

Facilitating corporate sustainability integration: innovation in family firms

Innovation in
family firms

Linh H. Nguyen and Dominik K. Kanbach

HHL Leipzig Graduate School of Management, Leipzig, Germany, and

Sascha Kraus

*Faculty of Economics and Management, Free University of Bozen-Bolzano,
Bolzano, Italy and*

*Department of Business Management, University of Johannesburg,
Johannesburg, South Africa*

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Abstract

Purpose – The purpose of the study is to understand the relationship between family-driven innovation and the incorporation of corporate sustainability in German family firms.

Design/methodology/approach – The study conducted 26 interviews with 22 German family firms. Thematic analysis was undertaken on the collected data resulting in five major themes.

Findings – The study identified five main themes of corporate sustainability-oriented innovation in family firms, which include measuring corporate sustainability performances, building corporate sustainability-oriented infrastructure, stabilizing/optimizing operations, enhancing operational flexibility/independence and knowledge management and development. The study also provides an activity-based guide for family firms to use innovation to achieve corporate sustainability goals and present the findings' implications for policymakers.

Originality/value – The present study is the first study to empirically investigate the relationship between family-driven innovation and the incorporation of corporate sustainability at each of the corporate sustainability maturity levels.

Keywords Corporate sustainability integration, Family firms, Family-driven innovation, Innovation

Paper type Research paper

Introduction

As more firms actively and willingly take on their sustainability responsibilities, the research on corporate sustainability (CS) integration into business has burgeoned over the last decades. Prior research shows that family firms strive for nonfinancial performance because of the concern for corporate reputation (Zellweger *et al.*, 2008), potential increased firm value (Xiang *et al.*, 2021), and profitability (Mezias *et al.*, 2019). On the other hand, little is known about how family firms incorporate sustainability into their fundamental operations, given their particular organizational structures and distinctive cultures, procedures, and capital (Clauß *et al.*, 2022).

CS refers to an organization satisfactorily meeting its responsibilities with regard to the requirements of its current stakeholders without jeopardizing its capacity to meet the requirements of its future stakeholders (Dyllick and Hockerts, 2002). CS integration is a demanding process (Trapp and Kanbach, 2021), entailing permanent readjustment in all

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firms' activities and core business (Kiesnere and Baumgartner, 2019; Hertwig and Grüne-Yanoff, 2017) to embed the sustainability factors into the existing operations (Witjes *et al.*, 2017; Kiesnere and Baumgartner, 2019). CS is still growing in both its scope and complexity (Garst *et al.*, 2022). Even though there is an existing general conceptual framework for CS integration (Baumgartner and Ebner, 2010; Engert *et al.*, 2016), it is essential to point out that the current framework is intended for all firms and would need to be modified to be applied to family firms, which primarily diverge from non-family firms in their characteristics (Ahmad *et al.*, 2021). In addition, the existing conceptual framework of CS integration only provides a limited guide on innovation, one of the most critical indicators of a firm's CS (Zellweger *et al.*, 2012; Cefis and Marsili, 2019; Clauß *et al.*, 2022).

Innovation holds a pivotal significance in ensuring the survival and prosperity of family firms, as highlighted by early studies (Ahmad *et al.*, 2021; Haddoud *et al.*, 2021). These companies, often confronted with limited resources and financial access, must leverage and innovation as a crucial element and combine both incremental and radical innovation in addressing the continuously growing external demands, which encompass various CS-related concerns, while still maintaining a competitive advantage (De Massis *et al.*, 2018; Freixanet *et al.*, 2020). Prior studies have empirically demonstrated that innovation may drive family firms to undertake risky tactics (Bendig *et al.*, 2020) and provide a sustainable foundation for the future (Kraus *et al.*, 2020). Furthermore, studies have also found some linkages between innovation and the positive impact of sustainability on family business strategies through social benefit and market orientation (Wagner, 2010; Suess-Reyes and Fuetsch, 2016; Ferreira *et al.*, 2021). However, early literature has also illustrated the difficulty in linking innovation and certain CS aspects simultaneously (Mithani, 2017). Despite this, innovation and CS are not given enough attention in family business research because the primary focus of family business research over the past thirty years has been on issues pertaining to ownership and succession (Ferreira *et al.*, 2021; Rovelli *et al.*, 2021). Recent studies and analyses of family firms have also brought to light a lack of current understanding of how the CS integration development could benefit from the innovations created by family firms (Clauß *et al.*, 2022), and emphasize the important role of sustainability and innovation in family business's future development (Nakpodia, 2023). Thus, it is imperative to understand the relationship between the family firm's CS integration and innovation activities and how family firms could become more sustainable through innovation processes. Our study aims to answer the research questions: *What are the relevant CS-oriented innovation themes in family firms, and what are the drivers of CS-oriented family-driven innovation?*

