



Online-Appendix

„Multiple Case Study Analysis on the
Consequences of Mandatory Sustainability
Reporting in Private German Family Firms“

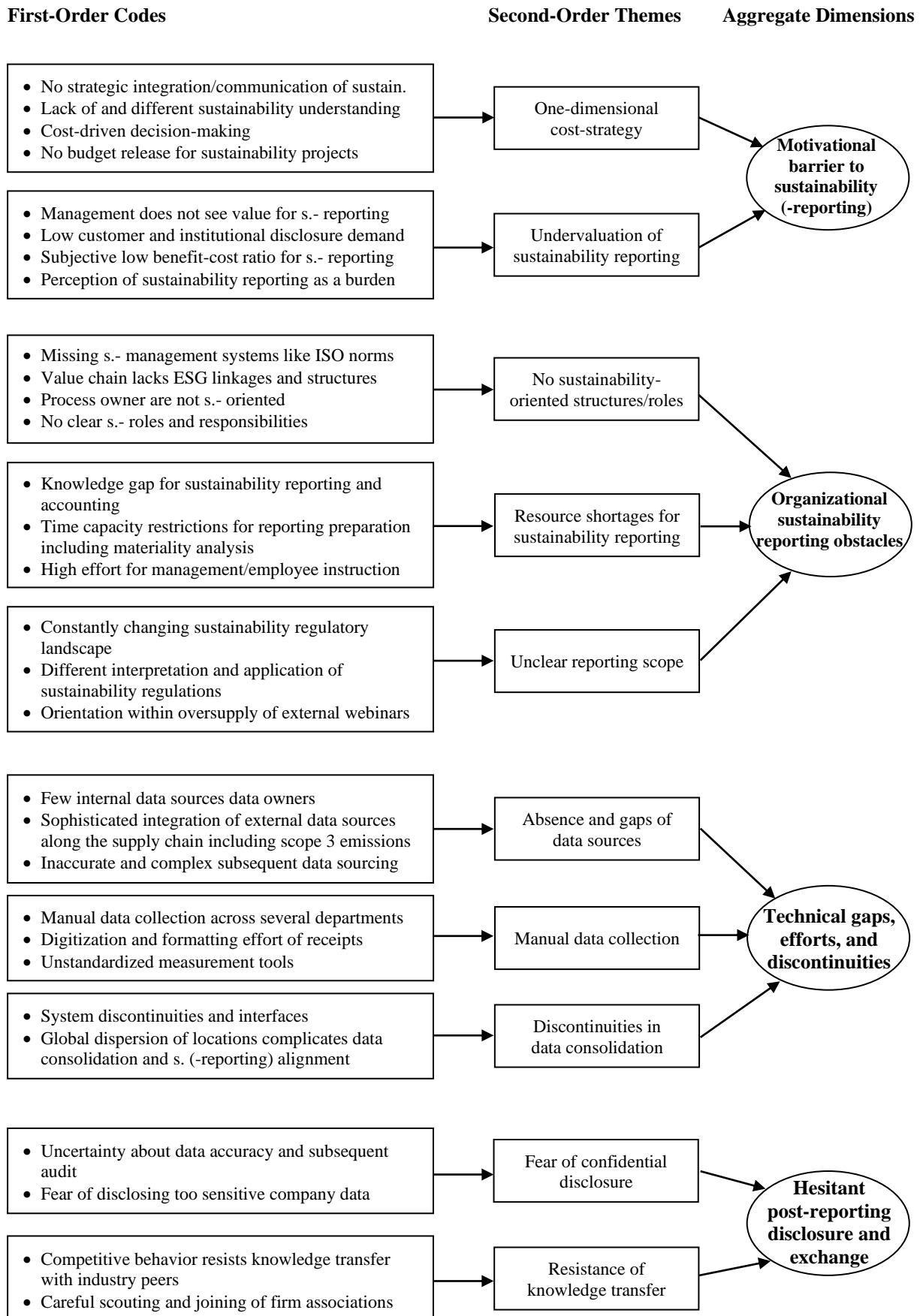
