Digital transformation in family-owned winery SMEs: an exploratory analysis in the South-Italian context

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Abstract

Purpose – This work aims to offer a better understanding of the inevitable challenges related to the digital transformation in the family-owned low-tech SMEs, examining the role assumed by familiness in this specific context. To this end, it examines the main factors that influence the adoption and implementation of digital technologies in the family-owned low-tech SMEs.

Design/methodology/approach – The study uses a multiple case studies approach, by investigating the case of family-owned low-tech SMEs operating in the winery sector and located in the South-Italy area.

Findings – Based on the empirical evidence, findings show how familiness influence the digital transformation of family-owned SMEs and highlight three main factors – individual, process and organization – relevant for the introduction and use of digital technologies in the productive and innovative activities of these organizations.

Originality/value – This paper fills the research gap existing in the literature on the family business. Firstly, it focuses on the digital transformation phenomenon and underlines how familiness, within family-owned low-tech SMEs, can differently influence the firm's innovation processes primarly based on the use of digital technologies oriented to enable business improvements. Then, it identifies diverse dimensions that can act as "barriers" or "facilitators" for adopting advanced digital technologies within the organizations here examined.

Keywords Digital transformation, Familiness, Low-tech SMEs, Wine industry, Digital transformation factors

Paper type Research paper

1. Introduction

Recently, KPMG (2022) emphasized that digitalization and innovation are among the most relevant matters for family-owned small- and medium-sized enterprises (SMEs), as they impact the purpose and the culture of both the family and the business. However, the processes of digital transformation carried out by this type of firms are still rare (Ceipek *et al.*, 2021; Soluk *et al.*, 2021). This is surprising given that researching innovation and entrepreneurship for family-owned-firms in the digital era is necessary for enhancing their competitive advantage and their resistance to economic downturns (Basly and Hammouda, 2020).

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Digital technologies have the potential to boost more inclusive and sustainable growth (Suciu *et al.*, 2021), by spurring innovation, generating efficiencies and improving services, while creating opportunities for businesses. This is particularly true for SMEs (OECD, 2017; Santoro *et al.*, 2019), since they can find new opportunities by gathering big data from their external environment and engaging with key stakeholders of digital ecosystems (Papa *et al.*, 2018). Additionally, digital technologies facilitate firms' cross-border e-commerce and their participation in global value chain (e.g. Skype for communication, iCloud for file sharing, LinkedIn for hiring) (Cassetta *et al.*, 2020), as well as affect firms' productivity through automation and robotics, and the ways they access strategic resources (Kergroach, 2021).

As "digital" becomes a new norm for businesses, entrepreneurs are required to "think digitally" to face the challenges and grasp the opportunities offered by new digital technologies to pursue long-term success (Cutolo and Kenney, 2021). This implies that digitalization is seen as a transformation process (Matt *et al.*, 2015). In this respect, Vial (2021) defined digital transformation as a process through which entrepreneurs seek to improve themselves by making changes to their business processes using a combination of information, computing, communication and connectivity technologies in their daily operations. The ongoing digitalization requires entrepreneurs to foster a digital mindset based on new motivations, behaviors and skills to navigate information-dense digital environments (Nambisan *et al.*, 2019).

While tech-based firms readily embrace the possibilities offered by ICTs, traditional firms encounter more constraints when approaching to digital entrepreneurship (Leong *et al.*, 2016), because of the prevalent orientation for stability over potential future's uncertainties (Chan, 2021) and for divergency about intergenerational growth (Miroshnychenko *et al.*, 2021). However, in these challenging times, family businesses are called to boost their adaptability for managing and integrating changes in family systems concerning their inner or outer environment (Alonso *et al.*, 2019). This adaptability necessitates enhancing adaptive strategies, by leveraging their unique resources and capabilities derived from interactions between family, its individual members and business (Habbershon and Williams, 1999). This unique bundle of resources of family-owned firms is defined as "familiness" and potentially yields a competitive advantage (Zapata-Cantu *et al.*, 2023). Deeply embedded in the culture and in the nature of those firms (the so-called "family factor" or *f* factor of the metasystem performance model of Habbershon *et al.*, 2003), familiness could serves as both an asset (e.g. distinctive familiness) and a liability (e.g. constrictive familiness) for family firm (Sharma, 2008). Despite the impact that familiness plays in the SMEs, not previous studies had deepened the relationship between the digital transformation and this peculiarity. Moreover, there is a lack of research investigating the possible dimensions underpinning digital transformation processes in the specific context of low-tech family-owned SMEs.

