

Exploring Knowledge Management Enablers Towards Attaining Sustainability Goals in Vietnamese Family Businesses

Abstract

Attaining sustainability goals through balancing economic, social, and environmental benefits has become important for all businesses. However, small, and medium-sized enterprises (SMEs), especially family businesses often struggle with managing such balance for achieving sustainability. In Vietnam, a developing country dominated by family-run SMEs (family businesses), limited human and financial resources hinder effective knowledge management (KM) utilization for achieving this. This study employs a multiple case study approach to explore KM enablers that promote attaining sustainability goals in businesses. The findings identified distinct KM enablers that enable attaining sustainability goals among family businesses. Despite their inherent resource limitations, family businesses optimize the use of shared technologies and promote the accessibility to accurate information to achieve sustainability goals. This study offers a pathway for family business owners to understand KM enablers that allow attaining sustainability goals and optimizing their KM practices for better decision-making.

Keywords: Sustainability; Knowledge Management Enablers; Family Business; Multiple Case Study

1. Introduction

Sustainability is considered as one of the key criteria for businesses to achieve stability and mitigate risks in dynamic markets. It involves balancing economic profitability with social, and environmental responsibility (Demir et al., 2023; Martins et al., 2019). However, small, and medium-sized enterprises (SMEs) face difficulties in standardizing and monitoring sustainability criteria, due to limited financial and human resources for management (Herrero et al., 2024). SMEs face internal information gaps, non-standardized processes (intra-organizational level), and limited connections with external parties (inter-organizational level) for decision-making (Herrero et al., 2024). Moreover, family-based SMEs are influenced by cultural aspects, relationships among family members and often face biases in developing business goals and strategies (Arzubiaga et al., 2022; Herrero et al., 2024). Hence, without having proper vision, strategy, and a clear framework of using information and knowledge for operation and decision making, family businesses struggle to balance and achieve necessary and demanding sustainability goals (Döring & Witt, 2020; Olson et al., 2003). A low rate of adoption of sustainability practices has been recorded among family businesses and on top of it, only less than 50% entrepreneurial family businesses are able to sustain their businesses over five years (Barnes, 2019; Jamil et al., 2023). As such, the problem is further challenging when the failure is placed on the next generation that takes care of the family business. Such challenges further highlight the importance of knowledge transfer and management especially among family businesses (Jamil et al., 2023).

Effective knowledge management (KM), encompassing the capture, storage, and utilization of information, is important for informed decision-making and to promote sustainable business practices (Durst et al., 2024; Martins et al., 2019). KM tools, tailored to specific business contexts, empower experienced personnel to extract actionable intelligence from vast datasets, thereby enhancing operational efficiency and strategic agility (Di Vaio et al., 2021). Hence, business owners seek the assistance of KM solutions to navigate market uncertainty and rapid changes (Demir et al., 2023). In the digital age, market competition poses heightened risks for small and medium-sized family businesses in developing nations (Bui, 2021; Durst et al., 2024). Notably, while larger organizations possess greater resources to navigate competitive pressures, resource-constrained family businesses in such developing nations encounter challenges in establishing robust KM systems (Bui, 2021; Ngoc Thang & Anh Tuan, 2020).

Consequently, optimizing KM is critical for operational management and sustained growth of family businesses (Ngoc Thang & Anh Tuan, 2020).

Existing literature emphasizes the application of KM practices for organizational sustainable development (Roxas & Chadee, 2016; Shahzad et al., 2020), yet significant gaps remain in indicating such practices in family business contexts where innate characteristics of family businesses and their influence are not integrated in understanding and developing a KM framework. Specifically, KM practices such as using management accounting as a tool to capture information of organizational activities that can boost sustainability performance are highlighted in prior literature (Bresciani et al., 2023), leveraging business knowledge for strategic decision-making towards achieving innovation and competitive advantage (Döring & Witt, 2020; Shahzad et al., 2020). Turning to family business contexts, the nexus between KM behaviors and family business contexts underpinned by their national characteristics remains underexplored, particularly regarding resource constraints and the family-based culture impacting technological advancements, innovation, and knowledge sharing (Arzubiaga et al., 2022; Su & Daspit, 2021). As discussed, KM practices are bounded by family culture, management practices, and knowledge sharing from founders to successors, where knowledge cannot be circulated or shared properly (Gupta & Bhattacharya, 2016; Letonja & Duh, 2016). In addition, with financial and human resources, family businesses are challenged to leverage and adopt advanced and emerging technologies for obtaining latest information. In the Asia-Pacific region, developed countries have significant digital transformation, while many developing countries face IT adoption challenges due to the digital divide and the lack of research and resources (Bui, 2021; Huang, 2023; Martins et al., 2019). As such, this study explores KM enablers that promote attainment of sustainability goals in family business contexts.

Prior literature highlights that cultural differences have a great influence on family businesses. For example, a European or American family business may have fewer impact of family decisions as opposed to an Asian family business (Jaufenthaler et al., 2023). Considering such influences, this study focuses on Vietnamese family-based SMEs as a representative of developing countries, an emerging economy in Southeast Asian region. SMEs, particularly family businesses, account for over 80% of enterprises and 60%–70% of the workforce in Vietnam. However, family businesses in Vietnam lack digital technology investments for knowledge repositories (Bui, 2021; Ngoc Thang & Anh Tuan, 2020). A very few studies have

focused on exploring how Vietnamese family businesses attempt to align sustainability goals with business strategies (Ngoc Thang & Anh Tuan, 2020). Especially considering the needs to incorporate sustainability practices mandated by the government bodies, Vietnamese family businesses are continuously struggling to align with such requirements. As such, this study provides insights into the understanding KM enablers that promote achieving sustainable development goals among family businesses in developing countries.

The overarching research question guiding this study is: *‘What are the knowledge management enablers required for attaining sustainability goals among small and medium-sized family businesses in Vietnam?’*

In sum, this study explores the KM enablers that promote attaining sustainability goals among family-run SMEs (family businesses). The study considers the innate characteristics of family businesses and applies the understanding of KM enablers to promote attaining sustainability goals. Exploring such an area has been rarely done in previous studies. As such, exploring this novel area contributes to both academia and practice. Particularly, considering the importance of strategic asset knowledge among family businesses, and how such strategic assets provide competitive edge for family businesses to promote sustainability practices, this study utilizes knowledge-based view as the overarching theory (Nonaka et al., 2000; Roxas & Chadee, 2016). By conducting a qualitative case study of two prominent family businesses based in Vietnam, this study identifies KM enablers that promote the alignment of sustainability in family businesses.

This paper is structured as follows. First, we provide the background of the study, covering an overview of KM and its roles for attaining sustainability goals among family businesses. Next, we highlight our use of a multiple case study methodology approach. Finally, we present findings, conclusions and implications for research and practice.

