regulatory intermediaries supporting them. While this lack of clarity can be challenging, it is also beneficial to intermediaries. The complexity and interpretative nature of the requirements ensure that many organizations continue to rely on external expertise to navigate the reporting process. If the standards were stable and unambiguous, a significant portion of companies might be able to manage the process independently, thereby reducing the demand for advisory services.

It happens more often than you might think. In corporate finance, for example, it's not unusual for an advisory team to also perform services for the same client, from a strategic point of view. So, it's not that strange, but in this case, it can feel a bit like marking your own homework. (Intermediary\_1)

This quote illustrates how the absence of strict role demarcations allows intermediaries to remain involved throughout the process, possibly too much, which also brings concerns about independence and objectivity.

#### 4.1.3. Reporting companies and technology providers responding to changing requirements

Following the implementation of the Omnibus, many reporting companies that were previously preparing to report have now adopted a wait-and-see approach, postponing further action until their reporting obligations are reactivated expected to happen in future phases of the directive (Filgueira, Delille & Seranne, 2025).

Yes, though that often comes from different motivations. CSRD was really a legal requirement. Some companies are now putting their CSRD efforts on hold, waiting to see what happens. They've found it too detailed, too data-heavy, and not worth the effort unless they're certain they need to report (Intermediary\_1).

This postponement through the Omnibus has also created space for selective interpretation. The lack of immediate reporting obligations and the absence of clear standardization enable companies to engage in a form of regulatory cherry-picking, focusing on disclosures that are most convenient. Thus missing some of the points aligned with the intent of the CSRD.

The Paris Agreement still sets the 1.5°C target for 2050, but there's no concrete enforcement right now. Before, CSRD made companies verify their claims, like being the "greenest transporter." Now, companies can cherry-pick their best aspects, "We have five electric trucks", and ignore others like employee safety (Extra\_6).

This quote illustrates how the weakening of regulatory pressure has enabled companies to selectively report, potentially undermining the validity of sustainability reporting. Despite these developments, most of the intermediary firms represented in this study were organizationally

set up in such a way that CSRD-related advisory work was only a part of their service offering. As a result, these regulatory shifts have disrupted short-term expectations, but they are unlikely to threaten the overall viability of these firms. Most of the organizations, which the interviewees were employed by, had diversified business strategies. Although many companies have currently postponed their CSRD efforts due to the Omnibus proposal, it is expected by most participants that the directive will eventually apply to these firms in the coming years. The interviewees expect to resume their role, assisting them in catching up with delayed preparations and meeting future compliance obligations. However, firms that focused their core business on intermediating the CSRD, are now struggling to maintain continuity.

Another key insight emerging from the data regarding regulatory uncertainty, is the dependence of technological development on the stability of regulatory requirements. Several participants noted that as long as sustainability regulations, specifically those introduced by the CSRD, remain changing, the development of tailored digital tools for intermediaries will continue to lag behind. The sudden shift created by the Omnibus, developed uncertainty among organizations and intermediaries, complicating long-term planning and delaying the implementation of digital tools. Changes in who is required to report and what to report, make it difficult for software developers to design stable, scalable solutions that meet the evolving needs of intermediaries. In anticipation of the CSRD becoming the central and stable framework for sustainability reporting, a lot of investments were made by technology providers, However, with the recent narrowing of its scope, an estimated 80% or more of their potential market has effectively been eliminated. This regulatory uncertainty not only delays technological innovation but also reinforces the continued reliance on general-purpose tools like Excel, which are independent of changes in requirements. This situation has forced many technology providers to rapidly adapt their strategies, as reflected in the quote below.

Everyone is pivoting their tools to reflect the ESRS adjustments and new voluntary standards. The software vendors claim to be agile or regulation-agnostic, which is often true. But it's still a challenge, especially for medium-sized companies, to stay current with regulatory uncertainty. If you've built your software just to meet CSRD compliance, you're now extremely vulnerable. A lot of startups saw CSRD as a market opportunity, took venture capital, and are now under pressure to generate returns, yet the mass market has been delayed by two years (Intermediary\_12).

This quote illustrates how regulatory uncertainty, leading to shifting expectations, not only affects reporting companies but also creates strategic uncertainty for technology providers. Next to that, the delayed and fragmented development of digital tools is not only visible at the industry level but is also felt by regulatory intermediaries. As discussed earlier in this chapter, many technologies relevant to CSRD reporting are still in their infancy. This prematurity is one of the reasons why digital technologies in digital intermediation are adopted at a slower rate. Regulatory changes reduce the incentive for developers to invest in the creation of digital tools, which in turn limits the availability of mature solutions.

While the CSRD framework is generally viewed as a positive step toward successful reporting standards, its lack of clarity creates uncertainty for both companies and regulatory intermediaries. This ambiguity also reinforces reliance on external expertise, as many organizations lack the capacity to navigate the evolving standards independently. Consequently, intermediaries operate within a grey area that, although challenging, sustains demand for their services in the absence of stable and clearly defined regulatory expectations. This ambiguity, much like the frequent changes in regulatory requirements as discussed above, has a negative impact on the development of digital tools. The lack of clarity and stability discourages long-term investment in tool innovation, as developers are hesitant to build solutions for a constantly shifting regulatory landscape.

#### *4.2. Challenges in adopting technology*

As outlined above, the CSRD presents significant challenges due to its ambiguity and the ongoing changes in its scope and requirements. This regulatory uncertainty makes it difficult for both companies and intermediaries to determine which digital tools are appropriate and when to invest in technological solutions. However, next to regulatory challenges, organizational challenges determine a large part of technology adoption for both the reporting company as well as the intermediary. Although this study focuses primarily on the role of intermediaries, it is necessary to examine how reporting companies adopt digital technologies because their constraints directly influence the work of the intermediary. Intermediaries operate in close collaboration with reporting companies and often adapt their own practices or tools to fit the organizational context of their clients. Below are the organizational challenges that

reporting firms face in their efforts to implement digital tools effectively in the context of sustainability reporting, and how this affects the intermediation process.

#### 4.2.1. Data management challenges

Prior to even considering adopting digital technologies, companies struggle with data and the gathering of it. The sustainability data collection holds a distinct phase within the sustainability reporting process and typically involves its own set of tools and responsibilities. This phase is generally carried out internally by the client, after determination of key data points through the involvement of intermediaries (Apiday, 2024). While regulatory intermediaries may advise on the data needed, the actual data gathering tends to remain the responsibility of the reporting organization. Most companies rely on existing internal digital infrastructures for this purpose, notably ERP- or CRM systems. However, organizations often struggle with understanding which data points are necessary for sustainability reporting. Identifying what information needs to be collected, and how it aligns with regulatory requirements such as the CSRD, can be a difficult task (Branquart, 2023). This lack of clarity frequently limits the successful application of digital tools, as even the most sophisticated technologies require clearly defined inputs to function properly.

Accurately capturing the story and the metrics we actively manage, not just the ones we happen to have, is a challenge. Also, the timing and quality of incoming data can be difficult. (Intermediary\_8)

However, this challenge also highlights a central aspect of the intermediary's role. Consultancies often support clients in determining relevant data points (Berenschot, 2024). In doing so, intermediaries not only enhance the utility of digital tools but also help bridge internal knowledge gaps within organizations navigating difficult and new regulatory landscapes.