Starting from these premises, the research aims to examine the role of familiness on the digital transformation processes. Previous research indicates that the spread of digitalization changes the way organizations conduct their activities and implies a need for change accordingly, as a way to successful be competitive and to reshape their markets. Therefore, in that perspective, this paper does not only represent an embryonal response to categorize the specific steps and strategies adopted by family wine firms approaching to digital transformation, but it aims at providing empirical evidence on factors that could ease or hinder how such firms adapt and handle the changes brought forth by digitization and digitalization. Specifically, by adopting digital entrepreneurship lens of analysis (Nambisan *et al.*, 2019) applied to family-owned firms, it is not clear if peculiar characteristics of family businesses, such as the interest for transgenerational entrepreneurship and value creation, the preference for family control and other non-financial aspects, could leave rooms for change and dynamism, thus prompting family business to leave behind traditional strategies deeply rooted in their history and ties (Saura *et al.*, 2022). While family firms – especially if small in size (Bouncken and Schmitt, 2022) – may have some advantages in leveraging

transformations, as a result of their distinctive and unique pool of characteristics, these businesses could experience some rigidities, due to their organizational structures and their higher sensitivity to uncertain projects (Ano and Bent, 2022). Based on those premises, we content that family governance could shape low-tech small and medium-sized firms' strategic decision processes and may differently affect their answer to the trend of digital transformation (Hennart *et al.*, 2019). Therefore, by shedding light on the context of digital transformation in family-owned low-tech SMEs, this study aims to offer managerial support for those companies that approach to digitization, digitalization and digital transformation processes, by providing a clearer categorization of firm-level factors that could pushes firms' motivation and behaviors toward digital transformation processes and challenges from the resource-based view, together with an increasing understand of how macro-level changes translate into new firm-level behaviors and technology-driven internal changes (Liu *et al.*, 2023). Furthermore, the conclusions of this research provide more programmatic guidelines for overcoming the well-known management dualisms related to overconfidence and power centralization (Bouncken and Schmitt, 2022), which could concretely boost digital transformation strategizing of low-tech family-owned SMEs.

Thus, the research questions could be formulated as follows.

RQ1. What is the role of familiness in the digital transformation of low-tech SMEs?

RQ2. What are the dimensions that influence digital transformation in the low-tech SMEs context?

By focusing on the specific winemaking industry, the paper brings fresh knowledge to Basly and Hammouda (2020)'s call for combining different levels of analysis (industry, organization, individual), that – as the authors suggest – "is relevant for studying digital entrepreneurship in family firms, as the connections and interactions among the individual, the family and the organization are crucial in understanding the behavior of these firms" (p. 355).

Winery industry has remained stable over a long period of time while more recently it is experiencing unceasing transformations, especially regarding changing consumer needs (Mariani *et al.*, 2017). Research into this sector is of great value for entrepreneurs to navigate in a troubled environment, especially regarding the digital innovation's impact (Dressler and Paunovic, 2021). Furthermore, wine industry is largely composed of family SMEs (Paunović *et al.*, 2022) and the future challenges in the global wine industry will require novel strategies and combinations to succeed in the digital space (Mora, 2016).

The paper specifically focuses on family-owned SMEs as they are essential for local economic development. They represent 99% of all businesses in the EU (European Commission, 2019), playing a central role in economic growth (Liñán Alcalde *et al.*, 2020). They receive attention also from the EU that supports them with specific programs to increase sustainable business practices as well as digital technologies' diffusion (European Commission, 2020).

By restricting the focus on family-owned winery SMEs operating in Sicily, the present study additionally responds to Basly and Hammouda (2020)'s call with more empirically based research. According to Mediobanca Research Area (2022), Italy is the first largest wine-producing country and the second wine exporting nation, with significant employment relevance and socioeconomic impacts (Broccardo and Zicari, 2020). Italian wineries are often family small businesses with long-term, outstanding traditions, which produce wine embodying values, symbols and traditions, which collectively express the family's mindset (Bresciani *et al.*, 2016).

To answer to the two above-mentioned research questions, in this study we first review the extant literature about digital transformation in SMEs, explaining the main components of the theoretical model of Basly and Hammouda (2020), and the concept of familiness for SMEs' digital transformation. After gaining this initial understanding, we developed a multiple case studies

approach that combines data from annual reports, companies' websites and documentary information with semi-structured interview with key-informants of nine wine family-owned SMEs located in Sicily, a southern Italian region with a longstanding winery tradition. The findings reveal that familiness of wine SMEs is a double-edged sword: it acts as a booster for digital transformation processes in companies with more flexible structures and simpler decision-making processes, while it slows down digitalization in those firms where senior family-member are reluctant to digital technologies. Additionally, deepening the analysis of the main facets of family-owned SMEs' digital transformation, it emerged the urgency of greater managerial competencies needed to face the new market-driven changes of business model, to create and deliver new additional value, together with the need of greater organizational flexibility to quickly react to external pressure and innovation stimuli, thus maintaining competitiveness in the global market.