Family firms constitute a significant portion, accounting for 80% of the global business landscape (Ahmad *et al.*, 2021). German family firms with many success stories to reinvent themselves and mainly longevity and resilience through incremental changes are globally recognized for their innovation (De Massis *et al.*, 2018). Notably, in Germany, these family-owned enterprises make substantial contributions, contributing to over 70% of the country's GDP (Gregoric *et al.*, 2022). For the purpose of this study, the definition of family firms is aligned with the EU Commission Expert Group (2009), consistent with previous research on family firms conducted by Gregoric *et al.* (2022). Accordingly, family firms are characterized by the ownership of at least 25% equity by a family member or a family (EU Commission Expert Group, 2009) and entail direct involvement of these family members in the firm's operations (Wolter and Sauer, 2017).

As a result, the primary objective of this research is to investigate how family firms integrate CS with innovation and to identify the reasons behind this integration. We present the first empirical study to address CS integration with family-driven innovation. In this paper, we investigate the newly emergent CS-oriented themes of family-driven innovation and enhance the overall conceptual framework of CS integration maturity to accommodate

the setting of family firms. After that, we determine the factors that encourage CS-oriented innovation in family firms. In addition, this research offers family firms a practical guide with examples of how to use innovation to address CS-related challenges. In conclusion, our study further contributes to the research on family firms by suggesting possible directions for future research and providing policymakers with a description of the research's political implications.

Theoretical foundations

Corporate sustainability integration and corporate sustainability maturity

CS comprises diverse and complex themes regarding firms' social, economic, and environmental influences and impacts (Kiesnere and Baumgartner, 2019). Prior research also emphasized the importance of all CS themes in the CS integration process to achieve real progress (Engert *et al.*, 2016). Integration of CS is a complicated process that requires constant acquisition, management, decision-making, measuring, and reporting to produce sustainable value for businesses (Kiesnere and Baumgartner, 2019; Nguyen and Kanbach, 2023). Depending on how far and which types of CS factors are already integrated into the business, the level of impact of chosen sustainability strategies and approaches varied, this important point is often overlooked in the management and evaluation processes (Sroufe, 2017). Amini and Bienstock (2014) underscored in their previous review study that there exists a notable variation in sophistication across different levels of integration, spanning from organizational scope to achievable outcomes (Amini and Bienstock, 2014). In 2010, Baumgartner *et al.* proposed a framework of four CS maturity levels for firms to identify and pursue sustainability issues (Baumgartner and Ebner, 2010), which we use as a framework for our analysis:

- (1) *Beginning* level indicates that firms carried out activities within their current required laws and regulations (Allais *et al.*, 2017; Ormazabal *et al.*, 2017). At this level, CS does not belong to the company's long-term strategy (Xavier *et al.*, 2020). On the business level application, CS-oriented projects focus on identifying and addressing, at the minimum level, the CS-related regulations that the companies are in danger of violating (Ormazabal *et al.*, 2017). This is also the stage where the company identifies the conflicts, resistance toward CS-oriented changing requirements and conforms to CS-oriented regulations (Willard, 2005).
- (2) *Elementary* level encompasses a broader firm's interest and focuses on various aspects of CS, with a slowly expanding focus from economic sustainability to environmental sustainability (Amini and Bienstock, 2014). Companies operating at this level demonstrate a consciousness of how the availability of resources impacts the development of capabilities, infrastructure, and knowledge required for sustainability initiatives (Porter and Reinhardt, 2007; Tiberius *et al.*, 2021). The adopted strategies extend beyond mere economic sustainability or fulfilling legal responsibilities (Willard, 2005). Instead, they also encompass efforts to embed sustainability principles into organizational changes, start involving external stakeholders and looking for potential suitable changing approaches (Linnenluecke and Griffiths, 2010).
- (3) *Satisfying* level describes a heightened priority of CS concerns within a firm's investment decisions, accompanied by a more frequent incorporation of integrated environmental technology into its business operations. At this stage, companies demonstrate proactive consideration of CS-related factors alongside business opportunities and risks, strategically integrating them into their organizational strategies (Amini and Bienstock, 2014; Engert *et al.*, 2016). Both the quantity and quality of CS matters are addressed with long-term perspectives, signifying a

commitment to sustainability as a core aspect of the company's culture and purpose (Xavier *et al.*, 2020). This level reflects a more comprehensive and embedded approach to addressing CS concerns, aligning the firm's actions with sustainability goals and principles based on frequent material assessment (Aprile *et al.*, 2023).

- (4) *Sophisticated/outstanding* level represents the pinnacle of CS integration, characterized by highly advanced CS activities that surpass industry norms, and active utilization of integrated environmental technology within the business. At this level, CS is deeply ingrained into the fabric of the organizational structure and culture. The company's CS integration efforts extend beyond internal operations to encompass external stakeholders, ranging from customers to business partners, showcasing a comprehensive approach to engaging with the broader business ecosystem (Baumgartner and Ebner, 2010; Kiesnere and Baumgartner, 2019). This level exemplifies an exemplary commitment to CS principles, making it a standout example of sustainability-oriented business practices.