Thereafter, the quality of input data from the technological systems plays a critical role in determining the effectiveness of these technologies (GRESB, 2023). Even when advanced tools are adopted, their utility remains limited if the underlying data are inaccurate. Several interviewees emphasized that the value of such technologies is highly dependent on the reliability of the data they process; if the input is flawed, the output will be equally problematic. They named it the “garbage in, garbage out” principle. As a result, poor data quality undermines

the credibility of sustainability reporting while also restricting the functionality and added value of digital tools, regardless of their technical capabilities (Rao, 2024).

One key issue is the “garbage in, garbage out” principle. Data quality is everything. The systems help structure data, but if the data is incomplete, the outcome won’t represent reality accurately (Intermediary\_3).

In conclusion, this section highlights that without clear data definitions and high-quality inputs, even the most advanced digital tools offer limited value. This reinforces the critical role of intermediaries in understanding data and ensuring effective tool use.

#### 4.2.2. Organizational challenges

If data flows well through the organization and is of good quality, then these are further challenges faced by the reporting organizations prior to adopting digital technologies which can be categorized into technical limitations, organizational constraints, and ethical implications. The cost of implementing digital tools remains the biggest barrier, especially for small and medium-sized enterprises (Ovington, 2024). This is mentioned by most interviewees.

Several reasons. Cost, of course. Some companies are already spending a lot on people, consultants, and managing the entire CSRD process. So adding a new technology layer may feel like too much. (Intermediary\_2)

Time is another critical factor. Integrating new tools into existing workflows often requires significant time investments, not only for setup but also for employee training.

Time is another factor. Implementing a new system requires time and training, which can delay their compliance efforts. And then there’s maturity. Some companies are simply not ready. They are in their first year and just want to get the basics right. (Intermediary\_2)

Time also plays another big role in the maturity of the organization and the maturity of the digital tools themselves. On one hand, organizations often need time to develop the internal structures and skills required to effectively integrate and benefit from new technologies. On the other hand, many digital tools used in the context of sustainability reporting are still in the early

stages of development and lack the functionalities needed for full-scale implementation. As such, both organizational readiness and technological maturity need time to evolve.

One of our colleagues has done research into available tools. His conclusion was that most are still in their early stages. Nothing is fully mature yet. You might find something that works well in one area but falls short in another. We have not found the golden standard yet. (Intermediary\_7)

Furthermore, many tools are described as rigid, they do not adapt easily to the evolving needs of the organization. This lack of scalability creates concern about the long-term viability of the technology.

Clients often say the tools are too rigid. For instance, one client was using a tool designed for small businesses, but now they're growing rapidly and the tool can't keep up. That kind of inflexibility is a recurring issue. (Intermediary\_7)

There is also a perceived risk of dependency on specific tools or vendors. Once a tool has been integrated, switching to an alternative system can be difficult because you will lose your progress and data otherwise.

Exactly. And something I've heard from companies is that once you go all-in with a software platform, you're locked in. Your data stays in that system, and it's hard to migrate or extract it later. You end up needing to keep the software indefinitely just to access your own data. (Intermediary\_5)

Organizational capacity presents another layer of concern. Many companies report a lack of internal knowledge about how to use digital tools effectively (Ghoshal, 2022). This knowledge gap limits the benefits that can be derived from such technologies and increases the likelihood of misinterpretation or underutilization. Even when the data and systems are in place, the absence of sufficient expertise can result in tools not being used to their full potential.

The knowledge gap is huge. Most of our clients first take part in a one-day CSRD training or online learning program. Then they go through a kickoff workshop with their internal teams. Only after that do they start using the software, once their knowledge level is high enough. (Intermediary\_12)

Here, regulatory intermediaries will look to bring value to the table by bringing in their specialized knowledge. Lastly, data security considerations are also taken into account. Some tools currently on the market are not perceived to offer sufficient safeguards for handling company-sensitive data (Das, 2025). Especially for the very recent development of AI tools.

I'm also involved in buying and selling companies. So we can't just feed that kind of sensitive data to a tool like ChatGPT in an unprotected environment. You don't want names and financials ending up in the wrong place. (Intermediary\_6)

Taking these considerations into account, it is now perhaps unsurprising that many companies continue to rely primarily on Excel for sustainability reporting processes. Despite its limitations, Excel remains a familiar and well-rounded tool that allows organizations to maintain control over their data without committing to expensive or rigid software solutions, offering a level of adaptability that more advanced tools currently lack. Its widespread use is often driven by practicality. Employees are already trained in its use, it integrates well with other internal systems, and it avoids the risks associated with tool dependency. As such, while digital technologies are seen as promising, Excel persists as the default option, especially during early stages of CSRD implementation.

#### 4.2.3. Size challenges

Likewise, the size of the intermediary itself plays a critical role in determining the extent to which digital technologies are integrated into their business. Larger intermediaries are generally better equipped to invest in specialized tools or develop internal digital tools. The ability to either build or acquire such technologies provides these intermediaries with a competitive advantage by scaling their services (Hyöky & Virranta, 2023). In contrast, smaller intermediaries often face similar constraints as their clients like limited financial resources. As a result, these firms frequently rely on general-purpose tools such as Excel and adopt a more manual approach, as a pragmatic response to structural limitations. The first two quotes presented below are drawn from an interview with a participant employed by one of the Big Four firms, the largest organization included in the sample. As such, these insights show how resource-rich intermediaries adopt digital tools and adapt to regulatory change. Larger companies, with more resources and dedicated technology implementers, are generally more capable of implementing such solutions (Eliad, 2024)

There are tools we have developed ourselves, sometimes with a partner, and other tools that we implement in collaboration with external providers. For example, I worked on a global initiative with other Company X2 member firms where we created the CSRD Enabling Platform. That is the first part where we bring in our unique experience. The second part is where external tools like those from SAP, Microsoft, Wekiva, or Sapiens come in (Intermediary\_2).

At the moment, tools aren't very developed (Intermediary\_1).

As illustrated above, there is a notable difference between smaller (Intermediary\_1) and larger (Intermediary\_2) intermediaries when it comes to the implementation of digital technologies.

### *4.3 Digital intermediation practices*

#### 4.3.1. Intermediary reliance on general-purpose tools

Despite these challenges, depending on intermediary size, digital technologies are increasingly embedded in the workflows of regulatory intermediaries, but their actual application varies significantly depending on the organization's level of sustainability (Anderson & Caimi, 2022). Digital tools can be applied across all phases of the sustainability reporting process, ranging from full-service guidance to external verification as mentioned in the methods (Panek, Sobczyk & Satoła, n.d.). However, the reality remains that Microsoft tools, particularly Excel and PowerPoint, form the backbone of most digital work (Vanhomwegen, 2024). Excel is primarily used for technical and operational tasks, such as conducting DMAs or calculating emissions, while PowerPoint supports the more people-oriented aspects of the work, like facilitating client workshops.

I rely heavily on Excel for my work (Intermediary\_8)

Well, we use basic tools like PowerPoint to visualize concepts (Intermediary\_6).