By addressing the research objective, this paper contributes to the field in different ways. First, it underlines the critical role of succession that family-owned SMEs have to face and how it intervenes in the modern era where the digitalization is tremendously transforming the daily life of firms and so calling for quickly reactions. Second, the study highlights three dimensions (individual, processes and organizational) of digital transformation and reveals how they support or curb that digital transformation.

To make these contributions, the remained sections are divided as follows. First, the underpinning theory is used to contextualize the research framework of analysis. Second, the chosen methodology (research context and design) is described together with the data collection and data analysis processes. Third, findings about the role of familiness on family-owned wine SMEs' digital transformation and dimensions shaping this transition are outlined. Fourth, theoretical and practical implications are discussed. Finally, limitations, avenues for future research and conclusions are presented.

2. Literature review

2.1 Digital transformation in SMEs

The ongoing digital revolution, affecting all sectors of the economy, calls for new mindsets and skills sets with peculiarities most of the times very far from the ones required by previous waves of innovative technology (Schallmo *et al.*, 2017). Additionally, the recent pandemic period highlighted the urgency of more dynamism in all the industries and a pivotal call for radical reconfigurations of firms' organizational and strategic models (Guo *et al.*, 2020) as a means to successfully face and survive turbulent times. While for newly created firms and start-ups, digital entrepreneurship involves full appropriation and utilization of the digital tools, incumbent companies are called to drive changes within their existing business models, while preserving core competencies, capabilities, traditions and values (Chatterjee *et al.*, 2022). In the context of SMEs, digital transformation is concerned with the digitalization of the whole organization and business processes (Lu, 2017). It requires deep changes of strategy (Chanias *et al.*, 2019; Urbinati *et al.*, 2020) to support the innovation of the entire business model (Kim, 2021). Indeed, changes to strategy for adapting to the challenge of digitalization requires change in the firms' organizational structures, internal processes, capabilities and culture (Gurbaxani and Dunkle, 2019; Han *et al.*, 2021). Therefore, in a connected business context, where digital strategies provide added value and competitive advantage, businesses should evolve, remaining flexible and agile, by implementing digital solutions and staying open to the development and adoption of novel technologies (Riswanto, 2021). Companies need to remain competitive in the markets and to adapt themselves to the new consumption trends, satisfying new consumers' needs and dealing with market volatility (Sundaram *et al.*, 2020). They are called to enhance innovation by leveraging knowledge management strategies and the sharing of knowledge (Crupi *et al.*, 2020). Consequently, knowledge management has become a crucial resource for value creation and competitive advantage, because of its closeness to learning and

dynamic capabilities that deliver value in innovation forms (Saldanha *et al.*, 2020) and for its mediating role in the complex relationship between firms' digitalization capabilities and radical innovation performances (Nwankpa *et al.*, 2022).

Narrowing the focus on digital transformation, more than the mere implementation of the digital technologies and the simpler digitalization of the firms' offer, it requires firms to develop or incorporate internal digital capabilities and competencies (Gurbaxani and Dunkle, 2019), by applying values and principles that enable an organizational agile behavior (Steiber *et al.*, 2021) In this spirit, and following a resource-based perspective (Mallon *et al.*, 2018), the literature has stressed the importance of human capital, as one of the key competitive advantage a firm has, and that nowadays heavily depends on both individual skills and firm-specific tacit knowledge (experiences, values, beliefs, goal and culture) (Calabrò *et al.*, 2021). Malodia *et al.* (2023) highlighted the importance of the characteristics of the individual entrepreneurs and enterprises in the digital transformation of SMEs. They argued that digital self-efficacy, defined as the owner-entrepreneur's self-efficacy in the efficient adoption and use of digital technologies and in its ability to keep up with the latest updates, along with – at individual level – his digital literacy and attitudes toward digital, positively impact SMEs' digital transformation. Similarly, Li *et al.* (2018) emphasized the SMEs' entrepreneurs' cognitive inertia toward digital technologies adoption when they are not strongly convinced about the value of new technological solutions, could hamper firms' innovation propensity (Casali *et al.*, 2018) and their digital transformation. Nambisan (2017) underlined the importance of developing technological capabilities as a source to stress companies to mobilize their own resources to exploit new opportunities. This means that firms have to support key people to effectively sense and seize the new emerging opportunities (Correani *et al.*, 2020), as well as to "*develop a digital mind-set made up of a set of values and characteristics among which agility and openness are key*" (Basly and Hammouda, 2020). The process of digital transformation calls for an overall innovative cultural approach able to support the radical changes required to organizations, along the complex paths toward their digital reconfiguration (Garzoni *et al.*, 2020). In the lights of these challenges, entrepreneurship research emphasized that openness to new experience is the personality construct that strongly affect entrepreneurial firm's performance (Zhao *et al.*, 2010), as it means "being intellectually curious, imaginative and creative, as well as seeking new ideas and alternative values and aesthetic standards" (Basly and Hammouda, 2020). Therefore, together with the ability to catch up on useful information, it could play an important role in successfully reinventing firms' businesses, when needed (Andriole, 2018).