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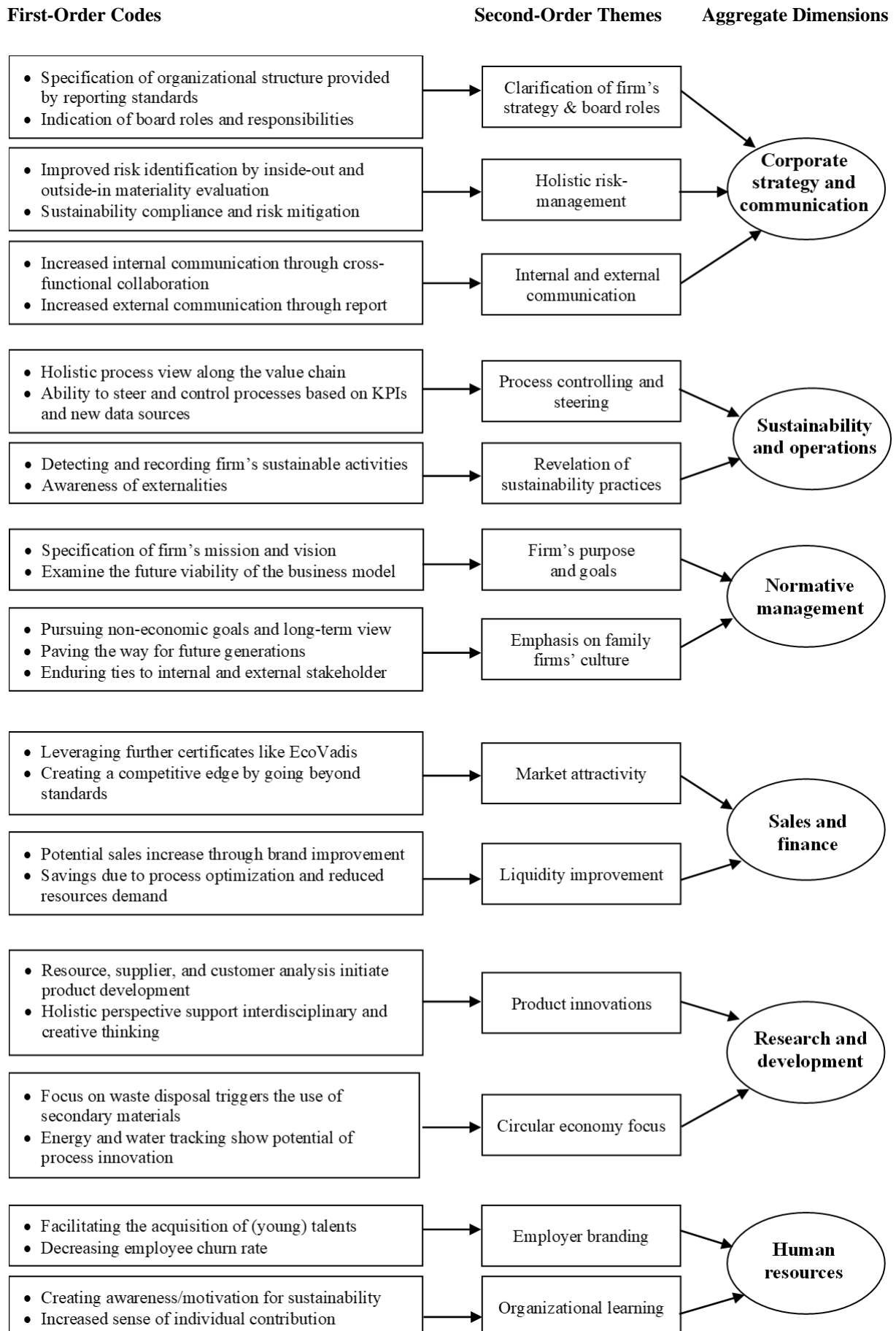
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Appendix

Appendix 1: Data structure



Data Structure contd.