The above mentioned tools are used the most, while advanced tools are often used in the background rather than at the forefront of processes. AI, for example, is leveraged to support critical thinking and generate large pieces of text, but is not yet fully integrated into everyday

decision-making or data processing tasks (Gigster, 2023). Although some organizations have begun developing systems, these efforts remain the exception rather than the rule.

#### 4.3.2. (Advice on) implementation of reporting companies' digital tools

A key dimension of digital intermediation practices concerns the way intermediaries support the implementation of digital tools within reporting organizations. Rather than merely advising on sustainability strategy, intermediaries often play a crucial role in shaping the digital infrastructure that enables effective reporting. This involvement typically starts with advising clients on tool selection, helping them navigate a complex technology landscape. One interviewee emphasized their advisory role below.

That's actually what we advise clients, wait a few more years until a provider like Exact offers a solid system. Don't invest in a custom-built tool now (Intermediary\_1).

This quote reflects how intermediaries guide clients not only on what tools to use, but also when to adopt them, aligning digital choices with regulatory maturity and tool readiness. Beyond tool selection, intermediaries increasingly position digital transformation as an essential component of the sustainability reporting process, rather than something supplementary. Their involvement can extend past short-term advisory roles solely based on the sustainability reporting process, aiming instead to advise on digital systems and embed them in the reporting companies' sustainability process. In this process, the digital technologies are considered as foundational as the sustainability content itself.

We're also helping them bridge the gap between the standards and the technology, which creates a longer-term relationship. If we only help with reporting, it's a six-month or one-year thing, materiality, action plan, done. But if we help with implementing the action plan, developing governance, or embedding technology, it becomes a multi-year collaboration (Intermediary\_2)

This illustrates how intermediaries evolve from short-term advisors into strategic partners in digital transformation. In some cases, intermediaries even move from tool recommendation to in-house tool development, further demonstrating their embedded role in shaping the digital future of sustainability reporting. As one participant described below.

For example, (Anonymized) invites us because they want certain tools. First we guide them and then we are working on our own tool (Intermediary\_13).

In this case, intermediation moves beyond traditional advisory roles into co-creation, where intermediaries not only guide tool selection but also participate directly in the development of digital solutions. This reflects their evolving involvement in shaping the technological backbone of sustainability reporting, contributing not just to what is reported, but to how reporting systems are integrated within reporting organizations. In doing so, intermediaries could increasingly position themselves as the architects of future technology standards in the relatively new landscape of sustainability reporting technologies, influencing how such systems are designed and adopted across the field.

#### 4.3.3. The benefits of tools in the reporting process

From the challenges as mentioned above, the notion arises a company should not adopt digital technologies. However, the use of digital tools in the sustainability reporting process plays a critical role in enhancing efficiency and reducing the manual workload traditionally associated with data processing and documentation. In particular, artificial intelligence (AI) is regarded by many interviewees as a valuable asset in improving efficiency, by dealing with large amounts of unstructured data with ease (United Nations Global Compact, 2025). Moreover, digital tools contribute to a more efficient audit process by providing structured data management and built-in validation mechanisms, thereby reducing the need for manual checks and increasing trust in data accuracy.

First, they bring efficiency. We have seen cases where someone collects data from an invoice, notes it manually, then enters it into Excel, from there it goes into a database, and eventually into a report. That chain involves many steps and introduces multiple risks for errors. So streamlining that with automation saves time and reduces mistakes. Second, it makes the audit process smoother. Without these tools, auditors have to conduct many separate interviews and checks. They ask why a number is missing, where the data came from, who validated it. But if a tool provides structure and built-in checks, there's more trust in the accuracy of the data. (Intermediary\_2)

By automating labor-intensive tasks, digital tools allow intermediaries to shift their focus more on strategic decision-making. This shift not only enhances the quality of the advisory process but also increases its scalability. As noted below, the time saved through automation enables intermediaries to support a larger number of clients without compromising the depth or relevance of their advice. In this way, digital technologies enable a broader reach and higher quality services in intermediaries' consulting.

Same people, higher output and sometimes higher quality because you reduce manual errors. (Intermediary\_11)

Although digital technologies are proven to increase efficiency, their primary application still tends to take place in the background (Environmental Resources Management, 2020). These background technologies enable regulatory intermediaries to work more efficiently. However, according to several interviewees, digital tools that directly support the delivery of services remain underdeveloped. The current situation of these tools often lacks the functionality and flexibility needed to fully meet the complex and changing demands of sustainability reporting (PriceWaterhouseCoopers, 2024). As a result, while technology plays an important role in enabling and enhancing the consulting process internally, its potential to transform the service to the client remains to be exploited.

## **5. Discussion**

### *5.1. Theoretical contributions*

Within this chapter, the comparison between the theory and the empirical findings is made. This study makes two contributions to two themes of literature. First, it shows how regulatory uncertainty, which is often overlooked, shapes the work of regulatory intermediaries, both enabling and limiting their role. Second, it offers a detailed account of how digital technologies are actually used in sustainability reporting, challenging the literature's focus on potential by showing the difference in practice.

#### *5.1.1. Theoretical contribution to the literature on regulatory intermediaries*

For the first contribution, by Abbott et al. (2017) RIT model, positions regulatory intermediaries as central actors bridging regulators and targets. The same goes for Short & Toffel (2011) and Kivimaa et al. (2019) who argue intermediaries play pivotal and employ multiple roles in the management of complex regulatory requirements. However, the literature on regulatory intermediaries does not mention the role of changing regulations, in doing so assuming a relatively stable regulatory environment (Abbott et al., 2017; Short & Toffel, 2011; Kivimaa et al, 2019). An important phenomenon that has gone unnoticed in the current literature.

Contradictory, the findings argue that regulatory uncertainty plays a dual role in the field of sustainability reporting. First, it directly affects the role of regulatory intermediaries. The ambiguity and complexity of the CSRD increase firms' reliance on external regulatory intermediaries to interpret and assist with the evolving requirements. In this way, uncertainty reinforces the relevance of intermediaries as navigators of sustainability regulations. However, at the same time large revisions of the CSRD, such as those introduced by the CSRD Omnibus, have reduced the number of firms in the market, shrinking the potential client base for intermediaries. This duality makes regulatory uncertainty both an enabling and a constraining force in intermediary work.

Secondly, the findings on regulatory uncertainty show that it also affects the adoption of digital technologies by regulatory intermediaries. Because the regulatory landscape is still uncertain, many intermediaries, especially smaller ones, are hesitant to invest in specialized tools for sustainability reporting. Instead, they continue to rely on general-purpose solutions like Excel. For technology providers, the unclear and shifting requirements reduce incentives to develop new tools, and early investments (e.g., by startups focused solely on CSRD compliance) have proven risky due to market delays. While prior literature has typically emphasized the motivating effect of regulatory pressure on digital transformation (Yan & Ge, 2024; Kanda et al., 2025), this study demonstrates that regulatory instability can have the opposite effect, discouraging innovation and delaying implementation.