2.2 The role of familiness in SMEs' digital transformation

Family-owned firms have unique characteristics – known as "familiness" – that produce both distinctive and constrictive consequences on the firm's innovativeness (Habbershon *et al.*, 2003).

This is related both to the family business owner-manager behavior and beliefs and to a more general family involvement in ownership, governance and management. In the digital era, where entrepreneurial research has recalled the attention of the paradigm of digital entrepreneur, in the contexts of open innovation and ecosystem environments (Elia *et al.*, 2020), it is interesting to investigate what has changed in family firms, due to digital technologies that affect their survival capacities and, consequently, how their characteristics can influence their digital transformation strategy (Ano and Bent, 2022). Digital transformation requires deep changes for family-owned organizations that are characterized by high ability but low willingness to innovate (Chrisman *et al.*, 2015), usually due to different factors, such as financial (insufficient funding), legal (regulatory concerns), technological (legacy technology limitation) and human factors (Ano and Bent, 2022).

Family-owned companies are influenced by family values and identity, which are often oriented toward trans-generational pursuance (Cassia *et al.*, 2012), meaning that any decisions

and actions perceived as threats for family identity and continuation through generations tend to be avoided. Indeed, the specifics of family-owned companies, such as their long-term orientation, their conservativeness, the prioritization of non-economic goals over economic goals, the preference of incremental innovations over radical and disruptive ones, and the human resources that could lower the openness toward innovation (De Massis *et al.*, 2013), must be carefully considered (Ano and Bent, 2022). Conversely, digital transformation needs a proactive innovation behavior of the family-business owners that could play a pivotal role for operating the needful strategic shift (Ceipek *et al.*, 2021; Müller *et al.*, 2018). The more influence family leaders exercise within the firm, the more their experience and values shape the strategic approaches and outcomes (König *et al.*, 2013), affecting the firm's innovation behavior (Jaskiewicz *et al.*, 2015) and the strategic orientation (Eddleston *et al.*, 2012; Madison *et al.*, 2016). Consequently, cultural and human variables, such as rigid mental models or emotional ties to existing assets of the family leaders, play a crucial role in SMEs' digital transformation processes (Bouwman *et al.*, 2018). In the lights of recent economic turbulences, entrepreneurs are in charge of driving the renewal and rejuvenation processes of their companies and the industries in which they operate, through their abilities in discovery processes and in the exploration of market opportunities arising from digital technologies (Barile *et al.*, 2022; Hsieh and Wu, 2019). In this perspective, by combining the innovation diffusion theory (IDT) and the dynamic capability view (DCV), Chatterjee *et al.* (2022) have recognized the role played by sensing and seizing abilities of workforce resiliency as driving forces that facilitate the technology adoptions processes, which allow companies to be competitive in hyper volatile markets. From an operative perspective, family-owned SMEs usually have less defined organizational structure, show more informal decision-making processes (König *et al.*, 2013) and exhibit a greater concentration of shares. These peculiarities impact on flexibility and creativeness, helping firms to address the challenges of innovation, while succession crisis, conflict, rivalry and competition trigger contradicting strategical orientations (De Clercq and Belausteguigoitia, 2015). In addition, a focus on non-economic goals, such as family members' identification to the firm or their emotional attachment (Filser *et al.*, 2018), clearly explain the long-run strategy of these types of companies (Zahra *et al.*, 2006).

According to Duran *et al.* (2016), family-owned firms are more effective in their innovation processes than non-family-owned firms due to their owners' and managers' identification and familiness' commitment. Therefore, the involvement of new generation members in the family business can act as a "catalyst for change" (Calabrò *et al.*, 2019), which become a crucial step toward successful digital transformation. This could generate positive effects on the firms' innovativeness if this integration is a non-dramatic event. More precisely, the entrepreneurial bridging, that is the period of working together side-by-side wherein the older generation – with production competencies and function – coexists with the younger ones – engaged in exploiting their entrepreneurial capacities, leads to some "entrepreneurial leaps", that improve both firm' innovativeness and performances in the short time (Jaskiewicz *et al.*, 2015).