Appendix 2: Selected case-based evidence

Aggregate dimension: Motivational barrier to sustainability (-reporting)	
2nd-order codes	Selected evidence on 1st-order codes
One-dimensional cost-strategy	<p>“The typical entrepreneurial approach in SMEs is, what does it cost and what are the benefits.” (<i>Gamma</i>)</p> <p>“[...] there is a budget for certain things [...]. As long as this budget is not dedicated to sustainability, this topic will not be pursued further” (<i>Gamma</i>)</p> <p>"Yes, and would you also say that because of a cost-benefit issue, there might not be an advantage here either? Kappa: Yes, that is quite a big issue for us." (<i>Kappa</i>)</p>
Undervaluation of sustainability reporting	<p>“I employ someone who takes beautiful photos throughout the year. In the end, we bind [the report] into a book. Then I ask myself what is sustainable about [the report] if, in the end, no one is interested.” (<i>Gamma</i>)</p> <p>“[...] When I prepare such a report, I must collect data and consolidate them in a report. [...] This report has not made my staff more sustainable. [...] Why should I motivate them for a report at all?” (<i>Kappa</i>)</p>
Aggregate dimension: Organizational sustainability reporting obstacles	
2nd-order codes	Selected evidence on 1st-order codes
No sustainability-oriented structures/roles	<p>“What does the CSRD look like? What do I have to do to fulfill it? Who can deal with it? How can relevant fields of action be defined and work packages derived?” (<i>Kappa</i>)</p> <p>“I have the advantage that our sites have existing certifications, for example, in the energy sector, ISO 50001, and in the environmental sector, ISO 14001, [...] many things that I need for the CSRD are already documented.” (<i>Iota</i>) (Best practice)</p> <p>“This means that we have templates and data to collect, which are usually Word or Excel documents, and we have clearly defined data owners for all areas or for all thematic areas in the sustainability report, who sit in the individual departments and who then receive these templates at the start of the data collection phase and fill them in.” (<i>Delta</i>) (Best practice)</p>
Resource shortages for sustainability reporting	<p>“[...] the topic [of sustainability reporting] was handed over to me because the quality department has no capacity at all [...].” (<i>Kappa</i>)</p> <p>“[...] One of the biggest challenges is knowledge. [...] but we need support from external consultants who show us what we need to look at.” (<i>Zeta</i>)</p> <p>“[...] the very first report under the new standard takes an enormous time to prepare [...] I could spend the whole week visiting webinars [...].” (<i>Iota</i>)</p> <p>“The initial materiality analysis took the most time.” (<i>Eta</i>)</p> <p>"[...] on the one hand, the competence has to be built up somewhere, of course, which means that just as there are specialists for financial reporting, there need to be specialists for sustainability reporting." (<i>Delta</i>)</p>