In conclusion, this study contributes to the literature on regulatory intermediaries by introducing the role of regulatory uncertainty, a factor largely overlooked in existing models that assume stable policy environments. Regulatory uncertainty undermines the long-term strategy and incentives in both their advisory capacity and the technological infrastructure to support their services. However, it also provides the intermediaries with a larger market as pressure increases on intermediaries, who spend more time interpreting shifting rules and adjusting their advice as the standards evolve. In conclusion, this regulatory instability has not been sufficiently addressed in existing literature (Abbott et al., 2017; Short & Toffel, 2011; Kivimaa et al., 2019). The both constraining and enabling effect that comes from it, represents a key theoretical contribution.

### 5.1.2. Theoretical contribution to the literature on digital tools in sustainability reporting

For the second contribution, while academic literature increasingly highlights the benefits and strategic potential of digital technologies in sustainability reporting, most studies focus on their promise rather than their real-world application (Irianto et al., 2025; Pizzi et al., 2023). For instance, existing research highlights how technologies such as AI or blockchain can improve quality and efficiency of reports, yet provides limited detail on how these tools are practically integrated in intermediary-led processes (Guandalini, 2022; Chen, 2024; Spigarelli et al., 2024). Similarly, Tseng & Shang (2021) suggest these tools could reduce the need for intermediaries but do not examine how intermediaries are currently adopting them. Even studies linking digital maturity to improved reporting tend to generalize across organizations and overlook how tools are operationalized within intermediation (De Silva et al., 2025; Ladu et al., 2024). As a result, the literature provides limited empirical detail on how digital technologies are implemented across the various stages of sustainability reporting by regulatory intermediaries, a gap introduced by Pizzi et al. (2023) which this study has addressed through its empirical research.

Contradictory to the current literature mentioned above, this study provides a detailed overview of the practical implementation of digital technologies in sustainability reporting. In doing so, this study also challenges the assumption in the literature that advanced digital tools are widely adopted in sustainability reporting practices. Moreover, the literature emphasized the transformative potential of digital technologies (Saxena et al., 2023; Pizzi et al., 2023). In contrast, the findings reveal that the most frequently used technologies are general-purpose tools such as Excel and PowerPoint, while more sophisticated tools' use remains limited. Contrary to the literature's optimism, these technologies have not yet achieved integration in either sustainability support practices or reporting. This insight also challenges the notion, present in Tseng & Shang (2021), that digital technologies could replace intermediaries. Instead, the findings align more with Holland et al. (2024), showing that DTs supplement rather than replace human expertise. Intermediaries continue to be essential for its human aspect, through their advisory and sometimes operational role on the implementation of digital technologies in reporting companies.

The analysis also identifies key challenges that hinder technology adoption. These are grouped into seven categories: cost, time, data quality, tool rigidity, dependency concerns, knowledge gaps, and data sensitivity. This pushes the literature beyond the assumption that digital tools automatically transform sustainability reporting as given by Saxena et al. (2023),

showing instead that uptake is constrained by both organizational and regulatory factors. By clearly outlining these barriers, the study contributes to the theoretical understanding of digitalization within regulatory intermediation, an area still underexplored.

In conclusion, this study directly addresses the empirical gap introduced by Pizzi et al. (2023), who noted the lack of detailed understanding of how digital tools are actually implemented within the sustainability reporting processes. Moreover, it challenges the notion given by Tseng & Shang (2021) on the ability of DTs to replace regulatory intermediaries, in doing so aligning with the view by Holland et al. (2024), arguing that DTs cannot replace intermediaries. This study provides concrete empirical evidence on the tools that are currently in use and the contexts in which they are applied. It reveals that general-purpose solutions remain the dominant tools in practice, while more advanced technologies are only sporadically adopted in business processes. Moreover, the study identifies seven distinct organizational factors, shaping the integration of digital technologies in sustainability reporting. By doing so, the study moves the literature beyond the generalizations in the literature and offers a grounded account of the barriers that influence digitalization in regulatory intermediation.

### *5.2 Limitations and directions for future research*

One possible limitation of this study is its short-term scope. The findings are based on a snapshot of a transitional moment in sustainability regulations, shortly after the Omnibus altered the scope and timeline of reporting obligations. As a result, many of the observed patterns are shaped by current uncertainty, particularly regarding the adoption and use of digital technologies. A longitudinal research design could offer deeper insight into how digital technology use evolves once the CSRD framework becomes more stable and has a wider scope. It is likely that, over time, digital tools will play a much more prominent role in the sustainability reporting process, especially as the standards become clearer and as more companies fall within the scope of future regulatory expansions. Consequently, the findings of this study reflect an early-stage and possibly constrained phase of digital adoption, rather than its end-state. As one the findings also showed, the future of sustainability is in digital technologies. Future research could involve longitudinal studies which could provide a richer understanding of how the role of digital technologies evolves over time as the CSRD matures and its scope broadens.

Secondly, another limitation of this research is about the composition of the sample, which consists exclusively of intermediaries, primarily consultants or advisory professionals involved in supporting companies with CSRD compliance. This focus offers insights into how intermediaries navigate the regulatory landscape and implement digital technologies in their practice. It possibly presents a restricted view of the broader sustainability reporting system. The perspectives of other key actors, such as the regulators or technology providers, are not represented in this study. As a result, important dynamics, like how regulators perceive the role of intermediaries, or how tool developers assess the usability and relevance of their products, remain outside the scope of analysis. This limits the study's ability to offer a holistic view of the role of digital technology in the sustainability reporting process under the CSRD. Future research could benefit from incorporating multiple stakeholder perspectives to provide a more comprehensive view.

Finally, a limitation of this research lies in its case focus. The study is situated entirely within the regulatory environment of the European Union, with a particular emphasis on the CSRD and its implementation in the Netherlands. While this offers valuable insights into how intermediaries navigate the EU's sustainability reporting framework, the findings may not be fully generalizable to other regulatory contexts.. Differences in regulations or digital infrastructure can significantly influence the role of intermediaries and the adoption of digital tools. As such, contextual variations may limit the transferability of the findings to other settings. Future research could explore how similar dynamics unfold in other regulations.

### *5.3 Practical implications*

The findings of this thesis offer several practical insights for managers and businesses navigating sustainability reporting under the evolving CSRD framework. As sustainability regulations continue to mature, firms must proactively adapt to both regulatory and technological developments to remain compliant in an effective manner.

Firstly, managers of reporting companies should prioritize building internal knowledge of sustainability reporting, particularly in understanding regulatory requirements and identifying relevant ESG data points. However, due to the persistent complexity of CSRD standards, internal efforts are most effective when complemented by the expertise of regulatory intermediaries. These intermediaries play a crucial role in interpreting evolving regulations

while tailoring strategies to firm-specific context. Rather than replacing intermediaries, internal capacity building should be seen as a way to improve collaboration and ensure more effective engagement with regulatory intermediaries.

Secondly, digital technology adoption should be approached strategically. While the literature on digital tools recognize the potential to enhance reporting efficiency, the findings have shown their effectiveness is dependent on the maturity of internal data systems, cost considerations, and the organization's digital readiness. The study suggests that general-purpose tools like Excel remain the default for many firms due to their flexibility and familiarity. However, businesses should begin evaluating and testing more specialized tools, particularly as the regulatory landscape stabilizes and better tools emerge. When looking out for new tools, managers should remain cautious of overreliance on specific software vendors. The findings highlight risks associated with tool dependency, such as inflexible platforms and data migration challenges. Therefore, when branching out, firms should consider the above mentioned issues.