As a consequence, to comprehend how familiness impacts SMEs' digital transformation processes and the factors that shape this transition, a multiple case study approach is necessary. Indeed, one of the strengths of multiple case studies approach is its ability to provide a holistic view of complex phenomena and addressing "how" and "why" questions, particularly when research encompasses multiple theoretical approaches and levels of analysis, as in the field of family business (De Massis and Kotlar, 2014).

3. Data and methods

3.1 Research setting

Within the agrifood industry, the wine sector is considered to belong to the low-tech sector, that is still lagging regarding the adoption of innovation and transformation (Dogru and

Peyrefitte, 2022; Doloreux *et al.*, 2013). Despite this, digital transformation has become inevitable (Pachni-Tsitiridou and Fouskas, 2022; Zeng *et al.*, 2017), and all the wineries currently face with imperative changes. The wine industry has undergone an incredible technological shift over the last few decades (Giuliani *et al.*, 2010), which has deeply affected competitive dynamics, supply chain relationships and consumer behaviors (Fait and Iazzi, 2008) as well as entrepreneurial processes (Crick *et al.*, 2023; Rossi *et al.*, 2012).

Looking at the specific context of this research, Sicily, with more than 60 varieties cultivated, is "the first Italian wine-growing region by vineyard area [. . .]" (www.assovinisicilia.it) and plays a crucial role in supporting wine export performances (www.unicredit-nomisma.it). Despite the prevalence of small-sized companies (Zanni *et al.*, 2009), usually family-owned and-managed (Chirico and Nordqvist, 2010), they are called to experiment and implement innovative technologies for proactively exploiting opportunities, co-creating and delivering new value (Abbate and Cinici, 2014).

3.2 Research design

Several studies have explored digitalization in the wine industry across nations (Barrágan-Quintero *et al.*, 2021; Dressler and Paunovic, 2021. However, only few analyze the role of familiness in wine SMEs when approaching digital transformation (Barile *et al.*, 2022). Therefore, a qualitative perspective through the case study approach has been considered an appropriate method for gaining a comprehensive understanding of digital transformation for wine SMEs in the context of family business research (De Massis and Kotlar, 2014). It should create a theoretical foundation for understanding challenges faced by small- and medium-sized wineries. However, the single case setting suffers from several limitations, especially related to the external validity of the results and to the difficulties in having a deep access to the unit of analysis. In this regard, this research specifically employs the multiple case study method, as considered better suitable for developing theories on phenomena where little is known about their dynamics, especially referring to the context where they occur (Gummesson, 2006; Yin, 2018). The use of a multiple case study approach allows for the identification of complex processes within a social context, comparing the results of each case with the other cases to reveal similar patterns and, consequently, to confirm emerging concepts (Davis and Eisenhardt, 2011). Additionally, this approach yields more generalizable and robust evidence than a single-case study, allowing for further theory extensions (Baxter and Jack, 2008).

Different reasons led to this research approach. Firstly, the topic here considered is complex and less investigated, hence calling for the theory-building (Eisenhardt, 1989; Tracy, 2010). Secondly, this approach allows for a close correspondence between theory and data (Glaser and Strauss, 2017). Thereby, this study follows Eisenhardt's (1989) approach for theory building, as well as the guidelines proposed by Yin (1984). It adopts an exploratory, qualitative research design to investigate the phenomenon in detail since no prior empirical research is available (Eisenhardt, 1989). In this respect, this study performs semi-structured interviews with the entrepreneurs of nine Sicilian winery family-owned SMEs.

In addition, this methodological choice is consistent with De Massis *et al.* (2012), who showed that case studies have been the most adopted qualitative approach in family business research.

We selected the winery family-owned SMEs based on two main criteria: being localized in Sicily and being at least in the second-generation stage. The informants were determined by snowballing, that is, the researchers identified the family-owned SMEs members to be interviewed based on information achieved from "Le Donne del Vino", an association founded in 1988 with the aim of promoting knowledge and culture of Italian wineries. We contacted the identified companies, telephonically or via e-mail, by illustrating the focus of our analysis. Through this activity we were able to interview six family-owned SMEs. In order to achieve

variance in the sample, which also allows to exceed a possible gender-related bias, the interviewees were asked to provide additional names outside the association. This further activity permitted to reach three more interviewed. The nine interviews allowed the authors to have a deep representation of the state-of-the-art, thus addressing our two research questions.