Family-driven innovation

Recent review studies have provided a comprehensive overview of the research on family-driven innovation and their distinct difference from non-family innovation (Röd, 2016; Calabrò *et al.*, 2019). The family driven innovation has distinct characteristics compared to non-family-driven innovation (Dieleman, 2019). Compared to non-family firms, family firms are more risk-aversion, rigid to changes, and reluctant to share control over their business, which could negatively affect innovation activities (Röd, 2016; Rovelli *et al.*, 2021). However, innovation output from family firms are found to increase over the generation because of their long-term perspectives that span several generations of the family, their accumulated expertise, and their industry networks (Hillebrand, 2019). Because of this, they can innovate more effectively than non-family firms despite having lower innovation input (Duran *et al.*, 2015). In addition family-driven innovation is influenced by family willingness, involvement, and ability as resources (de Massis *et al.*, 2013; Minin, 2015). Not only are these drivers not presented in non-family firms, but all these drivers need to align for innovation to happen in family firms (Kosmidou and Ahuja, 2019).

Through a longitudinal study on a family firms innovation development, Dieleman proposed a framework of four types of family-driven innovation to help family firms evaluate their current innovation stand and tap into their resources, capital and stakeholders better (Dieleman, 2019; Juntunen *et al.*, 2019). We will also apply this framework for our analysis:

- (1) *Efficiency-driven*: The Innovation centers on enhancing yields, productivity, cost-effectiveness, and production efficiency. Such innovation primarily aims at bolstering a company's economic and environmental sustainability performance (Xavier *et al.*, 2020). In the context of family firms, this type of innovation aligns with their priority of maintaining cross-generational control and, consequently, leads to the development of strategies aimed at augmenting the efficiency of family-owned businesses (Bendell, 2022). This innovation underscores the significance of optimizing operations and resources to achieve long-term sustainability and continuity within family businesses (Rovelli *et al.*, 2021).
- (2) *Value-driven*: Innovation focuses on product quality, aligning with customer/market-oriented demands, and adhering to established standards. His particular focus holds significant importance for family businesses, which prioritize the preservation of their longitudinal built values (Achleitner *et al.*, 2014). Family firms seek to avoid strategies that hinder the seamless transfer of firm values between generations, as such continuity is crucial for maintaining and enhancing the firm's overall values

(Ferreira *et al.*, 2021). This type of innovation represents the family business's commitment to upholding its core values and meeting customer-base's demands and sustain its product's quality.

- (3) *Future growth-driven*: Innovation aim at creating competitive advantage, with the primary goal of expanding and maintaining the family firm's position in the market. Such innovation endeavors are often driven by the family's aspirations to pass on ownership to the future generation. Consequently, the outcomes of these innovations are viewed from a long-term cumulative perspective (Bendell, 2022). The emphasis lies on strategic and forward-thinking innovations that secure the family firm's enduring success and relevance in the market, aligning with the family's vision of sustained growth and prosperity over generations.
- (4) *Sustainability-driven*: Innovation aims to enhance firms' longevity and resilience through maintaining their unique family-driven organizational culture and aligning to local society's expectation. Central to this approach is the adoption of socially responsible behaviors, which are often rooted in family involvement and their connection to the community (Ferreira *et al.*, 2021). This inclination is particularly evident in family firms operating in small and rural markets, where the economic resilience of the family business is closely intertwined with the stability and prospects of the market (Niehm *et al.*, 2008). Moreover, family firms are increasingly compelled to pursue innovation as a means to facilitate intra-family succession and secure long-term viability, especially in light of their exposure to profound economic, political, and ecological changes (Baltazar *et al.*, 2023; Strickland and Ratten, 2023). The focus on sustainability-driven innovation reflects the family firms' commitment to enduring success and adaptability, not only for their own prosperity but also for the well-being of the communities they serve.

Methodology

In order to get answers to our research questions, we decided to apply a qualitative methodology as we wanted to study and to record the empirical descriptions of phenomena such as sustainability integration (Eisenhardt, 1989; Yin, 2014). This approach was applied in earlier studies in the strategic field and was also suggested to study integration phenomena (Engert and Baumgartner, 2016; Engert *et al.*, 2016; Sroufe, 2017). Thus, a qualitative research approach is especially appropriate for this study as it can extend the existing theory to study how family firms integrate CS into their existing business using innovation and then to identify what drives CS-oriented innovation in family firms. The aim of this study is theory elaboration, going between theory testing and theory generation to extend existing ideas and create new knowledge (Maitlis, 2005; Kraus *et al.*, 2020). We were able to identified five emerged themes that will be discussed in detail in the findings section.