Finally, businesses should anticipate further regulatory changes and plan with agility. The introduction of the Omnibus proposal underscores the likelihood of continued adjustments to CSRD requirements. While the Omnibus has delayed the market, the requirements will still apply sometime in the future. Managers must therefore embed flexibility into their compliance strategies, ensuring that both human and technological resources can adapt to new developments.

## 6. Conclusion

This study explored the evolving role of intermediaries in the context of sustainability reporting under the CSRD, with a particular focus on the influence of digital technologies and regulatory developments. It did so by asking the question; How do regulatory intermediaries leverage digital technologies to support firms in navigating sustainability reporting requirements as part of emerging sustainability regulations? Through 13 semi-structured interviews with both intra-organizational and extra-organizational intermediaries, the research sought to uncover how these actors navigate the challenges and opportunities presented by an increasingly complex and shifting regulatory landscape. To enhance the validity of the findings, secondary non-academic data sources were used for triangulation.

This study set out to explore how regulatory intermediaries leverage digital technologies to support firms in navigating sustainability reporting requirements under emerging regulations. The findings show that while digital tools hold clear potential to enhance sustainability reporting practices, their use among intermediaries is not yet as advanced or widespread as suggested in the existing literature. Instead, adoption is shaped by a range of contextual factors, especially regulatory uncertainty and organizational readiness. Digital technologies are gradually being integrated into these processes but are primarily used to enhance internal efficiency rather than transform services to the client. Digital innovation in sustainability reporting is delayed with which comes a sustained reliance on general-purpose tools like Excel. The study reveals that intermediaries operate within a dynamic environment where regulatory change simultaneously increases their relevance and complicates their work.

This study provides two theoretical contributions. First, it introduces regulatory uncertainty as an important factor shaping the work of regulatory intermediaries, both reinforcing their role due to complexity and ambiguity, and limiting it by a shrinking client base and delaying digital tool adoption. This challenges prior literature that assumes a stable policy environment, and overlooks regulatory uncertainty as a factor. Second, the study moves beyond the literature's emphasis on the potential of digital technologies by offering a detailed account of how such tools are actually used in practice. It shows that general-purpose tools dominate current practice, and that the adoption of advanced tools is hindered by practical and organizational barriers.

Several limitations should be acknowledged. The research captures a snapshot in time during a transitional phase of the CSRD, meaning findings may not reflect long-term developments. Additionally, the exclusive focus on intermediaries limits insights from regulators and tech providers. Lastly, the EU-centric scope may affect the generalizability of results. Future research could adopt a longitudinal design and include multiple stakeholder perspectives in diverse regulatory settings to expand on these findings.

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## Appendix

### *A1: Interviews with ESG reporting actors*

<b>Function</b>	<b>Operating environment</b>	<b>Code</b>	<b>Description of Organization</b>	<b>Organization size</b>
Advisor Company Sustainability & CSRD	Extra-organizational	Intermediary _1	One of the larger financial services companies, in the top 20	500 employees
Senior Consultant Sustainability & Innovation	Extra-organizational	Intermediary _2	One of the BigFour companies	236.000 employees
ESG Advisor	Intra-organizational	Intermediary _3	One of the leading building companies in the Netherlands	5.650 employees per the end of 2024
Consultant Strategy & Operations	Extra-organizational	Intermediary _4	A well-established Dutch consultancy firm	500 employees
Advisor Sustainable Entrepreneurship	Extra-organizational	Intermediary _5	Multidisciplinary consultancy firm in sustainable entrepreneurship	80 employees
Junior Organisation Advisor	Extra-organizational	Intermediary _6	Consultancy firm mainly specialized in mergers & acquisitions	More than 200 employees
Organisation Advisor	Extra-organizational	Intermediary _7	Consultancy firm mainly specialized in mergers & acquisitions	More than 200 employees
Controller Energy Transition & Sustainability	Intra-organizational	Intermediary _8	A multinational firm in the field of brick making	Ca. 20.000 employees
Advisor Sustainable Entrepreneurship	Extra-organizational	Intermediary _9	Multidisciplinary consultancy firm in sustainable entrepreneurship	80 employees
Accountant/Lead Integrated Reporting	Intra-organizational	Intermediary _8	National electricity transmission system operator for the Netherlands	Over 4.000 employees

International Strategic ESG Advisor & Impact Reporter	Extra-organizational	Intermediary _11	World leading provider of audit, tax and consulting services to entrepreneurial growth-focused organisations globally.	64.000 per the end of 2023
Impact Innovator / (fractional) Business development lead	Extra-organizational	Intermediary _12	Self-employed/co-founder consulting firm in sustainability and tool development	of 2-10 employees
Tender Strategist & CSRD-Specialist	Extra-organizational	Intermediary _13	Consultancy firm in the field of tenders, sustainability and data	of 11-50 employees

## A2 Second set of primary data

Subheading	Initial quote	Secondary quote
Changing requirements	Another big issue is the desire for clarity in legislation. Some companies were actually relieved when CSRD came along, because it gave them something concrete to work with, even though it was a lot of work. But then it changed again, which was frustrating. (Extra_5)	It seems quite difficult for everyone, with so much happening and everything feeling so ambiguous. You do not know where it is all going (Intermediary_2)
Changing requirements	Yes. Initially, we had about 30 CSRD clients. Roughly 80% have since been phased out. (Intermediary_6)	The Omnibus impacted the scope significantly, about 80% of companies that were initially in scope are now out of scope (Intermediary_2).
Ambiguous requirements	The standards themselves provide guidance, a structure for what needs to be reported, and often include references like, use this or follow that. But there's still a lot of interpretation required to apply those standards to a client's individual context. For example, the climate change section in CSRD says to report on scope 3 emissions using the GHG protocol. That is all it says. (Extra_2)	The standards themselves provide guidance, a structure for what needs to be reported, and often include references like, use this or follow that. But there's still a lot of interpretation required to apply those standards to a client's individual context. For example, the climate change section in CSRD says to report on scope 3 emissions using the GHG protocol. That is all it says. (Extra_2)
Ambiguous requirements	And to your earlier point, there are other laws and regulations that require companies to act, like energy-saving obligations. The CO <sub>2</sub> -neutral 2050 target still stands, so it's not like companies are off the hook." (Extra_5)	Some of our larger clients need to comply with multiple regulations like ISSB, CSRD, or Japanese standards, so a common question is how to make the reporting process more efficient across different frameworks (Intermediary_2).
Ambiguous requirements	Specifically for CSRD, it's that it's very complicated. They don't always understand what's being asked. It's not	When it comes to sustainability, the biggest barrier is often a lack of understanding. They find it vague or