3.3 Data collection

Data was collected between November 2022 and January 2023. To overcome the inevitable challenges of a multiple case study approach, this study gathered data via a triangulation method by integrating multiple sources in a multi-method design (Jick, 1979). In this respect, the use of multiple sources is considered as a necessary element of the analysis, since it guarantees the variety of perspectives required by the constructivist principles. In the first data collection stage, the study focused on different secondary sources, such as annual reports, company websites, archival records and documentary information. Then, the study performed interviews with key-informants of selected companies – whose names were anonymized throughout the paper as confidentially was guaranteed to all interview partners. They operate in different areas of activities and have different educational backgrounds, allowing us to increase the sample variance (Eisenhardt and Graebner, 2007).

The interviews were semi-structured and open-ended; they ranged from a minimum of one hour to a maximum of about two hours and were video recorded with the informant's consent, to allow transcription for qualitative analysis.

The complete list of our key informants, together with the method of interviewing is described in Table 1 (as similarly structured in Ferrigno *et al.*, 2022- Appendix A3).

Id	Informants' role	Data	Interview's duration h = hour; ' = minutes
E1	Owner, Winemaker and General Manager	January 13th 2023	1h44'
E2	Co-owner and General Manager	January 16th 2023	2h01'
E3	Owner, Winemaker and Social Media Manager	January 16th 2023	1h13'
E4	Owner and Winemaker	January 18th 2023	1h14'
E5	Co-Owner and Social Media Manager	January 19th 2023	1h23'
E6	Co-owner, Winemaker and General Manager	January 20th 2023	1h11'
E7	1. Owner and Winemaker 2. Co-owner and Social Media responsible	January 22nd 2023	1h00'
E8	1. Co-owner and Winemaker 2. Co-owner and Marketing Manager	January 23rd 2023	2h23'
E9	Co-owner and Marketing and Commercial	January 24th 2023	1h27'

Note(s): Eleven open questions (see Appendix) were utilized to investigate Digital Transformation in family-owned wine SMEs. For each firm, one referent has been involved, except for two firms (E7 and E8) for which two people were interviewed simultaneously. All the interviews were made online, using Google Meet. On average, for each interview, only one key informant was interviewed, with the only exception of two firms (E7 and E8) for which two people were interviewed simultaneously and each of them answered questions pertaining to his area of expertise

Source(s): Our elaboration

Table 1.
Key information about informants' interviews

At the beginning of each interview, the authors introduced and explained the research scope and the ethics of the study; however, they kept a neutral attitude and did not make any presumptions or define the topic. The interview protocol was designed to cover the main research questions (see Appendix) but also leaving room for the participants to extend the discussion to unexpected issues (Yin, 2003). In this way, we ensured that interviewed were free to interpret each question from their own perspective.

3.4 Data analysis

Data analysis has been carried out by following five-steps adapted from Easterby-Smith *et al.* (2012). The first step consisted of a set of online meetings which permitted the authors of the paper to familiarize with the contents of their research. During the second step, the research goals and methodology were defined and shared between themselves. This step was highly useful to have a preliminary assessment of the information needed for the remaining steps. The third step consisted of a systematic collection of data useful for exploring the research issue and in a structuring activity of these data following a coding scheme. The collected data and information were analyzed by adopting a coding scheme and recursive abstraction that was derived from the research questions and the existing theoretical framework (Mayring, 2004). Codes provided a means to manage a large amount of data and identify the elements for this research. The fourth step consisted of critical analysis and interpretation of the collected and structured data. During this step, each researcher participated in several meetings during which personal results were shared, discussed and validated or discarded by the other colleagues. In the process, the data sharing resulted in a common understanding of the data collected, analysis technique used and possible application to the study. The final step consisted of the formulation and definition of the concepts which derive from the data and its use, which is at the core of this study. In this spirit, to bring qualitative rigorous to our findings, we followed an inductive approach. With the help of Gioia coding scheme, we were able to summarize our finding through a concise visual data representation in form of "data structure" (Gioia *et al.*, 2013). Starting from the protocol interview, the prominent expressions emerged with all the key informants allowed us to individuate the first-order concepts. In this stage, the role of the researchers was crucial. Transcribed data was read and read again in the lens of the literature about family business and digital transformation, to get the corresponding second-order conditions, based on concepts' similarities. Finally, macro dimensions were individuated.

4. Findings

In this section, findings will be presented on the basis of the following macro dimensions: familiness and individual, process and organization factors shaping digital transformation strategy and processes of the selected family-owned SMEs. All the concepts, themes and aggregated macro dimensions gathered from data are summarized in Figure 1 and discussed below.