2. Background

2.1 The Knowledge-Based View

Knowledge, stemming from the expertise and experiences of knowledge workers, is essential for precise decision-making (Döring & Witt, 2020; Nonaka et al., 2000; Su & Daspit, 2021; Yew Wong, 2005). Drawing from resource-based view and expanded to knowledge-based view, organizations have the capabilities to search for, acquire, and utilize knowledge-based

resources in developing organizational capabilities (Nonaka et al., 2000; Roxas & Chadee, 2016). KM involves capturing, storing, transferring, and applying knowledge to enhance business performance (Ahmad et al., 2013; Lee & Choi, 2003). Knowledge is viewed as an intangible asset for decision making and gaining unique competitiveness (Teece, 2009). From knowledge sharing and circulation perspectives, knowledge is classified as explicit knowledge (codified and easily shared through documents), and tacit knowledge (more abstract and gained through personal experience) (Nonaka et al., 2000; Su & Daspit, 2021). The conversion and interaction of explicit and tacit knowledge contributes to the business knowledge system, which is indicated under socialization-externalization-combination-internalization (SECI process) (Nonaka et al., 2000). Managing these types effectively varies based on business capabilities and resources (Su & Daspit, 2021).

Beyond the view of knowledge itself, Yew Wong (2005) synthesizes critical success factors of KM [so-called KM enablers (Yeh et al., 2006)] towards increasing organizational performance, which expanded knowledge in the relationships with organizational operation. The overview of key KM enablers has been reviewed and synthesized by a range of studies, with factors such as people, organizational learning, strategy and leadership, culture, information technology, organizational infrastructure, processes, and activities (Lee & Choi, 2003; Pham et al., 2024; Yew Wong, 2005).

In the digital era, effective KM is crucial for competitive decision-making and organizational survival, particularly for underprivileged businesses competing against larger firms (Arzubiaga et al., 2022; Su & Daspit, 2021). Considering the importance of strategic asset knowledge, especially for initiating sustainability practices in family businesses, this study applies knowledge-based theory as the overarching theory to explore KM enablers that promote application of sustainability practices among family businesses.

2.2 Application of Sustainability Practices in Family Businesses and the Impact of KM Practice

Sustainability practices aim to balance economic, social, and environmental performance of businesses (Al Koliby et al., 2024). Rather than being separate, sustainability is integrated into all business operations (Herrero et al., 2024). Economic goals like cost reduction, return-on-investment, and profitability can conflict with social and environmental goals such as worker welfare and pollution control (Al Koliby et al., 2024). Hence, integrating sustainability practices and goals ensures that businesses can operate without harming the community and

environment. Information and knowledge play a key role in supporting strategic decision-making towards achieving these sustainability goals.

The important roles of knowledge and information for attaining sustainability goals in businesses are explored in recent studies (Al Koliby et al., 2024; Demir et al., 2023). For example, several recent studies highlighted the importance of KM elements that can lead to the attainment of sustainability, competitive advantage, and organizational performance in the business (Table 1). These studies highlight that knowledge is also a moderator between social capital and organizational performance (Lazarova & Taylor, 2009). For example, Roxas and Chadee (2016) highlight the role of KM as moderator of relational capital and innovation capability, leading to effective environmental management practices. In addition, KM elements such as KM processes (acquisition, dissemination, and responsiveness) (Polas et al., 2023; Shahzad et al., 2020), KM infrastructure and KM quality (Halawi et al., 2005), information systems and technologies to facilitate KM (Torres et al., 2018), or KM enablers (training, policies and strategies, acquisition of external knowledge) (López-Torres et al., 2019), show significant impact on sustainability and green innovation in operational activities. Few other studies use absorptive capacity theory to integrate the external knowledge for green innovation and sustainability in businesses (Lopes et al., 2017; Zhang et al., 2020). Permatasari et al. (2023) utilize dynamic capability theory, and Hsu and Lin (2008) utilize theory of reasoned action (TRA) and theory of planned behavior (TPB) to combine the KM concepts into their theories and highlight how KM constructs have significant impact on attaining sustainability practices. Table 1 below highlights the theories used in studying the relationship between KM and sustainability practices.

TABLE 1. Summary of KM-oriented studies in sustainability for family businesses

<<TABLE 1>>

From family-based sustainability perspectives, Olson et al. (2003) applied sustainable family business model and proposed that business system variables, family system variables, response to disruption variables, together impact sustainability of the family business. Singh et al. (2021) utilized TPB to discuss intrinsic and extrinsic religiosity impact attitude towards environmental sustainability intention. They further highlight that ethical judgement strengthens such

relationships. Sun et al. (2024) apply socioemotional wealth theory to show that family ownership and family control are positively related to environment-social-governance scores.

Family businesses have unique contextual characteristics that could impact KM practices for attaining sustainability goals (Gupta & Bhattacharya, 2016; Martins et al., 2019). Effective KM systems should be integrated across all business domains to support corporate sustainability goals, including finance, human capital, strategies, environment, social responsibility, and succession (Ferreira et al., 2021; Gupta & Bhattacharya, 2016; Herrero et al., 2024). Family businesses also harmonize innovation and tradition, community engagement, and long-term survival through family succession (Ferreira et al., 2021). Family businesses, especially SMEs, share similar characteristics in maintaining their value, and keeping the identity, culture, and principles of operation, which influence their KM practices (Arzubiaga et al., 2022; Döring & Witt, 2020; Nazam et al., 2020). Particularly, family businesses' characteristics categorized under financial structure, operational governance, entrepreneurial orientation, family culture, competition, and environment domains enable KM practices (Arzubiaga et al., 2022; Botero et al., 2021; Su & Daspit, 2021).

Given the critical importance of KM for sustainability, there remains a gap in research focusing on their intersection, particularly in small-sized family businesses (Al Koliby et al., 2024; Martins et al., 2019). These family businesses often face resource constraints that limit their access to information, which is crucial for business development in dynamic economies (Martins et al., 2019; Roxas & Chadee, 2016). Few studies address how KM impacts the sustainability of production and logistics operations, yet it is crucial to recognize that raw material and supply chain management directly affect social and environmental aspects. Businesses using substandard or unethical raw materials risk market boycotts and receive regulatory penalties (Martins et al., 2019).

2.3 Knowledge Management Enablers for Family Businesses

Recent literature identifies specific KM enablers and their effects on performance, emphasizing both internal factors (strategy, leadership, culture, structure, IT, people, learning, processes, and finance) and external factors (market, customer, and regulation) due to high market competition (Lee & Choi, 2003; Liu et al., 2023; Pham et al., 2024). With KM enablers, businesses create KM processes (capture, storage, transfer, and application of knowledge), and boost organizational performance (Andersen & The APQC, 1996; Lee & Choi, 2003). With

organizational performance and measurement, balancing business profitability with social and environmental responsibility needs further investigation (Martins et al., 2019).