	clear what they're supposed to do. (Extra_9)	full of contradictions (Extra_7)
Ambiguous requirements	It happens more often than you might think. In corporate finance, for example, it's not unusual for an advisory team to also perform services for the same client, from a strategic point of view. So, it's not that strange, but in this case, it can feel a bit like marking your own homework. (Extra_1)	What we add to these tools is a layer of internal control. Because we know what is expected during an audit, we make sure that the tools contain checks and approvals. For instance, a junior employee might enter the data, but then it goes through multiple layers of review. Someone approves it, someone else validates it, and only then is it considered ready to report. (Intermediary_2).
Reporting companies and technology providers responding to changing requirements	Yes, though that often comes from different motivations. CSRD was really a legal requirement. Some companies are now putting their CSRD efforts on hold, waiting to see what happens. They've found it too detailed, too data-heavy, and not worth the effort unless they're certain they need to report. (Extra_1)	They don't want to overwhelm themselves with everything, so they prioritize based on what's most relevant. Others are still figuring out their priorities and timelines. So yes, the impact is real, and we're still seeing how companies are responding. It also depends on how the EU finalizes things and what the next set of standards will look like. For now, we're in that in-between phase (intermediary_2).
Reporting companies and technology providers responding to changing requirements	The Paris Agreement still sets the 1.5°C target for 2050, but there's no concrete enforcement right now. Before, CSRD made companies verify their claims, like being the "greenest transporter." Now, companies can cherry-pick their best aspects, "We have five electric trucks", and ignore others like employee safety. (Extra_6)	Even if the obligation drops, reporting can add value, depending on your sector and stakeholder demands. Some companies, like retailers, may see commercial value in showing the CO <sub>2</sub> footprint of their products in online catalogs (Intermediary_12).
Reporting companies and technology providers responding to changing requirements	Everyone is pivoting their tools to reflect the ESRS adjustments and new voluntary standards. The software vendors claim to be agile or regulation-agnostic, which is often true. But it's still a challenge, especially for medium-sized companies, to stay current with regulatory uncertainty. If you've built your software just to meet CSRD compliance, you're now extremely vulnerable. A lot of startups saw CSRD as a market opportunity, took venture capital, and are now under pressure to generate returns, yet the mass market has been delayed by two years. (Extra_12)	There are a lot of those tools on the market, but they're not really do-it-yourself tools. They require definitions, context, and understanding. That's challenging for both entrepreneurs and software developers. And now, with the CSRD landscape changing so rapidly, even sustainability managers have to keep learning (Intermediary_12).
Reporting companies data management challenges	One key issue is the "garbage in, garbage out" principle. Data quality is everything. The systems help structure data, but if the data is incomplete, the outcome won't represent reality accurately. (Intra_3)	But sometimes it is more difficult or the data is less reliable, for one reason or another. And that process also differs. So now you have an Eneco, then you can get it from an invoice, but for some organizations they get it from a portal. And for some organizations, I don't know how much they have to call to get the kilowatt

		hour. So those processes also differ, and that also makes it difficult to constantly ask people to deliver that data. (Extra_4)
Reporting companies data management challenges	Accurately capturing the story and the metrics we actively manage, not just the ones we happen to have, is a challenge. Also, the timing and quality of incoming data can be difficult. (Intra_10)	Yes, it just creates more complexity. I'm in favor of digitalization, but in practice I've seen too many systems being implemented without understanding what the work really entails. For example, someone developed an automated CO <sub>2</sub> calculation tool, but it was designed by someone who never performed a real CO <sub>2</sub> analysis (Intermediary_8).
Organizational challenges	Several reasons. Cost, of course. Some companies are already spending a lot on people, consultants, and managing the entire CSRD process. So adding a new technology layer may feel like too much. (Extra_2)	That's actually what we advise clients, wait a few more years until a provider like Exact offers a solid system. Don't invest in a custom-built tool now. It's just too expensive. (Extra_1)
Organizational challenges	Time is another factor. Implementing a new system requires time and training, which can delay their compliance efforts. And then there's maturity. Some companies are simply not ready. They are in their first year and just want to get the basics right. (Extra_2)	That's the core of it. It often takes time (Intermediary_1).
Organizational challenges	One of our colleagues has done research into available tools. His conclusion was that most are still in their early stages. Nothing is fully mature yet. You might find something that works well in one area but falls short in another. We have not found the golden standard yet. (Extra_7)	They want to understand what they are reporting, establish the fundamentals, and maybe in year two or three, when they are more comfortable, they will add technology to the mix. Others want to do it all at once and get it right the first time. It depends on the company's mindset and capacity. (Extra_2)
Organizational challenges	Clients often say the tools are too rigid. For instance, one client was using a tool designed for small businesses, but now they're growing rapidly and the tool can't keep up. That kind of inflexibility is a recurring issue. (Extra_7)	Some efforts are already underway to integrate this into SAP from the group level, but the current solution doesn't meet Dutch regulatory standards, like those set by the Emission Authority (NEA). We have to be able to trace and justify everything with full transparency. That's something SAP isn't flexible enough for right now (Intermediary_8).
Organizational challenges	Exactly. And something I've heard from companies is that once you go all-in with a software platform, you're locked in. Your data stays in that system, and it's hard to migrate or extract it later. You end up needing to keep the software indefinitely just to access your own data. (Extra_5)	So if you go hand in hand with a software partner, you are dependent on how they build their software (Intermediary_6).
Organizational challenges	The knowledge gap is huge. Most of our clients first take part in a one-day CSRD training or online learning program. Then they go through a	They brought in the technical CSRD and sustainability expertise, while we focused more on strategy and organizational support. We learned a

	kickoff workshop with their internal teams. Only after that do they start using the software, once their knowledge level is high enough. (Extra_12)	lot from them through knowledge sessions and hands-on experience with those 30 clients, especially in identifying material themes (Intermediary_9).
Organizational challenges	I'm also involved in buying and selling companies. So we can't just feed that kind of sensitive data to a tool like ChatGPT in an unprotected environment. You don't want names and financials ending up in the wrong place. (Extra_6)	No, not really. It brings new questions too, like data protection. Strategy will always matter, whether it's CSRD, AI, or something else. (Extra_7)
Size challenges	There are tools we have developed ourselves, sometimes with a partner, and other tools that we implement in collaboration with external providers. For example, I worked on a global initiative with other Company X2 member firms where we created the CSRD Enabling Platform. That is the first part where we bring in our unique experience. The second part is where external tools like those from SAP, Microsoft, Wekiva, or Sapiens come in (Extra_2).	Wherever data needs to be collected, whether it's from direct sources or estimated, we've included our impact data (developed at the Impact Institute last year). This lets companies quickly see whether a particular issue is an impact, a risk, or an opportunity. So it's project management tooling combined with an existing database that can provide sector-specific estimates for impact hotspots (Intermediary_12).
Size challenges	At the moment, tools aren't very developed (Extra_1).	So for some people and for some companies we work for, there's just not the will to change, to make things easier (Intermediary_4).
Intermediary reliance on general-purpose tools	I rely heavily on Excel for my work (Intra_8)	Right now, most of it still happens in Excel (Intermediary_1).
Intermediary reliance on general-purpose tools	Well, we use basic tools like PowerPoint to visualize concepts (Intermediary_6).	Pretty simple, Office 365, Excel, Word, PowerPoint. We've looked into AI tools like Copilot, but for now, we stick with what works. We have our own Excel templates for things like impact assessments and dashboards (Intermediary_13).
(Advice on) implementation of reporting companies' digital tools	That's actually what we advise clients, wait a few more years until a provider like Exact offers a solid system. Don't invest in a custom-built tool now (Intermediary_1).	Generally, yes. Many of these tools are expensive. When we offer clients a choice, manual support with Excel or using a software tool, most choose Excel. It's familiar, cost-effective, and gets the job done (Intermediary_4).
(Advice on) implementation of reporting companies' digital tools	We're also helping them bridge the gap between the standards and the technology, which creates a longer-term relationship. If we only help with reporting, it's a six-month or one-year thing, materiality, action plan, done. But if we help with implementing the action plan, developing governance, or embedding technology, it becomes a multi-year collaboration (Intermediary_2)	In larger companies, you often see sustainability managers or controllers who already have the necessary knowledge or background. That group mainly looks for software to ease the burden (Intermediary_12).
(Advice on) implementation of reporting companies' digital tools	For example, (Anonymized) invites us because they want certain tools. First	For instance, my most recent project involved helping companies with