Sample

Our study considers several different industries to create a solid basis for generalizability and robustness (Miles, 2014). We employed a purposive sampling technique (Guest *et al.*, 2006; Eisenhardt, 2007), interviewing key informants such as top management team members, family members actively involved in the business or the managers responsible for corporate sustainability and innovation areas from family firms in Germany. The chosen sampling approach allowed maximum variation, following the principles of appropriateness and adequacy (Guest *et al.*, 2006). With this design, we were able to acquire a solid basis for developing theory: the uniformity of the organizational characteristics and the similarity of

the respondents’ responsibilities in the organization allowed for meaningful comparisons across the many CS-oriented innovation themes in the family firms (Maitlis, 2005; Guest *et al.*, 2006; Kraus *et al.*, 2020).

We searched and filtered the target family businesses based on the definition provided by the European Commission’s reporting and earlier study (EU Commission Expert Group, 2009; Wolter and Sauer, 2017). Using data sources from companies’ official reports, statements, and websites, we narrowed down the companies within our scope. Subsequently, we reached out to prospective company representatives through available contact options such as company email and LinkedIn profiles. We followed the conventional procedure for qualitative research and began the data analysis and cumulative coding after each interview; we monitored our existing codes and included new codes if they came from the interview; finally, we presented our findings in narrative form (Guest *et al.*, 2006). We reached saturation after twenty-six interviews from twenty-two German family firms; further interviews did not generate new insights for our codes. Table 1 provides an overview of the respondents’ and their firms’ characteristics.

Data collection

We conducted semi-structured interviews with the respondents between October 19th and December 23rd, 2022. The discussion was based on an interview guide, allowing the interviewers to react spontaneously to the respondents’ statements (Guest *et al.*, 2006; Eisenhardt, 2007). Due to the social distancing measures, most of the interviews were conducted by telephone and digital communication tools Zoom and Team. Twenty-four interviews were recorded, and two respondents refused to be recorded. The interviews lasted, on average, 35 min.

Respondent	Industry	Respondent’s position
R1	Financial services	Family owner/Management board
R2	Manufacturer	Manager
R3	Retail trade	Family owner/Manager
R4	Consultant services	Sustainability lead/Managing director
R5	Wholesale	Family owner/Manager
R6	Food industry	Family owner/manager
R7	Wholesale	Family owner/Manager
R8	Manufacturer	Family owner/Management board
R9	Wholesale	Manager
R10	Manufacturer	Family owner
R11	Manufacturer	Family owner/CEO
R12	Manufacturer	CEO
R13	Construction	CEO
R14	Manufacturer	CEO
R15	Food industry	Sustainability manager
R16	Food industry	Innovation manager
R17	Manufacturer	Innovation manager
R18	Manufacturer	Family owner
R19	Manufacturer	Manager
R20	Manufacturer	Innovation manager
R21	Manufacturer	Family owner/Management board
R22	Commercial services	Sustainability lead/manager
R23	IT services	Manager
R24	IT Services	Sustainability manager
R25	Logistic	Innovation manager
R26	Manufacturer	Sustainability lead/manager

Table 1.
Overview of
interviewed German
family firms

Source(s): Created by authors

Using multiple case study research, [Eisenhardt \(1989\)](#) calls for using various data collection methods such as interviews, publications, reporting, and comparison to the literature. For our study, further data from companies' official websites, press publications, annual reporting, and sustainability reporting were collected to elaborate further on the respondent statements and interview details.

Data analysis

The interviews were transcribed word for word but excluding unique linguistic and phonetic characteristics to focus on the interview content alone. Our investigation included iterations of cumulative coding. Independently from one another, each researcher transcribed the interviews and coded the data. To improve the reliability and validity of the findings, the group has regular discussions about the between-stand of the coding and the data analysis ([Kirk and Miller, 1986](#); [Sousa, 2014](#)). We performed an analysis of the data in an iterative manner until recurring patterns became apparent and could be confirmed through feedback loops. We also compared respondents' responses to data readily available to the public. We cross-referenced the firms' sustainability achievements with reported changes in publicly open sources such as GRI reporting, sustainability reporting, nonfinancial reporting, or press releases from the firms ([Saldana, 2015](#)). The emerged codes from the 26 interviews were analyzed with a focus on two major aspects: their innovative components and their intended sustainability outcomes. We used the frameworks of CS maturity ([Baumgartner and Ebner, 2010](#)) and family-driven innovation types ([Dieleman, 2019](#)) to categorize the emerged themes of innovation into suitable innovation types and the CS maturity level. The authors focused on two significant components, namely the complexity and scope of the intended sustainability outcomes, along with innovative factors, to identify the relevance between the emerged codes from the interviews and to group them into major themes.