As per prior studies, although KM embedded family business characteristics demonstrates significant impact on sustainability, how such practices help family businesses to achieve sustainability is not explored. Few KM enablers studies conducted qualitative research to show the impact of KM in specific contexts such as supply chain, family business, manufacturing (Döring & Witt, 2020; Pham et al., 2024; Yeh et al., 2006). Although current theories demonstrated its critical roles in exploring KM research in quantitative research, this study uses KM enabler framework to synthesize findings from extant literature of KM enablers in family businesses to cover all aspects of KM practice for sustainability (see Table 2). While the names of the elements identified under each KM enabler category can be different, they are classified into these main KM enablers by following similar approach as Pham et al. (2024) and Döring and Witt (2020). While analyzing prior literature on family businesses and sustainability practices, it was evident that there is no study showing the integration and impacts of family business characteristics and KM factors that facilitate attaining sustainability goals.

In the family business context, research conducted by Arzubaga et al. (2022) and Su and Daspit (2021) identified significant family business characteristics that can influence KM practices. This study aims to build on the foundation studies of KM enablers and family business characteristics to address this gap in the literature. Figure 1 indicates the impacts of FB characteristics under environmental factors (Liu et al., 2023; Pham et al., 2024) and internal KM enabler practices (Andersen & The APQC, 1996; Lee & Choi, 2003; Pham et al., 2024). The characteristics of KM enablers for family businesses discussed in prior studies are synthesized and elaborated in Table 2. Noting, Table 2 highlights KM enablers identified in general family business contexts and not specific to attaining sustainability goals.

<< **FIGURE 1**>>

FIGURE 1. A framework of KM embedded in family business contexts (synthesized by the authors)

TABLE 2. KM enablers identified in family business context

<<TABLE 2>>

3. Research Method

To investigate a novel topic which has received little attention such as exploring KM enablers that promote attaining sustainability goals in family businesses, this study conducted a qualitative approach. Application of a qualitative exploratory study to investigate the real-world phenomenon is a common practice in prior research (Yin & Campbell, 2018). In particular, we applied case study method as it is more suitable to explore conditions and elements from the subject exhaustively (Creswell, 2007). This study aimed at exploring KM enablers at a practical level and investigated real-life practices adopted in typical Vietnamese family businesses, where nature and working principles are differently impacted by business culture and their industries. As such, this study utilized a multiple case study approach, utilized interviews, and document analysis as data collection methods to sharpen the understanding of KM enablers, allowing derivation of findings from within-case and cross-case analysis (Yin & Campbell, 2018).

3.1 Data Collection

The study focused on Vietnam as a representative of emerging economies in Southeast Asia, serving as a model for other developing countries. In particular, Vietnam is selected as a targeted family-based SMEs for several reasons: (i) SMEs comprise 97% of Vietnamese businesses, (ii) 45% of gross domestic product, with a high proportion being family businesses in Vietnam (PwC, 2021; Vietnam Law & Legal Forum, 2022). (iii) Family-based SMEs lack technological adoption and KM capabilities (Ngoc Thang & Anh Tuan, 2020), and (iv) follow sustainability practices, and it is interesting to see the importance and impact of such practices. This study also recruited prestigious, steadily growing businesses located in the central provinces in Vietnam, which do not attract many labor forces compared with the north and south parts of Vietnam (i.e., big cities with several foreign investments and industrial zones).

Organizations were selected for convenience (i.e., their business characteristics align with the research interests, and the organizational support and sponsor for research). After evaluating the businesses and the researchers' potential to be able to investigate their business contexts in-depth, two-family businesses namely *Fabric* (textile company) and *Fragrance* (essential oil manufacturing company) were selected for data collection process. The names of these companies are anonymized for ethical purposes.

Fabric is a company that exports textiles, which follows all required sustainability criteria imposed by the authorities for exporting to global markets. *Fragrance* has products achieved one-commune one-product (OCOP) standards, a government's initiative to promote sustainable development and economy in rural areas (FAO, 2022). The OCOP products satisfy all national sustainable criteria, and progress to export products. With these businesses, they represent the manufacturing organizations that achieve common standards for export and local market. These family businesses also mutually share the following characteristics of family-based SMEs. They: (i) are not significantly advanced in emerging IT adoption, and (ii) operate staff rotation and use multitasking to handle jobs instead of working on a rigid job-role basis, unlike large businesses (Bui, 2021; Ngoc Thang & Anh Tuan, 2020).

To explore the case studies, data collection methods such as interviews, company documents, publicly available documents, and observations were applied. The researchers observed how each executive and manager conducts tasks with the support from KM tools. The authors conducted interviews and observations from different geographical locations. One group used online, in-depth interviews to theoretically explore all aspects of the operations and strategies of the cases without visiting them (no bias perception). Another observation group, based in Vietnam, had intimate familiarity with the cases, understanding their contexts, business processes, operational methods, and document management.

Key executives and senior management across all departments, who make business decisions, manage, and circulate firm's knowledge, were interviewed to gain a comprehensive understanding of the cases. Each case involved 5-6 interviewees, primarily with managers and senior staff, where the authors could cover all business departments and their working activities. Operational-level workers usually do not get involved in strategic decision-making for attaining sustainability goals. As such, they were not interviewed, but we observed and verified some information with several operational staff in various sessions for triangulation purposes during the fieldwork trips. There were several fieldtrips where authors ask the

interviewees to confirm the findings, and observations. Verifications were intensively conducted, with note-taking activities during these field trips. Interview numbers per case were determined by achieving data saturation within each organization (Young & Casey, 2019). A total of 11 interviews, each lasting over 1 hour, were conducted across both case studies (#1 to #11 in Table 3). The interview numbers met both saturation requirements of qualitative research and meet the common number of interviews for case study with a smaller number of interviews but high level of in-depth exploration from the case (Crouch & McKenzie, 2006; Young & Casey, 2019).

The interview questions covered areas such as: (i) how do family businesses strategize on using technologies and structuring business processes to gather information and knowledge for decision-making; (ii) how do family businesses use their knowledge to develop sustainable goals; (iii) what do family businesses think about developing organizational knowledge, capturing knowledge from external environments (markets, customers, governments) and transferring knowledge to employees and successors.

TABLE 3. Details of the Interviews Conducted

<<TABLE 3>>

3.2 Overview of the Cases

Fabric, founded in 2015, specializes in garment manufacturing and trading. With an average monthly output of 100,000 standard products, it exports to Europe, America, Japan, Korea, and Australia. The company employs over 150 engineers, technicians, and skilled workers in the garment industry. *Fabric*'s strategy focuses on delivering precise quantities and high-quality products as per contract clients. Operational performance is monitored using daily bottom-up reports in Excel that supports planning to meet client demands. KM relies on historical contracts for reference. Managers may request specific information, and communications are delivered by emails or messages via social networking apps, depending on the context. Currently, *Fabric* does not have formalized KM systems in place.