Unclear reporting scope	<p>“[...] it is currently quite difficult to stay up to date with the latest regulatory changes. It feels like there are always new laws and the 50th draft of a law or standard [...].” <i>(Delta)</i></p> <p>“[...] in terms of the CSRD [...] we would like to take a closer look what this change from the GRI standard to ESRS means. Thus, we will probably conduct a gap analysis [...].” <i>(Delta)</i></p> <p>“[...] the first sustainability report is an exercise where we want to approach this ESRS standard to the best of our ability. We will see the results of the first sustainability report at the end of this year and then publish the gap analysis [...].” <i>(Iota)</i></p> <p>“The knowledge of it at all. It is a new topic. To be comprehensively informed, what does it mean now, how can it be interpreted. What do I have to do now or not? We quickly came to the point, when does it start, are we really affected or not [...].” <i>(Eta)</i></p>
Aggregate dimension: Technical gaps, efforts, and discontinuities	
2nd-order codes	Selected evidence on 1st-order codes
Absence and gaps of data sources	<p>“The challenge is to design the processes in such a way that the information needed can be presented transparently and also in a form in which it can be tracked. For example, with the CO₂ calculation, we need to disclose scope 1, 2, and 3.” <i>(Theta)</i></p> <p>“Data management in the supply chain will be one of the biggest challenges in the coming years.” <i>(Epsilon)</i></p> <p>“We are now starting to go deeper into scope 3. I feel like I'm running into walls.” <i>(Eta)</i></p> <p>“[...] what I find very challenging are the scope 3 emissions.” <i>(Beta)</i></p> <p>“[...] trying to get exact figures from your own processes, from the supply chain, to request them [...], these are huge challenges.” <i>(Epsilon)</i></p>
Manual data collection	<p>“For the CO₂ balance, I have 150 waste invoices in my folder, all of which I have to read through manually.” <i>(Kappa)</i></p> <p>“[...] last year, when we prepared the first carbon footprint [...] we had to adapt certain things to get data more quickly. [...] to get digital data and not manual evaluations [is a challenge].” <i>(Zeta)</i></p> <p>“At the moment, the whole thing [report preparation] is quite a manual process.” <i>(Delta)</i></p> <p>“Some [sustainability] numbers have to be recorded manually [...].” <i>(Eta)</i></p>
Discontinuities in data consolidation	<p>“The departments have their own measurement systems or digital programs. For example, in HR, some programs that use training information, [...] employee structures. In the energy sector, we have an internal digital energy management system, which means that the indicators can also be read out here. And this is how it works in each department, and in the end, we have a [Excel] document, filled out by the respective departments, which we put together with marketing in a sustainability report.” <i>(Theta)</i></p> <p>“In a company like ours, the challenge is that we have about 60 subsidiaries in a group. That means, how do I build something like that for the group or do I have to do it for each individual company and then consolidate it again for the group? So you can't talk about man-days, we are talking about man-years, which are really wasted, I would say, in order to create really compliant reports.” <i>(Epsilon)</i></p>

Aggregate dimension: Hesitant post-reporting disclosure and exchange	
2nd-order codes	Selected evidence on 1st-order codes
Fear of confidential disclosure	<p>"Of course, there are certain topics where you consider whether you want to disclose this information. In particular, sensitive data relating to compensation [...]. These topics pose challenges for a family firm, especially if you are locally based." (<i>Iota</i>)</p> <p>"[...] on the one hand, what do I want to say and release as a company, of course, you don't want to completely disclose everything you do in the company." (<i>Epsilon</i>)</p>
Resistance of knowledge transfer	<p>"[...] we are in regular exchange with other companies that are at the same point as we are. [...] we look what the others are doing, can we copy anything, what can we do better or how are their processes organized." "So primarily engineering companies, but packaging-wise rather not, no." (<i>Theta</i>)</p> <p>"[...] to possibly also network and exchange with other companies." (<i>Eta</i>)</p>
Aggregate dimension: Corporate strategy and communication	
2nd-order codes	Selected evidence on 1st-order codes
Clarification of firm's strategy & board roles	<p>"I derived our sustainability strategy from the ESRS, i.e., E, S, and G, and the chapters [...]. And I think you can show this nicely with the chapter structure of the ESRS. [...] I perceived it very helpful, the structure, to carry this into the organization." (<i>Iota</i>)</p> <p>" [...] Sustainability is increasingly becoming a lighthouse project in our company. [...] and now we are a lighthouse project where other departments should orient themselves. That can really have a big impact and have a positive effect." (<i>Eta</i>)</p> <p>"Yes, and we take that into the corporate structure and corporate objectives, into the KPIs and give them concrete figures. Put concrete numbers behind it." (<i>Beta</i>)</p>
Holistic risk management	<p>"I looked at what requirements are there for us? What does a global compact have? What does the food retailer say? What do consumers want? What have we already committed to? What is already there and then I screened the documents, what are the topics? I then clustered these topics, which resulted in fields of action with individual topics. And this was then simplified again in a questionnaire. We also discussed whether we should hold a workshop [...]. Then we prepared the topics and fields of action in an Excel questionnaire. Afterwards, I held an information event with internal stakeholders, such as representatives from specialist departments, who evaluated the topics. So from an inside-out and outside-in perspective with numbers from 0 to 4, but also for the possibility of a qualitative assessment. But I also involved external stakeholders, but not as many as internal [...]. And then I evaluated the whole thing quantitatively, but I also took something from the qualitative. In the end, I came up with a matrix. This shows which topics are particularly relevant and which are not. I then discussed the results again with the management and asked them whether they agreed or not." (<i>Eta</i>)</p> <p>Yes, we would probably like to work with a questionnaire, so we have discussed it for a long time, different possibilities. The tendency is to work with a questionnaire using Microsoft Forms, so that we can contact the department as a whole and also our stakeholders, customers and others. In addition, we would like to use platforms such as our supplier day to address specific topics. And possibly conduct personal surveys of internal departments, really the board of directors and so on. But for the most part, a questionnaire will be digital." (<i>Iota</i>)</p>