4.1 Familiness: how the family factor impacts digital transformation processes

This section reports the findings related to the role played by familiness on the digital transformation processes. All interviews revealed that familiness plays an important role in digital transformation. Nonetheless, there are some differences in its perceived effects. E2 affirmed that "*familiness represents an obstacle for digital transformation processes, especially because the economic and decisional controls are concentrated in the hands of a standalone person*", as emphasizing that if the economic and decision-making power is concentrated in the hands of a senior family member, this could translate in more rigid operational structure

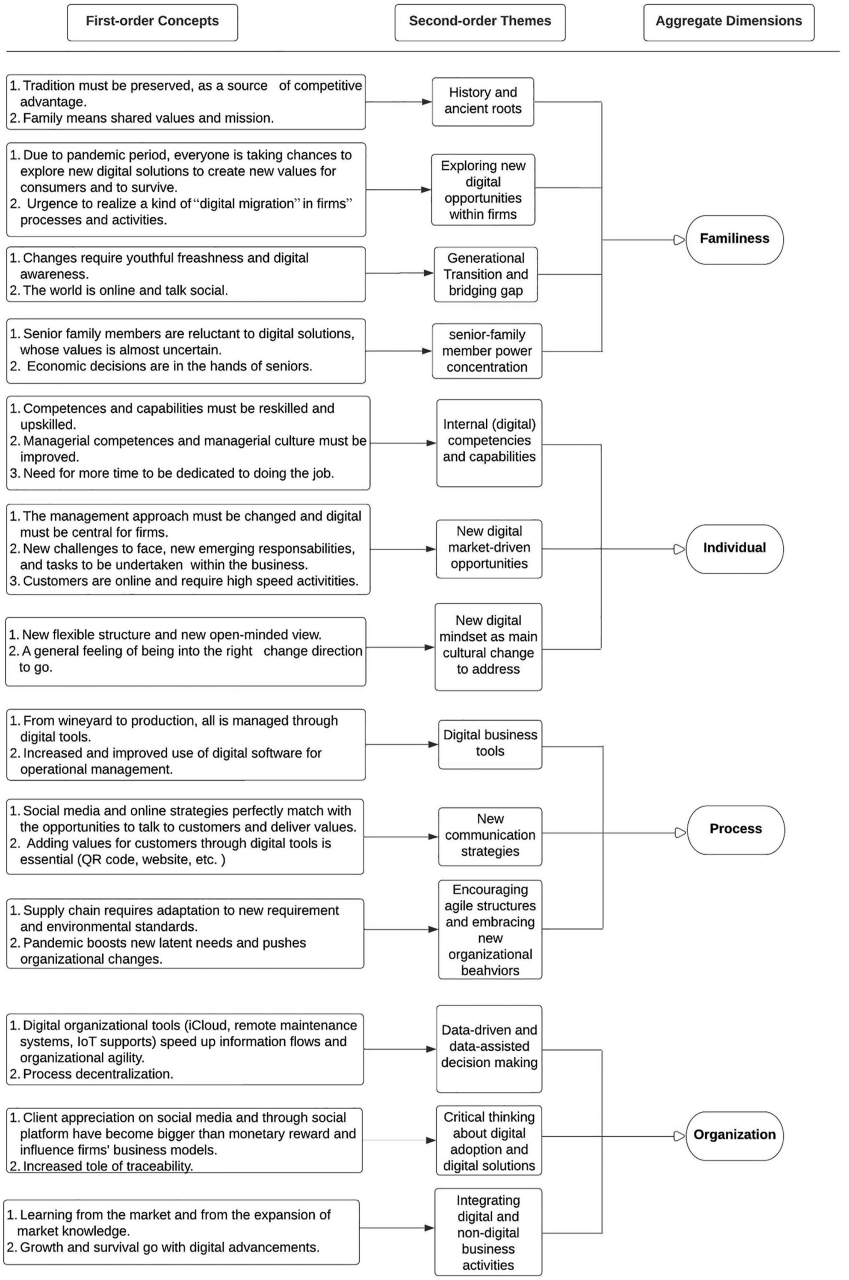


Figure 1.
Results of qualitative phase: final data structures and codes (first order concepts, second-order themes and aggregate dimensions)

Source(s): Authors' own elaboration

and in a less decisional independence in operative processes. This is particularly true when the family owner is skeptical towards digital technologies and the firms' operativity requires to take quick responses and actions. This also happens in presence of senior family-members' reluctance to invest in digital technologies that require investments with unclear value (Müller *et al.*, 2018), as highlighted by E2's owner that explained: *"He [my father] does not trust digital technologies, techniques and technological advancements that requires substantial investments with unclear value. If you talk about structural or physical investments - such as in new cutting-edge machinery - he is always ready to ride the wave for purchasing more modern equipment, but if you talk about, for example, marketing investments, that are not tangible and for which you cannot easily quantify the returns, because they act in the medium-long term, there, in a moment, we are at odds"*.