Established in 2016, *Fragrance* focuses on producing high-quality essential oils from native plants, creating jobs for locals, and preserving *Melaleuca* forests for ecological balance and

tourism. With 60 employees and 50 subsidiaries nationwide, *Fragrance* employs local farmers as casual staff to maintain the forests and supply crude oils. The company uses Excel files and Vietnamese accounting software (Misa) for record-keeping. Employees submit daily task reports to managers, who compile these bottom-up reports. *Fragrance* lacks a real-time information system, requiring manual sorting and filtering of client information in Excel files.

Similar to other small businesses in Vietnam, in both cases, common social media mobile apps (Facebook, Zoom, and Zalo) and free email platforms (Gmail and Google Drive) are commonly used to support business communication, not only among employees but also with customers.

3.3 Data Analysis

Synthesized literature on KM enablers was used as a theoretical lens and initial concepts for data analysis, following an open–axial–selective coding process (Strauss & Corbin, 1998). The coding process was managed by NVivo 15, which was first done by one researcher. Specifically, during open coding, data events and incidences were analyzed and coded into concepts. Axial coding compared first-order concepts, grouping relevant ones under specific KM enablers from the literature into second-order themes. The new emerging first-order concepts could not be classified under the existing second-order themes, which led to the creation of new second-order themes. In the final stage, selective coding mapped concepts and categories under KM enabler domains and sustainability aspects.

The first coding version was shared with the entire team for refinement and feedback from several online meetings were taken into consideration. Each member conducted the analysis separately and once the analysis was completed, met with the team, and updated the codes until all the members reached a consensus. From there, the team conducted cross-case analysis. Through which, comparisons to highlight new concepts, and differences between case studies and interviewees' ideas not found in prior literature were revealed. Data was refined and case-specific concepts were generalized into more abstract concepts. The summary of the data analysis is provided in Table 4.

TABLE 4. Example of the coding process

<<TABLE 4>>

Regarding the reliability and validity of this study, this study adopted the trustworthiness framework, including credibility, transferability, dependability, and confirmability criteria (Korstjens & Moser, 2018). Regarding credibility, for the fit between interviewees' viewpoints (descriptions) and authors' research (explanations), interview transcripts and findings are confirmed with interviewees to represent their genuine ideas. Interviews were conducted without pre-assumptions from the researchers, which ensures unbiased and data saturation (Strauss & Corbin, 1998). Second, the interview data analysis was compared with the fieldwork observations to corroborate findings (Strauss & Corbin, 1998).

For transferability, this study provided clear research protocol, investigation themes, job descriptions of interviewees and company types for future replications. With qualitative research, this study with open-end interview questions opens room for case-to-case transfer and replication to discover new findings rather than generalizability. With dependability, to ensure the stability of the findings, the interpretation is supported by evidence, particularly from interview contents, which were cross-checked through the additional observations and field notes. Additional observations and confirmation with the interviewees were done to finalize the discrepancies. Combining interviews and observations strengthened the integrity of the case study analysis. Lastly, for confirmability, we conducted a comprehensive literature review to assess the conceptual framework. This was further confirmed by coding interview content and case study analysis rather than from the researchers' imagination.

4. Findings and Discussion

From the categories of KM enabler framework synthesized from the literature as illustrated in Table 2, the findings of the data analysis are discussed under KM enabler themes accordingly. This study discusses the similarities and differences of KM practices among family businesses and discusses KM enablers that promote sustainability practices in family businesses. The findings are developed based on a thorough comparison between literature findings and data analysis. Further, propositions are introduced for future researchers to further analyze the findings of the explorative study.

4.1 External Environment (Regulation, Market, and Customer Needs)

The selected family businesses have immensely considered tax, environment, and employment-related regulations when they considered incorporating sustainability practices.

Accounting and human resource departments oversee business records, which ensures sustainable compliance with taxes, salary payments, superannuation, and pollution standards. Vietnamese accounting software used in these family businesses is structured under accounting and tax reports that align with the government requirements. *‘I normally report information on building projects to the management board. Productivity, revenues, and profits of the business are reported to the government (Department of Taxation) [for taxes]’ (#2).*

These family businesses have interesting but different strategies to improve product quality, satisfy customers, and minimize reputation risks. The business strategies depend on market saturation and the availability of resources. For example, *Fabric* aims to develop sustainable capabilities to enter premium markets. They scrutinize supply sources and carefully select suppliers. They also rely on export standards which are surveillance by their client companies. *Fragrance* focuses on community-oriented business practices. For example, they use natural materials for products sourced from local markets, and foster customer service through word-of-mouth marketing, targeting their local customers. The company prioritizes community betterment over profitability. *‘I am not too concerned about competition. I just try my best to focus on creating the best product for consumers and could be 100% responsible for customers’ (#7).*

The family businesses used in the case study targeted niche markets as they had severe competition exerted through larger companies and other SMEs in their industries. *Fragrance* produces essential oils for niche markets and expands its network through social networking users (i.e., teachers, officers, freelancers) who sell products online, which also creates community job opportunities. *Fragrance* also participates in communal, spiritual, or religious events to connect to potential customers. Conversely, *Fabric* collaborates with their outsourcing partners and actively seeks client opportunities in parallel. They are facing competition on labor recruitment due to diverse local competitors in the textile sector. *‘Now we directly get outsourced orders from Hong Kong. The outsourcing is via an intermediary, and it is better than having a chain of many intermediaries like years ago’ (#1).*

TABLE 5. Summary of the external environment theme

<<TABLE 5>>

This study supports previous findings that the legal environment, market, and customer trends are key elements of external environment enabler: Family business owners should capture external knowledge, legal requirements, and adapt quickly (absorptive capacity) (Arzubiaga et al., 2022; Rondi & Rovelli, 2021; Zhang et al., 2020). Additionally, this study emphasizes that not just for legal compliance, sustainability is an opportunity for family businesses to develop sustainable products to retain current customers and attract new customers. While prior studies highlight the family businesses' market competition efforts (Arzubiaga et al., 2022), this study found that since family businesses in developing countries lack resources to compete with large multinationals, they mainly penetrate into niche markets or rely on intermediaries. Further, in their selected markets, environmentally friendly products made with affordable natural local materials or raw materials from virtual supply chains are considered. The cases wanted to deliver value to customers and potentially expand markets rather than risking their reputations. These family businesses are more agile and flexible to environmental changes than large firms, enabling them to tailor their production plans for various markets and thereby growing the business. As such, we derive the following proposition:

Proposition 1. Market competition, industry characteristics, and national regulations determine sustainability compliance of family businesses in developing countries.