Internal and external communication	<p>[...] before [the report], each department worked separately, and each department had already done something in the area of sustainability, but it was never really communicated. [...] through this report, it has simply become much more structured, and the individual areas could also inform each other.” (<i>Theta</i>)</p> <p>“There are again these synergy effects, such as stakeholder materiality analysis [...]. This [stakeholder] exchange is a positive side effect.” (<i>Iota</i>)</p>
Aggregate dimension: Sustainability and operations	
2nd-order codes	Selected evidence on 1st-order codes
Process controlling and steering	<p>„[...] KPI is supposed to provide a target and help us to develop certain processes in a certain direction.” (<i>Beta</i>)</p> <p>"So there's a lot of process optimization right behind it too [...].” (<i>Theta</i>)</p> <p>“Each department has of course worked a little bit in its own area, but that certain topics are now being looked at more holistically along the value chain of the products, i.e., quite consciously at times.” (<i>Iota</i>)</p>
Revelation of sustainability practices	<p>“[...] we already do a lot but in an uncoordinated way. That means the different departments, environment in development, in materials, in HR. Things are happening everywhere that you can put into this huge topic of sustainability.” (<i>Epsilon</i>)</p> <p>“[...] rather, we have compiled a list of topics that are already underway but have never been communicated in terms of sustainability.” (<i>Iota</i>)</p> <p>"You might not even be aware that every energy saving and so on is also a contribution to this. This is already decisively bundled and presented, and I assume that a report like this will make the whole thing a bit more detailed.” (<i>Alpha</i>)</p>
Aggregate dimension: Normative management	
2nd-order codes	Selected evidence on 1st-order codes
Firm’s purpose and goals	<p>“[...] it is also clearer to everyone what the company is doing. What are the goals? [...] Such a report is, of course, an important component. What is the mission? Where do we want to go? It is simply something that is goal-oriented, a positive side effect of such a report.” (<i>Theta</i>)</p> <p>“[...] And it’s not just about how do we make the products more sustainable but how fit is our business model for the future.” (<i>Eta</i>)</p>
Emphasis on family firms’ culture	<p>[...]is part of every DNA in a family business. That's how it is with us, you can see that the topic of sustainability is not only being addressed here for the report, for the reporting, but rather in such a way that many topics of the past have already been fundamentally implemented and sustainability has always been taken into consideration.” (<i>Iota</i>)</p> <p>"We are talking about a family business that has been successful on the market for over 200 years, and this is a generational contract, so the generations have done this very, very consciously and very responsibly, always with a view to the future generation. Yes, well, that's the great thing, that as a family business, they can have a bit more long-term vision than perhaps some capital market-oriented companies have.” (<i>Kappa</i>)</p>
Aggregate dimension: Sales and finance	