Findings

Overview

From our analysis, five overarching topics emerged as the main focus of family firms' CS-oriented innovation:

- (1) Corporate sustainability measurement
- (2) Corporate sustainability-oriented infrastructure
- (3) Operation stabilization/optimization
- (4) Operation flexibility/independence
- (5) Knowledge management and development

Most family firms in the sample mention the *corporate sustainability measurement* as their current innovation strategy's aim. Every family business included in the sampling procedure was given its own set of measurement tools to assess its performance in relation to CS, ranging from the number of employees who received training to the number of emissions produced. While server family firms are already equipped with comprehensive measurement tools from other earlier projects and could apply them to track their CS performances, many others require significant financial investment and resources for innovative projects to create suitable tools to track the status of their CS. For instance, given that their main product material is wood, R5's firm has paid particular attention to its environmental impact since the first family generation. However, they do not have any instruments that would be appropriate for monitoring their CO2 emissions, which their present business partners

require. Because of this, a family member decided to work with non-governmental organizations to develop and implement a CO2 balance sheet to monitor and control their operation's direct emission of CO2 tons.

Another important theme for most family firms in the sample is creating a *CS-oriented infrastructure*. This theme is relevant for all areas in the firm ranging from production to business functions. Several firms pointed out that their biggest emission driver lies within their infrastructure. R20 mentioned they could change to more sustainable transportation by building electric charging stations in their existing warehouse.

The importance of *operation optimization* is the focus of all family firms. This method is appropriate for family firms with limited resources since it allows them to push their corporate sustainability contributions while focusing on the fundamental strategy and objective of the company, which is to remain successful and survive the economic crisis (R12, R11). By optimizing operational processes through digitalization, modern technology, and circular economy approaches, firms could save energy and reduce production costs and harmful environmental emissions (R11, R13, R14).

The next CS-oriented topic is *enhancing the operation's flexibility and independence* of external factors. Many firms reported increasing CS requirements from different business partners and customers left and right. On the one hand, to keep their industry-leading position and stay attractive to customers, this topic is the focus of their research department (R13, R11). On the other hand, many firms pointed out the unavoidable dependence of their CS performance on their business partners' CS performance (R14). For instance, the operational safety of the manufacturer will also influence the provider's CS performance on working condition management (R13), and the transportation emission of the logistic partner will also be counted indirectly in the environmental impact of the distribution firms or the production firms. Furthermore, for firms with a limited number of business partners, the CS performance of each business partner's impact significantly how the firms' sustainability performance would develop. Some people pointed out that developing innovative solutions to address the firm's sustainability responsibility that is posed by business partners is an excellent way to cut down on dependence and actively drive their company's performance in the area of corporate sustainability. In this context, innovation also contributes to mitigating the risks of more significant costs, longer integration times, and diminished competitive advantages in following business partners' CS requirements.

Lastly, *knowledge management and development* is also a topic mentioned by all family firms. From most respondents, this topic has been in the family firms since its early day and has always played an essential part in the resilience strategy of family firms (De Massis *et al.*, 2018). With a rising focus on CS-related matters in the market, this topic receives another boost in its footing in the firm's strategy. This also motivated the firms to invest more in innovative projects to keep the people staying with them and develop the firm's knowledge further (R7, R8).

CS-oriented innovation

Interestingly, most family firms have comparable CS topics on their agendas, but the degree to which they integrate CS differs significantly. For instance, R8's company runs entirely on renewable energy since their energy provider gives options for sustainable energy at an affordable price due to the long-term partnerships that both parties have established. On the other hand, R8 mentioned that despite the fact that they are aware that their manufacturing machines are outdated and emit considerable emissions, they had not discovered any environmentally friendly alternatives to maintain the quality of their product. On the other hand, R26's firm have greatly cut their production emissions over the years through successful innovation projects, yet their operation primarily depends on energy sources that

are not sustainable. The themes of CS-oriented innovation could be categorized into five main buckets and incorporated into the framework of Baumgartner and Ebner (2010). The corporate sustainability themes and the examples from interviewed family firms are summarized in Table 2.

At the beginning of CS maturity, “opening/introducing the firm’s CS responsibilities and exposures” is the general focus of innovative activities in family firms. Family firms aim to raise awareness and understanding among employees about the firm’s corporate sustainability-related and firms’ ambitions and responsibilities. In addition, if sustainable business options are available on the markets, firms would adjust their progress to gain access to firms, customers, and employees. R7 mentioned that while noticing that their manufacturer introduced electrical-based products, they also mentioned these products in a customer meeting and adjusted their transportation options to enable customers’ access to these products.

Another focus at the beginning level that family firms approach with innovation is “measuring/tracking the status of corporate sustainability.” To seriously pursue CS-related topics, firms must measure their current stand on CS matters based on the available framework in the markets, industry, or peer groups’ suggestions.