4.2 Strategy and Leadership

The current owner of *Fabric* is the second-generation owner of the founding family. He is young and can be considered as a risk seeker as he takes all the opportunities to expand his business and explore new customer bases. He embraces growth, believing that seizing opportunities is key to long-term success. In contrast, *Fragrance* owner is an older risk-averse individual, who possess army background and only focuses on domestic market, especially local market. He believes that expanding beyond this scope would introduce unnecessary risks, as he fears he may not be able to manage it effectively, potentially leading to the collapse of the business due to limited management capacity.

The two-family businesses have a clear view of market demands for sustainable and eco-friendly products, as such aligning their business strategies with market demands to boost firms' production, employment, and sales. Due to possessing diverse long-term visions, and openness to innovation, their strategies for upscale production have diverged patterns. *Fragrance* aims to share benefits with the community, focusing on using local and natural spices for product innovation and circular operations. The decision to source materials locally

is made by the manager. For example, *Fragrance* actively finds lemongrass leaves for distilling from farmers who sell lemongrass trunks in the local markets, which allow *Fragrance* to find sustainable and stable sources of supply and optimize the profits of the local lemongrass farmers as well. At *Fabric*, the managers work closely with the workers in the operational department to increase the efficiency of the supply the enhance the completion of client orders on time. *'The technical department gives research ideas for improvement, then proposes to the leaders, if it's effective, then putting it into production to improve production'* (#4).

Both family businesses tend to hire family members, valuing their loyalty to the business. However, non-family members are recruited based on expertise and equally promoted to management positions based on their performance. Non-family managers align their approaches with business strategies and have full control over their departments, ensuring no discrepancy and power bias between family and non-family managers. *'Currently, there are a few siblings, but many outsiders are in the business. I just do the work rather than putting personal or family feelings to indulge each other'* (#6).

In small family businesses, managers often rely on experience and intuition over technology and measurement tools. *Fabric* is based on the productivity of workers to ensure they can finish clients' orders on time. *Fabric* focuses on worker productivity to meet client orders, with daily production control and rewards for effective, error-free work. *Fragrance* uses historical data and local seasonal knowledge to produce enough production throughout the year. They have the advantages of their long-shelf-life products, which are not significantly affected by inaccurate production planning.

TABLE 6. Summary from strategy and leadership theme

<<TABLE 6>>

This study confirms that leadership and managerial commitment are crucial to determining family business operations (Rondi & Rovelli, 2021). This study indicates that family businesses, which are generally small and still developing, continue to innovate and produce high-quality products. The managerial approaches for production are still based on intuition, historical data, and reports. Second, prior studies differentiate the management of family and non-family leaders (Arzubiaga et al., 2022). However, this study found that the family owners determine leadership and strategic approaches of their family businesses. Therefore, although

strategic leadership and KM practices are refined to better decision-making, promoting sustainability and operational performance, the innovation and transformation depends on the commitment of the business owners (i.e., risk seeker or risk averse). This study also shows that family businesses tend to recruit family members, but they try to avoid power biases in favor of family members. Non-family employees still get promoted to managerial positions, as they have equal chances for contributing their knowledge and expertise to the betterment of business operations.

Proposition 2. Incorporating sustainability goals into business strategy is driven by family business owners in developing countries.

Proposition 3. Innate characteristics of the business owner (i.e., risk averse vs. risk-pro) determine the openness towards green innovation.

4.3 Cultural Aspects

Family members' close-knit connections in family businesses encourage non-family employees to integrate and create a less stressful work environment. This fosters less internal competition, easier conflict resolution, better communication, and maintains better organizational productivity. Trustworthiness and open communication in these environments compensate for the lack of advanced digital management tools, ensuring solidarity, and faithfulness in conducting business operations. In family businesses, employees might share login accounts for accounting software or Google Drive. There are still benefits of family relationships, so the workplace can be flexible to take place of others' tasks if another employee is absent. *'The advantage is that the information is more believable than non-family businesses. The good things are input and dynamism to promote the company's development. The bad side is stagnation' (#1).*

The business owner's philosophy determines the working style and knowledge-sharing environment. Open communication allows employees to share their thoughts and knowledge freely, leading to smooth operations. At *Fragrance*, the staff does not have a specified role. They get to experience various tasks depending on the need. The business owner usually shares his knowledge and directly trains employees (sales, marketing, prices). At *Fabric*, senior employees support new joiners in career development and skill enhancement. For example, the manager said, *'I will not hide expertise and experience from my staff because the more they know, the more they will support me' (#2).*

The attitudes and the values of the business owner impact the knowledge transmission strategies and knowledge sharing culture in the family businesses. This is characterized by *Fabric*, where the business owner works as an instructor and a mentor sharing his years of expertise. He gives his successors with all the rights of management and directorship to enact operations, but he monitors and provides advice when needed: *‘I shared the business conditions, interesting projects, contracts, and productivity... with my father. He advised management strategies to develop business sustainability, such as expanding factories into industrial zones, processing orders, dealing with relevant state agencies, and retaining and treating employees for better welfare’* (#1). At *Fragrance*, the owner perpetuates traditional local recipes for essential oils, as he wants to extend cultural heritage and ensure excellent customer service. The use of locally sourced ingredients assists the organization to follow a sustainability focused pathway. The community-focused belief system instilled in the owner emphasizes his values and the production of responsible products: *‘My products are traditional handicrafts. I learned from my forefathers the original products of my homeland. I can share it with others as my responsibility, not keep it for myself’* (#7).

TABLE 7. Summary of culture theme

<<TABLE 7>>

Prior studies have shown that family-oriented connection and trustworthiness are key features of family businesses (Döring & Witt, 2020). Further, study confirms that these connections enhance trust and solidarity, especially when family businesses lack technology management skills. While previous research highlights the impact of family-related emotions on operations (Arzubiaga et al., 2022), this study found that even non-family employees are closely connected in family businesses. Although Arzubiaga et al. (2022) highlights both individualistic and collectivist cultures, this study confirms that in a collectivist culture employees are open to communication and willing to share tasks and knowledge to achieve business goals. The study also confirms the view that internal knowledge transmission to successors is crucial (Döring &

Witt, 2020; Giovannoni et al., 2011), adding that family businesses may inherit traditional recipes and share them with the non-family members as well to promote cultural heritage.

Proposition 4. Collectivist culture in family businesses leads to a collective value system that promotes adoption of sustainability practices.