2nd-order codes	Selected evidence on 1st-order codes
Market attractiveness	<p>"I think so. Yes, yes exactly. If you get a good rating, then the customers also decide accordingly. They all want to have a positive image. I think that also plays a big role." (<i>Zeta</i>)</p> <p>"The compulsory reporting definitely makes it easier to answer the questionnaires for EcoVadis [...]." (<i>Iota</i>)</p> <p>"A report is also incredibly helpful for the EcoVadis rating. The rating, I can probably refer to the report on page so and so for 80% of the questions. Once you have done the work, a rating is much easier." (<i>Eta</i>)</p> <p>"We are in the process of consulting EcoVadis for the first time. The connection is that the large amount of information we had to collect for EcoVadis can be used well for reporting." (<i>Theta</i>)</p>
Liquidity improvement	<p>"[...] especially when I consider the topic of water circuits or energy, then this not only pays off in terms of sustainability but also in terms of profitability [...]." (Alpha)</p> <p>"But especially if I include the topic of water cycles or even energy, then that not only pays off in terms of sustainability, but also in terms of profitability and thus future security." (Alpha)</p> <p>"Yes, when we talk about opportunities, we think first and foremost about the cost issue. I say, is this a sustainable solution? And then the question is, what does it cost me or? Maybe it will even save me money." (Epsilon)</p>
Aggregate dimension: Research and development	
2nd-order codes	Selected evidence on 1st-order codes
Product innovations	<p>"[...] sustainability is an opportunity, quite clearly, because it means that new machines are being produced that are much more energy-efficient, which of course also becomes a competitive factor." (<i>Theta</i>)</p> <p>"Innovations, because you have to be constantly creative and think, what can we do better?" (<i>Zeta</i>)</p> <p>"[...] where you can also see such opportunities and where you can perhaps build up new business models, evaluate them, validate them, so that you can really create something new." (<i>Epsilon</i>)</p>
Circular economy focus	<p>"[...] if we think in the direction of circular economy, where product development, customers, and also sales sit together, where perhaps from the product development point of view there are ideas that have not been recognized by the customer yet" (<i>Iota</i>)</p> <p>"New products, yes. If we now look at the topic of waste disposal and the Closed Substance Cycle Waste Management Act or closed substance cycle waste management in exactly this direction. That we are now trying to work with secondary raw materials or with, let's say, green carbide." (<i>Zeta</i>)</p>
Aggregate dimension: Human resources	
2nd-order codes	Selected evidence on 1st-order codes
Employer branding	<p>"Yes, also with the unsolicited applications. We receive unsolicited applications, and the topic of sustainability is mentioned immediately." (<i>Theta</i>)</p> <p>"Where we have received very positive feedback is actually with new talents. We have a lot of interest, even from trainees, from academics to industrial workers, who like to use it as a reference to understand what kind of company this actually is? So what do you deal with?" (<i>Beta</i>)</p>

Organizational learning	<p>“Of course, we also have high standards for our people. Our employees are also interested, and they also want to understand the term sustainability in the context of the company.” <i>(Beta)</i></p> <p>"First we have to train the staff, let's say the management level, and only then transfer it to the whole workforce." <i>(Zeta)</i></p> <p>“Yes, you notice with young employees or trainees that I am now increasingly being invited to give lectures. People are also interested in the topic. Last year we also had the training for energy and resource scouts for the first time, so there's already a lot going on.” <i>(Theta)</i></p>
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Appendix 3: Breakdown of interview data

Company	Interview partner's job title	Interview length [min]	No. of transcript pages [#]
Alpha	Senior Vice President Sustainability & Innovation	28	6
Beta	Sustainability Manager	40	9
Gamma	Member of the Board	31	6
Delta	Strategy Specialist Sustainability	38	8
Epsilon	Chief Corporate Responsibility Officer	45	10
Zeta	Environmental Management Representative	47	10
Eta	Head of Sustainability & Communication	41	9
Theta	Project Manager Coporate Strategy & Sustainability	40	10
Iota	Sustainability Manager	42	11
Kappa	Strategic Advisor to CEO	43	10

Appendix 4: Case study protocol

The following structure is based on the recommendations of Yin (2018)

Section A: Overview of the case study

Goal: The goals of this case study is twofold. Firstly, the study aims to uncover possible challenges in private German family firms due to the upcoming regulations on sustainability reporting (e.g., CSRD). Secondly, this study will identify potential opportunities that may arise from such a reporting mandate and show how family firms can benefit from them.

Research question:

What challenges do private family firms face regarding the introduction of a sustainability reporting mandate, and how can a standard framework provide guidance to meet or even exceed the legal requirements and unlock business opportunities?