Levels	Innovation themes	Key words	Illustrative quotes from interviews, reporting
Beginning	Opening/introducing the firm’s corporate sustainability responsibilities and exposures	Employee involvement, corporate sustainability training, business partner’s sustainable options	“We create an internal site to collect employee’s innovative ideas” (R25) “We use frequent communication and training to get employee’s understanding on sustainability” (R19)
	Measuring/tracking the status of corporate sustainability	Emission, resource usage, energy usage, employee engagement	“We set up a CO2 Balance sheet this year to track our exposures.” (R5) “We include sustainability KPI in our management reporting” (R23)
Elementary	Infrastructure, resources and capability building	Green infrastructure, digitalization, employee development	“We install on our building roots with the photovoltaic plates to increase our green energy usage, which our providers come short with” (R13)
Satisfying	Actively adjusting/ changing toward corporate sustainability	Life circle assessment, sustainable products, sustainable process	“We have CS checklist in each new product design ” (R26) “We switch our production to 100% renewable energy this year” (R8)
Sophisticated/ outstanding	Align internal and external forces to achieve the corporate sustainability goals	Decentralization, circular economy, supplier/provider selection, investment selection	“We work actively with multiple business partners to close our circular economy” (R12)

Source(s): Adapted from Baumgartner and Ebner (2010)

Table 2.
Innovation themes of the corporate sustainability maturity levels in family firms

On the next level of CS maturity, family firms focus on building infrastructure, creating capabilities, and cumulating resources for the firm's sustainable development. R20 mentioned that her company frequently send their employees to sustainability meeting at the innovation lab, where other family firms gather and discuss their current approaches to CS responsibilities. This approach has enabled them to identify suitable approaches in family firms with similar conditions and cumulate their capabilities and know-how in addressing their CS responsibilities.

During the satisfying phase, CS factors are actively considered in the strategic planning processes of firms as well as the decision-making processes of managers. Before being presented to the management board, according to R13, every investment plan needs to take into account and fulfill the requirements of the company's CS-related standard. For R4's firm, they are a small family firm with less than one hundred employees, so there are no innovation specialists or sustainability managers, but each employee is required to be responsible for considering the firm's sustainability responsibilities in their work and be a driving force for more sustainable innovation changes in their firm.

Lastly, at the highest level of CS integration, firms focus on innovative approaches to align internal and external forces to achieve their CS goals. At this level, R12 and R14 reported a close working relationship with recycling firms to align on material usage and recycling route and processes. In addition, R13 mentioned that their firms apply their CS standard in choosing supply chain business partners and put throughout procedures in place to validate business partners' CS performance based on their own CS standards. Firms of R25 and R22 are actively in contact with local government to enhance local safety and locally sustainable life with their product and their engagement.

The drivers of CS-oriented family-driven innovation

The hidden driver plays an essential role in the emergence and success of innovation activities; as stated by one of the respondents, R12, "there is a significantly different level of employee's commitment if the firm carried out new business progress to save energy for better firms financial results as for the reduced environmental impact." Family firms' innovation is efficiency, value, growth or sustainability-driven (Dieleman, 2019). However, under sustainability-driven, there is a clear distinction between sustainability-oriented innovation emerging from the external and the internal organization. For instance, circular economy movements are usually driven by business partners, peer pressure, customers, or by-laws. Nevertheless, these external-driven innovations could create a foundation for family-driven innovation to integrate the next corporate sustainability level.

Another example of this is the case of R11's family firm, because of customer requirements for less transportation waste when receiving the products, R11's firm developed new transportation to cut down material waste and to ensure the product's quality during transportation still. Based on this information, the companies reached out to manufacturers and business partners at an earlier stage of the logistic process to integrate their new product transportation equipment while it is still in manufacturing. This measurement lessens the waste produced at every stage of the supply chain and lessens the company's reliance on other organizations to mitigate the harmful effects of their operations on the environment. According to their drivers, the types of CS-oriented innovation are listed in Table 3.

Discussion

Theoretical implications

Our study represents an empirical study of the integration process of CS factors through innovation in family firms. The findings aligned with prior results that the limited resources

				Innovation in family firms
Types	Sub-types	Keywords	Illustrative quotes from interviews, reporting	
Efficiency-driven		Digitalization, product life cycle assessment	"We are focusing on digitalizing our processes to be more efficient and create less environmental waste" (R21)	<hr/> Table 3. Types of corporate sustainability-oriented innovation in family firms
Value-driven		Product design, sustainable production, emission reduction	"Our firm is sustainable because we constantly innovate our products. Over half of our products have been created in the last five years alone. We aim to create more sustainable products that could be valuable to our customers." (R14)	
Future growth driven		Sustainable infrastructure, sustainable products, governance structure	"Our company has a decentralization governance structure so each team could follow their most fitted strategies. This approach helps us create value faster and more adaptable during the market crisis." (R9)	
Sustainability-driven	Internal-driven	Employee involvement and development; knowledge management and development; product development	"Our founder family believes in sustainability and finance our research teams with no profit return over last two years, and now we are able to bring to the market the first environmentally friendly product with such unique functions that no other competitors have" (R23)	
	External-driven	Circular economy, sustainable supply chain	"Our customers want to cut down their waste and require us to transport their products with less packaging materials, so that is where our motivation comes from" (R15)	