4.4 Information Technologies

Despite differences in business scope, vision, and market focus, both case organizations aim to find suitable, affordable IT systems to support operations and knowledge sharing. Both family businesses use digital platforms like Zoom, Zalo, Facebook, Dropbox, and Google Drive for communication and data storage, though these have limitations in capacity, data storage lifetime, and multi-user data entry errors. In these family businesses there are no separate devices and mobile apps used for work and personal life. *‘I have more experience using Zalo, which can’t store for a long time, which means that when people send files, I have to download and save it right away’ (#6).*

The case organizations are investing in production/manufacturing over advanced IT. However, the perception regarding IT investments is different in each family business. For example, *Fabric* currently emphasizes IT for business growth, in which cloud-based technology is implemented to enhance warehouse and production management. *Fragrance* understands the role of IT to business management, but they are uncertain to fully commit to integrating IT in their operations.

Although the two-family businesses have different approaches to IT infrastructure investment, the retrieval of real-time operational information is not fully achieved in both cases. Neither case organizations own any enterprise information systems, as such faces many difficulties in handling business data.

IT investment efforts are constrained by limited budgets. Family businesses still rely on manual records, printed paperwork, and manual procedures to manage business operations. At *Fabric*, Excel and Word files are stored offline on computers, with printed documents locked in the office. Employees rely on personal experience and memory to retrieve records, and cloud storage is optional, but currently, there is an attempt to use shared cloud-based platform for the entire business. *‘Those Excel files are saved by year and month. My department will store it. When I need any information, I will turn back those months to check’ (#5).* Also, at *Fragrance*, only one employee can work on an online shared file at a time to prevent disruption. Staff at

Fragrance also use social media platforms to source customer and market-related information and organize online meetings. Hence, such technical constraints do not support resolving more complex sustainability indicators in the case of family businesses.

TABLE 8. Summary of information technology theme

<<TABLE 8>>

Prior studies indicate that family businesses prioritize innovation and investment in advanced technology for information and KM (Arzubiaga et al., 2022; Ferreira et al., 2021). However, Vietnamese family-based SMEs do not significantly invest in IT platforms due to limited resources and business owners' perceptions. Instead, affordable communication platforms like email, online shared drives, and social networking sites are used extensively considering the cost effectiveness and their usefulness (Apergis, 2019; Huang, 2023; Nazir & Khan, 2024). Livestreaming on social media is popular for product promotion, and for amateur sellers (i.e., teacher, office workers who sell Fragrant products in their free time), which is an effective marketing and sales channel (Doanh et al., 2022). Due to the high cost of tailored enterprise systems, manual data entry, and printed paperwork remain essential to business processes and knowledge records.

Proposition 5. The IT literacy level of the family business owners in developing countries determines commitments towards sustainable digital transformation initiatives.

Proposition 6. Affordable digital technologies such as social media are highly utilized in family businesses in the developing countries for business operations which promote sustainability practices.

4.5 Organizational Structures

Both case organizations exhibit similar practices in ownership controls and information-sharing maintaining a friendly and effective working environment. Top managers hold confidential information (e.g., client details, prices/contracts, production costs) in printed files or digital folders with careful protection, which are used as references for business decisions. Operational information, however, is accessible to relevant staff. Managers allocate staff to

social networking channels like Zalo and Facebook to facilitate effective communication for all executive affairs within and across departments. Employees favor a decentralized information-sharing environment as it provides necessary information without disrupting work processes. *‘Managers use experience to allocate relevant employees to a specific group chat. At the executive level, the group chat will help to process the work faster and more efficiently as communication is open’ (#5).*

Both organizations prioritize relationships with reliable business partners, such as ethical, sustainability-favoring clients and suppliers, whose business practices and products align with market standards. *Fabric* aims to enhance its sustainability standards as required by most clients. Despite their current reliance on intermediaries, they are seeking opportunities to get closer to clients and produce complete products rather than being outsourced by intermediaries. They ensure industry compliance by posting information on an announcement board for workers to follow. Instructions from managers are circulated to workers in hierarchical order, i.e., top managers to team leaders and finally to team members. Conversely, *Fragrance* maintains stable connections with local farmers, who supply raw materials and assist harvesting during peak harvest times. This collaboration benefits both the business and the local community by improving employment and managing melaleuca forest resources. In such instances, information is shared among all relevant parties involved, as such harvesting times are not disrupted. The business meetings are held online for all employees, including freelancers, so that employees and sellers can introduce products precisely to customers. As stated by a representative from *Fragrance*, *‘We hire local farmers as they stay nearby. Secondly, we also ask them to manage the plant forest [the melaleuca forest] for us’ (11).*

TABLE 9. Summary of organizational structure theme

<<TABLE 9>>

While prior studies denote governance, ownership dispersion, business size and business resources are all contributed to KM practices (Arzubiaga et al., 2022), this study enhances the understanding of ownership structures and governance in Vietnamese family businesses, highlighting the decentralized and flexible nature in information sharing. Through the case study data, it was evident that family businesses aim to sustain supply chains through stable

connections with trusted business partners via their existing social media technologies and managerial strategies. Family businesses often employ local farmers, neighbors, and freelancers for casual jobs and consider them as outsourcing collaborators to supply raw materials.

Proposition 7. Organizational structures in family businesses form unique intra-firm and inter-firm collaboration and knowledge sharing structures that assist adoption of sustainability practices.

4.6 (Sustainability Focused) Processes and Activities

The case organizations refine report to obtain necessary information for monitoring business activities. However, in these instances, reports are generated at various levels depending on the staffing structures and functions. *Fabric* focuses on specialization, they assign tasks based on established processes and documentation standards, continuously improving information and knowledge processes by adjusting specific criteria to better fit employees' needs. Conversely, *Fragrance* rotates business functions among employees due to limited staff, making fixed report templates unsuitable. They handle various tasks from ordering to post-services, requiring constant adaptations. Also, *Fragrance*, to maintain a good relationship with customers, contact them for special events such as anniversaries, birthdays, and sharing and details of product expiration. Currently, such communications are maintained through Excel files, so manual checking could be inaccurate or missing altogether.

In both cases, information is obtained and transferred from social media channels, facilitating efficient communication and document sharing. Virtual setup usually is considered as sustainable compared to face-to-face meetings. Zalo and Facebook groups are created to share information among executives. In the case organizations, there can be too many Zalo groups, and top managers cannot follow all of them to get the required information. However, due to the business scope, in *Fabric*, business owners often wait for their staff to generate reports, particularly when the reports are not urgent.

In *Fragrance*, the business meetings are open and online, the communication and plans of production and consumption are smoothly discussed and shared with all employees in different departments if employees are technology-literate to use technology for communication. Recruiting local casual staff who lack digital literacy requires executives to ensure effective communication and task completion. *'Our business is mainly an online business. During*

COVID, there really was not much of an impact. However, a few subsidiaries are selling offline and do not use social networking sites, so it is a bit difficult to support them' (#10).