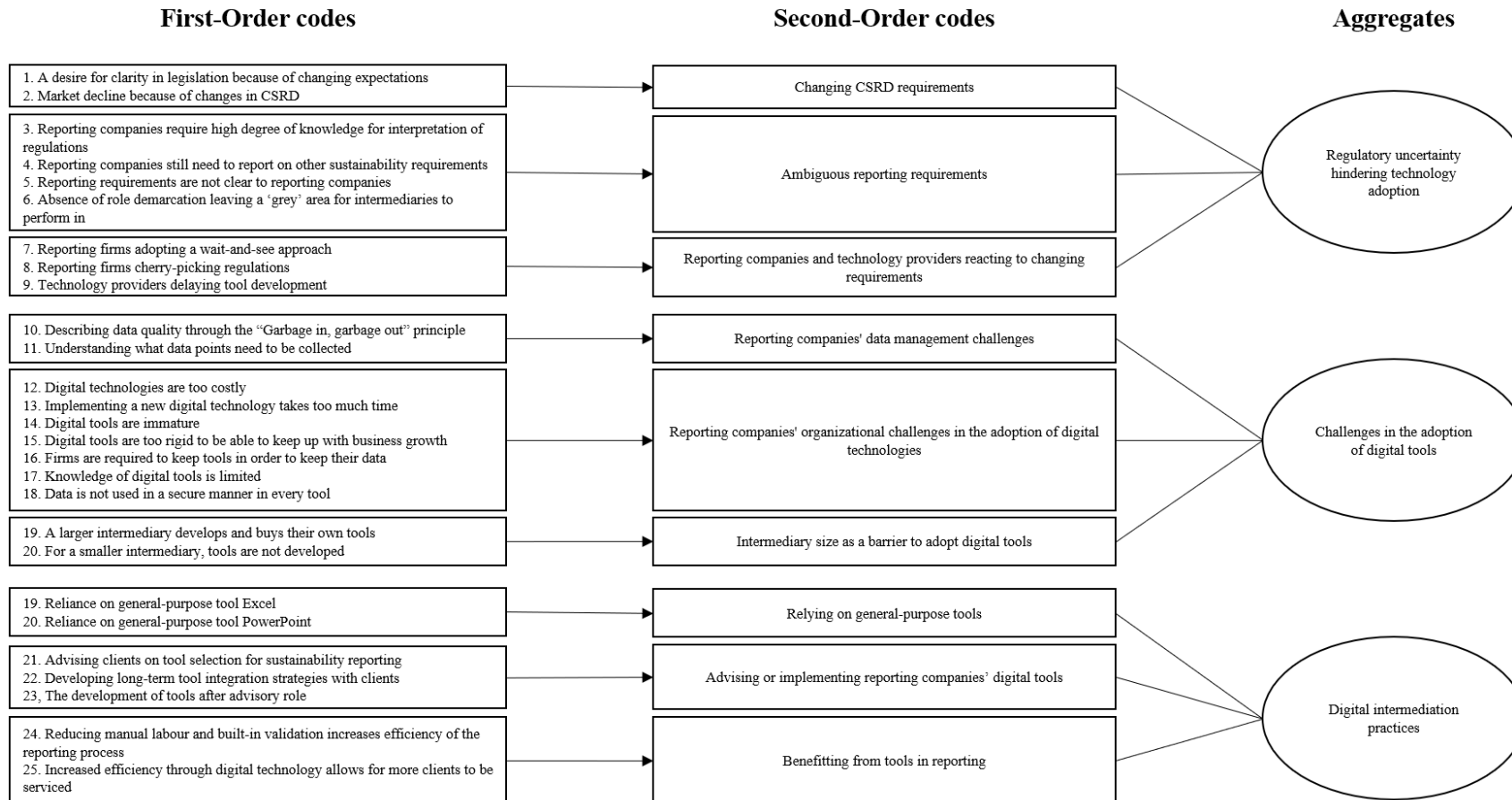
	we guide them and then we are working on our own tool (Intermediary_13).	their CSRD journey. We also developed tooling to support that and offered it as a combined service (Intermediary_12).
The benefits of tools in the reporting process	First, they bring efficiency. We have seen cases where someone collects data from an invoice, notes it manually, then enters it into Excel, from there it goes into a database, and eventually into a report. That chain involves many steps and introduces multiple risks for errors. So streamlining that with automation saves time and reduces mistakes. Second, it makes the audit process smoother. Without these tools, auditors have to conduct many separate interviews and checks. They ask why a number is missing, where the data came from, who validated it. But if a tool provides structure and built-in checks, there's more trust in the accuracy of the data. (Extra_2)	Yes. As advisors, we spend a lot of time processing and documenting insights from sessions. With sustainability, for example, we discuss why themes like employee training and development are material while others, like water usage, are not. Translating that into well-structured documentation takes time. Tools like Copilot or ChatGPT can help bring that first draft up to 80%, which is great. (Extra_6)
The benefits of tools in the reporting process	Same people, higher output and sometimes higher quality because you reduce manual errors. (Extra_11)	Well, I think if you ask me, it makes work a lot easier within the CSRD boundaries. Because maybe to sum it up, you can get a lot of information in a short time if you have AI models, for example. You can process a lot of information (Intermediary_4).

### A3: Data sources

Data level	Data source	Quantity
Primary	Semi-structured interview with external intermediaries	10
Primary	Semi-structured interview with internal intermediary	3
Secondary	Non-academic, not company specific, public, online sources/blogs	21
<b>Total</b>		<b>34</b>



A4: Data structure



## *A5.1 Interview guide (EN)*

### **Introduction**

- Brief introduction of the researcher and the purpose of the study
- Ensure consent for recording and explain confidentiality of the conversation
- Ask if they have any questions before starting to make sure the goal of the interview is clear

Ask for them to introduce themselves (name, age, organization). Then follow up with:

- Can you tell me something about your organization, what do they do specifically?
- What is your function or role in this organization?
- How long have you been employed in this role?

### **1. Understanding the supporting process**

The Corporate Sustainability Reporting Directive, in short the CSRD, is a framework established by the EU to facilitate the comparability of corporate sustainability performance while serving as a mechanism for accountability. The CSRD imposes stricter reporting obligations than its predecessor, presenting companies with significant challenges due to complex compliance requirements. Per 2024, ESG reporting under the CSRD requires large public interest enterprises (PIE), firms with over 500 employees, to report more extensively on sustainable business matters. This will expand to all large companies as of 2025 with the year thereafter all medium-sized and small listed companies other than micro-companies.