Source(s): Adapted from Dieleman (2019)

Source(s): Adapted from [Dieleman \(2019\)](#)

and capacities make it difficult for family firms to address all CS factors simultaneously ([Röd, 2016](#)). The majority of family firms have the potential to grow in certain areas but are unable to do so in others owing to a lack of finances, infrastructure, or the competencies and capabilities of their personnel. This is in contrast to the findings of many early studies, which suggested addressing all elements of business sustainability and considering all of their consequences and interrelationships ([Hart and Milstein, 2003](#); [Lozano, 2015](#); [Engert et al., 2016](#)).

Based on the empirical research findings, we determined that innovation activities in family firms concentrate on addressing five topics to improve the company’s sustainability performance in areas ranging from operational to management responsibilities. However, the majority of CS-oriented innovation happens in the operational area. In this regard, our findings confirmed the conclusions of earlier studies, which stated that CS-oriented innovation is still a developing field with a primary emphasis on operational modifications and cost reductions ([Jay and Gerard, 2015](#)). Innovation initiatives with a priority derived from organizational profitability do exist, but so far, these have been isolated instances with short-term durations and have been canceled if there was a threat to the organization’s profitability.

Our study also recognized the characteristics of family firms in their resources and capital allocation to CS-oriented innovation. Most family firms believe that the main drivers of CS-

oriented innovation and the secret to their successful CS integration lie within their family members' commitments, existing capital, and resources. They are more conservative in relying primary on external support, such as consultants and industry associations. These approaches aligned with the innovation mechanism in family firms identified in earlier studies, where existing internal capabilities and resources is the core drivers (Filser *et al.*, 2018; Baltazar *et al.*, 2023; Dasanayaka *et al.*, 2023).

Behind the internal-driven CS-oriented innovation, the main drivers are the family's young generation. Several family members stated their reasons for supporting the sustainability movement are their personal experiences and their pride in their family business's earlier positive contributions to their society and their environments. This observation aligned with findings from earlier studies, where the connection with the communities that the family business is located in and the business's pride or social-emotional wealth are found to be among the positive drivers for more sustainable transformation in family business specifically (Karaosman *et al.*, 2020; Ratten and Dana, 2022). In addition, the emergence of more stringent sustainability demands from customers and business partners has provided family firms with an opportunity to substantiate and endorse sustainable transformations. These developments align with the conclusions drawn from earlier research, indicating that external influences on family firms play a constructive role in promoting the advancement of innovation (Röd, 2016).

In addition, CS-oriented innovative strategies, especially within the realm of grown-driven and value-driven, often mentioned as motivated by the longitudinal benefits that family firms experienced from cumulative knowledge and experiments with aligned commitments and goals over the family generations (Ghalke *et al.*, 2023). This is the unique characteristic that distinguishes family firms from non-family firms (Chrisman *et al.*, 2012). Family firms under the influences of family members are drawn to CS-integration innovation aiming to ensure the transfer of power and maintain the influences of the family across the generations. This goal is persistently observed in family members from our sample regardless of whether they are the new or previous generation in power in the business. This observation aligns with the findings documented in earlier literature, reinforcing the notion that family firms' enduring commitment to CS-oriented innovation is deeply rooted in their multi-generational perspectives and values (Zellweger *et al.*, 2008; De Massis *et al.*, 2018; Ahmad *et al.*, 2021).

Managerial implications

The results of our research offer significant new understanding as well as implications for family firms. The managers and owners of family firms can use the framework, which includes examples from family firms that were interviewed, to determine the most appropriate innovation strategy for their CS missions and goals. The details of the CS-oriented family-driven innovation framework are presented in Table 4.

The research in this study also points out critical points upon application of the framework: the role of existing resources, capabilities, family members and employee commitment and strategic priorities at a family firm. A CS subject-level use of the framework is possible in family-owned firms. In addition, the framework would assist practitioners in contrasting CS-oriented innovations and keeping track of their progressions together. Our framework, therefore, emphasized and validated the signature characteristics of family firms in their innovation and CS processes and proposed an innovation framework compacted with suitable CS integration approaches.