Research unit:

- **Unit of analysis:** Private German family firms
- **Observation unit:** Implementation process of a sustainability reporting mandate and associated challenges and opportunities

Relevant literature and research stream:

- **Research stream 1:** Family firms' heterogeneous sustainability strategy and reporting behavior
- **Relevant literature:** (Cennamo et al., 2012; Hsueh et al., 2023; Sharma & Sharma, 2011; Vardaman & Gondo, 2014)
- **Research stream 2:** Effects of a sustainability reporting mandate
- **Relevant literature:** (Christensen et al., 2021; Fiechter et al., 2022; Ottenstein et al., 2022)

Section B: Data collection procedures

Multiple data collection methods to triangulate results:

- Primary data source: Semi-structured interviews with sustainability representatives of private German family firms
- Secondary data source: Firms' sustainability reports, company websites
- Chain of evidence as a tool for following the development of results through data collection and analysis

Section C: Interview questions

Part 1: Background information of interviewee, family firm's structure and motivation to sustainability

1.1 Interviewee's role

- Could you please give me a brief introduction about your position and your tasks, touchpoints to the topic of sustainability?

1.2 Company structure

- How is the ownership and leadership structure of your employer as a family firm?
- Does your company have a separate board committee/department for sustainability matters?

1.3 Motivation for sustainability

- Which role does sustainability play within your company and how has it changed over time?
- What is your firm's motivation or intention for [company specific sustainability initiative, program, product etc.]?

Part 2: Sustainability reporting, challenges, and opportunities

2.1 Motivation for sustainability reporting

- Does your company create a sustainability report?
→ If yes, left column. Otherwise, right column

Sustainability reporting in practice	Sustainability reporting not in practice
<ul style="list-style-type: none">• What is your firm's motivation to report on sustainability topics voluntarily?	<ul style="list-style-type: none">• Why does your company not report on sustainability topics?
2.2 Current reporting process	
Report integration: <ul style="list-style-type: none">• Is the sustainability report a standalone report or integrated into financial reporting?	

<p>If, yes or no, why?</p> <p>Reporting:</p> <ul style="list-style-type: none"> • How is the current reporting process? <p><i>Further question if sustainability reporting process is already well established</i></p> <p><i>Responsibilities:</i></p> <ul style="list-style-type: none"> - Which departments/persons are responsible for sustainability reporting? - Is external assurance used? If yes, why? <p><i>Scope:</i></p> <ul style="list-style-type: none"> - On what topics do you report on? - Why and how did you choose them? <p><i>Standardization:</i></p> <ul style="list-style-type: none"> - Do you have a standardized reporting process, or do you use any reporting standards, e.g., GRI? If yes or no, why? <p><i>Measurement:</i></p> <ul style="list-style-type: none"> - How do you collect/measure data? - How do you consolidate data? <p><i>Communication:</i></p> <ul style="list-style-type: none"> - Where do you disclose your sustainability report? 	
<p>2.3 Reporting challenges (First-order consequences)</p>	
<ul style="list-style-type: none"> • Are you already familiar with mandatory sustainability regulations (e.g., CSRD)? If yes, what kind of measures has your company already taken? • What is (would be) the biggest current (potential) direct challenge regarding the implementation of the beforementioned mandatory directives and regulations? • If we split the topic of sustainability into its clusters, E=Environment, S=Social, G=Government. Do (you think) these challenges differ within those clusters? If yes, why? 	
<p>2.4 Synergies and opportunities (Second-order consequences)</p>	
<ul style="list-style-type: none"> • Do you see any positive synergies or opportunities apart from the direct effects due to a mandatory sustainability reporting process? 	

Part 3: Outlook and additional remarks

3.1 Outlook

- Do you have a roadmap or plan to deal with the introduction of those mandatory reporting regulations?
- Have you considered using external consultancy or take advice from industry peers?

3.2 Additional remarks

- Do you have any other ideas or thoughts on the topic that were not asked or that are currently on your agenda?