TABLE 10. Summary of process and activity theme

<<TABLE 10>>

This study further confirms as per prior research (i.e., Arzubaga et al., 2022; Giovannoni et al., 2011) knowledge transfer and sharing among employees and successors are crucial for sustaining decision-making. This study found that using social networking channels, technologies and openness to communication are important to enhance knowledge exchange and absorption regarding innovation and sustainability practices for employees in family-based SMEs. Secondly, prior studies emphasized continuous improvement in business and knowledge processes (Bresciani et al., 2023; Gupta & Bhattacharya, 2016). This study adds that family businesses often lack perfect business forms and technology adoption, which requires them gradually refine towards sustainable operation goals. Employees may rotate jobs and handle multiple functions, leading to manual performance checks by managers, without rigid templates or formatted reports.

Proposition 8. Despite possessing well-developed forms and reports, family businesses utilize affordable technologies (i.e., social media channels) to facilitate knowledge exchange and sustainable process towards achieving green innovation.

4.7 Organizational Learning

The case organizations focus on attracting young, local recruits who possess IT knowledge to use new technologies and those who seek long-term employment. *'The biggest advantage is that the staff are young, so they will catch up with new updates very quickly, so being developed will be very quick' (#5).* Office software and social media channels are easily learnt by young employees, which is beneficial for family businesses. Although these family businesses are not the target of cyber hackers, when using social media without security measures, there is a high chance of becoming vulnerable targets for hackers to access data of the family businesses.

New hires are trained for various roles, assigned to rotating jobs and provide training for them in each of these jobs. Such training practice is applied for both workers and office staff. Workers work on all production phases of the factories, and office staff can support the tasks in their factories during the intense periods, allowing them to learn factory processes as well. Officer staff also work in several departments, allowing them to learn all operational and transactional tasks. At *Fragrance*, employees can manage all phases of customer service, from advertising to after-sales. They absorb spiritual principles from the owner to bring value to customers. At *Fabric*, experienced managers have a broad understanding of the organization, allowing administrative staff to resolve issues like salary disputes. Fabric workers are well-rounded staff to fulfil labor forces, as competition among local textile factories leads to high turnover rates when employees seek promotion from other factories.

Employees accumulate experience over time, as they learn from errors and can share valuable insights with new staff. Knowledge sharing fosters innovation in the case organizations. At *Fabric*, new employees get documents from the former/resigned employees, which are extracted from the existing computers. The new employees learn tasks under the instruction of their mentors or managers, but there is room for new innovations. Young employees are trained to be well-rounded, but they are prioritized to work on their major skills so that their new knowledge can support the case organizations. At *Fragrance*, new employees can extend the resigned employees' job descriptions to innovate their new working processes. This helps to retain knowledge and continuously add new knowledge to the business.

Senior employees also look for new external knowledge, such as learning from social media and expert forums on social networking channels. Their innovations are essential as they absorb external knowledge and suitably adapt to their business contexts. *'I saw [a company]'s steaming systems [in Facebook] and thought that it was good, then I came up with my new idea, adapting to my business' (#11)*. However, with the intensive technical environment in Fabric, technical knowledge is not easily acquired, so they hired an external technical director to operate the factory.

TABLE 11. Summary of organizational learning theme

<<TABLE 11>>

This study confirms the findings from prior literature that internal and external knowledge combination, innovation, and training of the young generation are essential in the context of family businesses, where external knowledge and expertise could help more innovations to enhance the business (Dong et al., 2021; Rondi & Rovelli, 2021; Tajpour et al., 2022). This study adds that family businesses do not have the advantage of recruiting experts, so they recruit young local workers to train and employ. These young local employees settle in the organization, committing to long-term employment, and being agile to adapt to new changes (e.g., technologies and working techniques). Family businesses attempt to have clear organizational structures, training, innovative culture, and leadership to foster and sustain human resources and retain knowledge for family businesses in small provinces and cities.

Proposition 9. Absorptive capacity of family businesses in developing countries enables green innovation adoption.

4.8 Sustainability Measures

The above KM enablers aim to improve operational efficiency, employee welfare, and environmental standards. In order to work towards achieving these goals, the two case organizations are similar in how they retrieve their daily business reports. Employees report on their teams' daily productivity to provide managers with essential information for production, innovation, and responsiveness to uncertainty. Sustainability goals are measured in terms of production planning, environmental impact, social benefits, and business continuity.

Fragrance plans their production based on historical revenue data and market insights. Unlike perishable products, *Melaleuca* plants have a specific growing season, allowing the extracted oil to be stored and used year-round without expiration. *Fragrance* values summer-extracted *Melaleuca* oil for its higher quality and quantity than other seasons, and they pay suppliers accordingly in different seasons. These decisions rely on historical data and managerial expertise.

At *Fabric*, daily business operations ensure timely fulfillment of client orders. Factory team leaders report on their teams' productivity, enabling top managers to evaluate performance and plan for the next day. These bottom-up reports help managers stay informed and enhance operational efficiency. *Fabric* uses past production data to assess product complexity and time requirements, informing pricing decisions for items like shirts with intricate designs or patterns.

Both case organizations measure their performance using sustainability indicators required by clients, governments, and premium market standards. These are quantified by recorded transactional data or by the subjectivity of business owners. Apart from the friendly working culture that is similar among these case organizations, at *Fabric*, labor welfare standards are carefully checked along the supply chain, which can ensure that all clients' requirements are met; from the business owner's perspective, fostering labor development and a friendly working environment promoting employee retention.

Sustainability is also considered to reduce business costs. For instance, at *Fabric*, depending on daily production volumes, the manager, through his experience, prescribes the operation of specific machines and systems to optimize usage and save energy. At *Fragrance*, after processing essential oil extraction, the leaves are dried and used as fuel sources for future production, with their ash subsequently fertilizing *Melaleuca* forests. *Fragrance* utilizes rice husks as an additional fuel source instead of fossil fuels, enhancing recycling efforts to cut costs and protect the environment. These approaches leverage business experience and external knowledge to refine operations. Improved technologies for tracking information and guidelines aligning sustainability standards, such as the United Nations Sustainable Development Goals, could further enhance these organizations' business practices.

TABLE 12. Summary of sustainability measure theme

<<TABLE 12>>

Prior studies emphasize sustainability in family businesses, particularly the balance of finance, human employment, society, and the environment (Bresciani et al., 2023; Ferreira et al., 2021). Although this study confirms that these aspects are important goals that family businesses are heading toward, new findings indicate that family businesses could harmonize all sustainability aspects simultaneously. For example, the use of leftovers from production to make fuels and the ash from burning fertilizers does not solve the problem of waste solutions but reduces the cost of buying fuels. Also, the retention of human employment helps to maintain a skilled workforce for the business and address unemployment in the regions. The green solutions for

operations and productions from the family businesses help to increase their reputation and branding, which could garner attention in the market.