- What does the process look like when you are supporting companies with ESG reporting?
  - What kind of services do you typically offer in relation to helping other firms in sustainability reporting?
  - Do these differ per client? Or is there a one-way approach to how you help these firms in their reporting?
  - What does a typical collaboration process with a client look like from start to finish?
  - Does this ever finish? Or is this is (hopefully) a long-term relationship?

- If your help is needed, clients must be struggling with these regulations. What are the issues your clients struggle with most?
  - Do you interpret/translate sustainability regulations for your clients?
- In your view, how does your involvement influence/improve the quality and credibility of sustainability reporting of your clients?

## **2. Use of Digital Technologies**

To be on the same page, digital technologies can include any contemporary form of digital technology that enhances your service. These digital technologies are introduced to improve your work. These include Information Management Systems, Enterprise Resource Planning systems, Big Data systems, AI, etc.

- What digital tools or technologies do you or your organization use in ESG reporting, if any? (If not, which seems unlikely, you could speculate on what you would use and why)
  - What are the specific advantages that digital technologies bring to your work?
  - Are there any technologies that really stand out to you or help you the most?
  - Why and/or how did you decide to adopt these specific technologies? Did you know in advance whether they would be beneficial?
  - Why do you think others might not use these technologies?
- How are these technologies integrated into your services (e.g., data collection, analysis, reporting)? (important for the research question)
  - If possible, could you show me an example of how you use these technologies?
- Have you encountered any challenges in implementing or using digital tools in ESG reporting?
- Has this changed anything in your relationship with your clients?
  - Do some clients respond differently to this than others?
  - Have client expectations changed because of the use of these technologies?
- To what extent does technology make your work more efficient, and what do you do with the time that is freed up?
  - Do you see any upcoming technologies that might further change the way you work?

## **Closing**

- Is there anything else you'd like to add or think is important to mention regarding your work in ESG reporting or digital transformation?
- Are there any documents you can advise me to take a look at to gain a better understanding of the topic?
- Thank the participant for their help and ask if they would like a copy of any of the important pieces of the thesis, including the recording of our conversation, transcript or final version of the thesis.

### *A5.2 Interview guide (NL)*

## **Introductie**

- Korte introductie van de onderzoeker en het doel van het onderzoek
- Vraag toestemming voor opname en leg vertrouwelijkheid van het gesprek uit
- Vraag of er nog vragen zijn voordat het interview begint, zodat het doel van het interview helder is

Vraag de geïnterviewde om zichzelf kort voor te stellen (naam, leeftijd, organisatie). Stel daarna de volgende vragen:

- Kunt u iets vertellen over uw organisatie, wat doet uw organisatie precies?
- Wat is uw functie binnen deze organisatie?
- Hoe lang bent u al werkzaam in deze rol?

## **1. Rol van de regelgeving intermediair**

De Corporate Sustainability Reporting Directive, in het kort de CSRD, is een kader dat is opgesteld door de EU om de vergelijkbaarheid van duurzaamheids-prestaties van bedrijven te bevorderen en tegelijkertijd te dienen als een instrument voor verantwoording. De CSRD legt strengere rapportageverplichtingen op dan zijn voorganger, wat bedrijven voor best wat uitdagingen stelt vanwege de complexiteit van de vereisten. Vanaf 2024 zijn grote

ondernemingen van openbaar belang (Public Interest Entities, PIE) met meer dan 500 werknemers verplicht uitgebreid te rapporteren over hoe zij duurzaam ondernemen. Vanaf 2025 zal deze verplichting worden uitgebreid naar alle grote bedrijven, en in het ~~jaar~~ <sup>jaar</sup> naar alle middelgrote en kleine beursgenoteerde bedrijven, met uitzondering van micro ondernemingen. →Dit hoeft ik waarschijnlijk niet uit te leggen

- Hoe ziet zo'n proces eruit wanneer u bedrijven ondersteunt bij ESG-rapportages?
  - Wat voor soort diensten biedt u aan in het helpen van andere bedrijven bij duurzaamheidsrapportage?
  - Verschilt dit per klant, of heeft u een vaste aanpak voor hoe u bedrijven ondersteunt bij hun rapportage?
  - Hoe verloopt zo'n samenwerking met een klant van begin tot eind?
  - Heeft zo'n samenwerking een natuurlijk eindpunt, of is het juist (hopelijk) een langdurige relatie?
- Als uw hulp nodig is, betekent dat waarschijnlijk dat klanten moeite hebben met de regelgeving.
  - Wat zijn de grootste uitdagingen waar uw klanten mee te maken hebben?
  - Vertaalt of verduidelijkt u duurzaamheidsregelgeving voor uw klanten?
- Hoe beïnvloedt of verbetert uw betrokkenheid volgens u de kwaliteit van de duurzaamheidsrapportage van uw klanten?

## **2. Gebruik van digitale technologieën**

Om op één lijn te zitten: digitale technologieën kunnen alle tegenwoordige technologie omvatten die uw diensten verbeteren. Denk bijvoorbeeld aan Information Management Systems (IMS), Enterprise Resource Planning (ERP)-systemen, Big Data, AI, enz. Sommige studies stellen dat vooral IMS en ERP-systemen de meeste invloed hebben op duurzaamheidsrapportage

- Welke digitale tools of technologieën gebruikt u of uw organisatie in ESG-rapportage, als u die gebruikt? → als ze dit nog niet gebruiken (wat ik niet kan voorstellen, kun je gaan speculeren over wat je zou gebruiken en waarom)
  - Wat zijn de voordelen die digitale technologieën specifiek voor uw werk opleveren?

- Zijn er bepaalde technologieën die er voor u echt uitspringen of die u het meest helpen?
- Waarom en/of hoe zijn jullie tot het besluit gekomen om precies voor deze technologieën te kiezen? Wisten jullie van tevoren of dit voordelig zou zijn?
- Waarom anderen dan niet?
- Hoe zijn deze technologieën geïntegreerd in uw diensten (bijvoorbeeld dataverzameling, analyse, rapportage)? *(belangrijk voor de onderzoeksvraag)*
  - Indien mogelijk: zou u mij een voorbeeld kunnen laten zien van hoe u deze technologieën gebruikt?
- Zijn er uitdagingen die u bent tegengekomen bij de implementatie of het gebruik van digitale tools in ESG-rapportage?
- Heeft dit iets veranderd in de relatie met uw klant?
  - Pakken sommige klanten dit anders op dan anderen?
  - Krijgen klanten andere verwachtingen?
- In hoeverre maakt technologie het werk efficiënter, en wat doet u met de tijd die dat oplevert?
  - Ziet u toekomstige technologieën opkomen die uw werk verder nog meer zouden kunnen veranderen
- Komen jullie zelf met deze technologieën?

### **Afsluiting**

- Is er verder nog iets dat u zou willen toevoegen?
- Zijn er documenten of bronnen die u mij zou aanraden om te bekijken om een beter begrip van het onderwerp te krijgen?
- Bedankt de deelnemer voor de deelname en vraag of ze een kopie willen ontvangen van belangrijke onderdelen van de thesis, zoals de opname van het gesprek, de transcriptie of de definitieve versie van het onderzoek.