Policy implications

It is clear from the empirical evidence that each family firms consider the regulation's presence in their CS strategies. However, R20 pointed out that regulations do not drive most CS-oriented activities in their family firms. The same point was also mentioned by most other

Corporate sustainability maturity levels/ Innovation types	Efficiency-driven	Value-driven	Future growth driven	Sustainability driven	
				External driven	Internal driven
<i>Beginning:</i> Opening/ introducing the firm's CS responsibilities and exposures measuring/tracking the CS's performance	Processes efficiency review production emission, energy usage tracking	Sustainable technology training for the employee sustainability green KPI in management reporting	Green energy application, CO2 balance sheet	External stakeholder involvement	Flat organizational hierarchy employee training (Corporate Sustainability-/ business-related matters)
<i>Elementary:</i> Infrastructure, resources and capability building	Business process digitalization waste separation systems life cycle assessment product management	Sustainable innovation process projects green product design	Energy-saving office equipment electric car charging station at the storage units	Sustainability reporting, non-financial reporting plastic packaging reduction	Internal software for innovative ideas, employee development
<i>Satisfying:</i> Actively adjusting/ changing toward corporate sustainability	Lean production sustainability bonus scorecard	Green procurement, sustainable project management software	Sustainable investment selection framework, 100% recyclable plastic packaging	Indirect emissions management	Environmental management system
<i>Sophisticated/ outstanding:</i> align internal and external forces to achieve their CS goals	Circular economy logistic system closed recycle circle process	Zero-emission production	A non-commission logistic zone in the city sustainable business partner selection	Business partner development circular economy logistic and recycling system	Green product design research decentralized management governance system
Source(s): Created by authors, based on the work of Dieleman (2019) and Baumgartner and Ebner (2010)					

Table 4.
A framework of corporate sustainability-oriented innovation in family firms

family firms. Especially without transparent enforcement of CS-related regulations as current, each business partner and the customer has their CS agenda, and family firms are in the dilemma of wanting to do more but lack more know-how and resources to justify their best-fitted CS integration approaches. Moreover, many small and medium-firms rely heavily on government-own infrastructure and support to carry out their CS strategy. R20's company has difficulty persuading business partners to change to more sustainable building tools when the customer does not see the requirements from law enforcement or financial benefits to pay more and when the government infrastructure in construction for electric-based machines is still limited. Thus, more enforcement of CS-related regulations would benefit family firms in their sustainable transformation and legitimize CS integration approaches.

Secondly, government financial support is already driving innovative solutions in some family firms in a positive. Family firms acknowledged that these financial supports help them

take off the burden of already running innovative processes in family firms (R13, R16). As the research was conducted after the pandemic and during the difficult market environment, the government support do play an essential role in the company's sustainable transformation effort. However, family firms are still struggling with the complex and lengthy process of receiving the granting of government financial support. Thus, our empirical finding signals to policymakers that more financial support with a more digitalized granting process would effectively boost sustainable transformation in the industries.

Conclusion and future research

Our study is based on twenty-two family firms from various industries in Germany. This study offers novel insights for academics, practitioners, and policymakers. We sought to unravel how German family firms integrate CS matters into their business using innovation and the drives of CS-oriented innovation. Five CS-oriented innovation themes in family firms are identified: CS measurement, CS-oriented infrastructure, Operation stabilization/optimization, Operation flexibility/independence, Knowledge management and development. The innovation themes could be categorized to each CS-maturity level accordingly: introducing and measuring/tracking CS-related matters, building infrastructure, actively adjusting business toward the firm's CS goals, and coordinating internal/external stakeholders to achieve the firm's CS goals. Overall, the CS-oriented innovation observed in family firms is all driven by one of these drivers: efficiency, value, future growth, and internal and external organization.

Limitations of our study include typical caveats of subjectivity, replicability, generalizability, researcher bias, and less statistical power than quantitative research in verifying trends. To mitigate these limitations, several industries are included in this study to support validity and reliability with multiple respondents, multiple researchers helping to control individual researchers' biases, and the use of publicly available information for selected firms.

Nevertheless, the results of our investigation brought to light the importance of future research taking into account multiple levels of viewpoint while investigating and developing innovative processes of CS integration in family firms. According to our research findings, the integration of CS can take several forms depending on a company's strategic priorities, available resources, and the business relationships it maintains. Because of this, companies were tasked with concurrently managing and optimizing all essential topics. We recommend future research to offer more efficient management ways to maximize the process of CS integration, taking into consideration the particular characteristics and culture of family-owned firms. Furthermore, the level of innovation involvement is still limited. In-depth studies of CS-oriented innovation products, processes, or business models in family firms are necessary to enhance our current understanding. Lastly, we want to encourage researchers to do further studies on service-oriented firms. As general CS integration frameworks oriented on product-oriented industries as service-oriented industries, special requirements and exposure to CS matters pose challenges for current service-oriented firms to do more for the environment, society, and the industry's sustainability.

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Corresponding author

Sascha Kraus can be contacted at: sascha.kraus@zfke.de

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