Proposition 10. The incorporation of sustainability goals and practices among family businesses is impacted by owners' experience, and accumulated knowledge on market demands, industry standards and innovation.

Building upon the proposed ten propositions, this study proposes the following conceptual framework. By transforming from Figure 1 to Figure 2, this study integrates the key spectrum of family business characteristics in KM enablers. Although this study is subjective, together with propositions, Figure 2 arguably helps better understand the essential impact of family business characteristics and their mutual relationships to absorb external and internal knowledge for decision making towards achieving sustainability goals.

<<FIGURE 2>>

Figure 2. KM enablers and family business characteristics leading to attaining sustainability goals.

5. Conclusion

This study explored KM enablers that promote the attainment of sustainability goals in Vietnamese family businesses using a multiple case study approach. In-depth interviews, field visits, observations of all key business managers and leaders, and documentation analysis of the case organizations were conducted in the study. The findings highlighted eight KM enabler domains embedded with innate family business characteristics that facilitate the external knowledge and resources to develop sustainability practices in these family businesses. This study is one of the few studies exploring KM enablers for attaining sustainability goals among family businesses in Vietnam. Considering the similarities of family businesses in developing countries, this study contributes to the understanding of KM enablers for attaining sustainability goals in family businesses in developing countries.

5.1 Theoretical Implications

This study confirms and further expands the findings of prior studies that KM enablers have significant impact on promoting sustainability goals among businesses (Ferreira et al., 2021; Gupta & Bhattacharya, 2016; Herrero et al., 2024). In particular, this study highlights that all KM enabler domains have impact on attaining sustainability aspects, namely optimized resources, harmonized working environment, green innovation, and sustainable labor force. However, while there is a fragmentation among three research fields namely KM enablers, family businesses, and sustainability, this study fulfils this gap by providing a consolidated approach to incorporate KM enabler domains and family business characteristics to attain sustainability goals (Andersen & The APQC, 1996; Arzubiaga et al., 2022; Ferreira et al., 2021; Lee & Choi, 2003; Yew Wong, 2005).

The **synthesized theoretical** framework in Figure 1 and concepts shown in Table 2 provides a starting point for future researchers to further explore key relationships among innate family business characteristics and KM enablers for attaining sustainability goals. By comparing existing understandings of prior studies about KM enablers (Table 2) together **with** the family business characteristics, this study contributes to the extension of the application of KM enablers for attaining sustainability goals among family businesses. **Specifically, we introduced ten propositions reflecting the relationship among KM enablers, family business characteristics, and sustainability goals. We further conceptualized and visualized our findings into a new conceptual framework to understand this phenomenon (Figure 2). Our new conceptual framework** highlights that KM enablers associated with a spectrum of family business characteristics can enable achieving sustainability goals by aligning with cultural boundaries and regulations, optimizing and external knowledge through digital and social media use. Such unique findings enable family businesses to optimize resources for revenue growth, harmonize working environment, labor forces, and thereby achieve green innovation.

The identification of KM enablers was derived through existing literature and the knowledge-based view. As such, this study the application of knowledge-based view to family business and sustainability domains. **While prior studies discuss the competitiveness derived from absorbing and integrating knowledge of organizations' members, this study informs that information is absorbed and utilized to create knowledge and sustainability innovations varies and depends on diverse family business characteristics.** The findings therefore directly contribute to KM, sustainability, and family business domains. This study further addresses the

concerns of technology adoptions in a developing country context and discuss the application of affordable technologies (i.e., open-sources technologies and/or social media) to attain external knowledge for decision making, which is a unique way to interpret knowledge absorption **acknowledged** from SECI process (Nonaka et al., 2000). Also, this study extends Huang (2023)'s study by confirming the possible use of shared technologies (i.e., social media) to absorb external knowledge to adapt to environmental challenges among Vietnamese family businesses. However, highlights that shared technologies may inherit risks of data loss and security concerns among family businesses. This study highlights several elements impacting knowledge absorption for Vietnamese family business operations, but we suggest that KM enablers such as culture and strategy of business owners (i.e., management commitment and IT literacy) play an important role in promoting KM practices.

5.2 Practical Implications

First, **this study highlighted that while** SME-based family businesses are dominant in developing countries **and they have technological and financial limitations to capture and develop KM systems**, policymakers should establish community hubs to aid family businesses in product circulation, market discovery, and gaining updated knowledge on market trends and sustainability approaches. Government support is essential, particularly in developing affordable enterprise management software tailored to national SME contexts. **This study also highlighted that** family businesses in developing countries struggle to adopt advanced technologies to keep pace with the requirements of Industry 4.0 era. As such, guidance from policymakers is important for technology adoption, particularly for sustainable technology adoption.

Second, this study finds that KM enablers have significant roles in providing knowledge and expertise family businesses require for attaining sustainability goals. The study highlighted that the family business owners should ensure continuous development of the business in harmony with the market, employees, environment, and society. While the approaches to sharing and sustaining knowledge among family businesses may differ, this study proposes eight significant KM domains that offer important lessons for business owners and managers to incorporate sustainability practices in firms.

Third, with the spectrum of family business characteristics explored in this study, business owners should reflect their stances and adjust their working approaches to enable green innovation and sustainability goals. Particularly, family business owners and the senior

executives may have limited digital skills and strategic direction, which constraints them from developing strategies and leaderships for modern technology adoption. It is essential to employ external experts to find new visions and keep pace with market competition.

Fourth, given the digital competency is not equal among all workers in various departments, particularly factory workers, farmers and freelancers, affordable software with ease of use for its functions are essential for technology adoption in family businesses in Vietnam. Also, with affordable and shared technologies (social media), businesses may face with security risks and inefficiencies. Manual tasks and self-experience are primary operations, resulting in occasional human errors. Hence, digital transformation should focus on adopting affordable software among developing countries.

5.3 Limitations and Future Research Areas

Due to the exploratory nature of the study, there are limitations in generalizing the findings. Future studies can focus on quantitative, larger-scale investigations, such as broader surveys to generalize the findings. In particular, future studies could conduct quantitative studies to examine the propositions developed in this study. Further research could examine the influence of five KM enablers, specifically tailored to family business characteristics, on the four sustainability goals (optimized resources, harmonized working environment, green innovation, and sustainable labor forces) as outlined in Figure 2. Specialized digital adaptations among family businesses in developing countries that lack sophisticated IT infrastructure can be further explored as well (Ferreira et al., 2021). Moreover, this study's focus is confined to manufacturing industries and family-related SMEs, limiting its application to other critical industries where KM dynamics may differ significantly. Future research should explore the reciprocal impact of sustainability on KM practices.

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