Emphasizing the importance of such financial considerations, the E8's owner stated that "*the older generation struggles to coexist with the new in the same organizational environment. At family level it is difficult to explain certain values and advantages related to digitalization, because the company's core philosophy is to maintain a tradition, at the most bringing innovations for increasing the wine's quality rather than investing in something that can be more digital, but whose investments are uncertain". The same need for a greater and easier access to the credit market was manifested by E3's owner in his/her interview for La Sicilia on August 2021 and by E4' owner for Il Gazzettino di Sicilia on April 2017.*

On the contrary, some companies were able to overcome the reluctance of old generation members when they could benefit from cash opportunities, stemming from internal sources (E4) or from external sources (E8). In both cases, the availability of additional funds allows to transform the situation of unclear returns on investment of digital transformation into an opportunity of investments for innovation. A family member of E5 elaborated on this as follows: "*Only with the successful application to the national plan Industria 4.0 we were able to install solar panels*". Thus, when family-owned firms have access to additional financial resources, it may be possible to recognize a positive effect of familiness in digital transformation process, as it acts in defense of family's traditional values and non-economic goals (Chrisman *et al.*, 2021), of firm's longevity and of the perpetuation of family dynasty (Casson, 1999).

The possibility to leverage external funds also contributes to reshape the decision-making structures of family-owned businesses in a more flexible way. The E2's family member described this result as follows: "*On the other hand, there are various aid measures and contributions for projects, that sometimes allow me having an extra gear when asking for funds (to my father), in the sense that if there exist such investment opportunities, they also help me to convince him of the credibility of such investments . . . If there are funding opportunities, maybe I can get some returns. If someone else already invests in it, gives me a contribution, it means that perhaps there is a potential"*. This means that when family members seem reluctant to invest with their own money, because of uncertainty, such form of funding could be a persuasive argument for pursuing concrete digital advancements. Finally, other companies (E4, E5, E6, E7) declared to not be able to clearly recognize a negative role of familiness on digital transformation. For those companies, on the contrary, the family tradition is instead a source of competitive advantage in the form of stability, shared vision and mission, common values (Lohwasser *et al.*, 2022), simplicity in both decision-making and operational-making processes. The family member of E5, in fact, stated "*The fact of being a family business is a boost of digitalization, because it simplifies the process of taking decisions. There is a shared vision within the family . . . A common situation: we are at the Sunday lunch with our family; we start to talk about a particular argument related to the firm. Let's go to do it! The day after we are ready to start with the new idea"*.

4.2 Individual, processes and organizational factors in the SMEs' digital transformation

This section highlights the main factors affecting family-owned SMEs' digital transformation, emerged from coding procedure.

4.2.1 Individual. With respect to the companies in the sample, it emerges a recurring reminder to a general paucity of resources, and in particular of more specific production skills – related to production processes – and of those related to commercialization, marketing and communication. As E2's owner observed, *"with respect to the production processes, given that all processes are sufficiently digitalized, the skills we actually have are sufficient, even if more and more constantly growing"*. The family member of E8 reinforced this state: "*In the vineyard there is no technological investment, apart from the basic one, because in any case the company's philosophy is to make a wine based on the ancient work traditions, sometimes defined as ancestral, so that the traditional aspects are presents, even if some aspects of innovation exists and are linked to the winemaking processes . . . at least for the part of grape cultivation. I think that there are not digital tools so revolutionaries that can deeply transform the context*". Of the same idea was the interviewed E1. However, almost all the companies stated that new competences will probably be required, to keep up with the times (E1, E2, E5, E6, E7) and will require a renewal (E3) or an up-skill, also in the respect of the identity of the company. Emphasizing the role of the skills required downstream of the production process, the family member of E4 explained "*there has been a moment when the company's production was not aligned with its image and its presence on markets"*, because of the high speed that nowadays digital transformation imposes. There is a need for digital competences in digital marketing, for engaging in promotional campaigns (E2) or for the effective management of social network (E5) or for communicating the company identity (E1, E4, E8). Only one firm (E8) clearly stated that it asks for more technical competences and skills for structuring a real commercial department, with a sale manager, that could act as company representant at national and international levels, and for the boosting the enotourism activities.

A highlight that emerged from almost all the interviews is the absorbing time required by the new challenges of this digital era: in a context of scarce resources, it further stresses family members who normally already have to deal with multiple tasks within their organization. Of this opinion was E5's co-owner, as expressed in a podcast available on its website (2020, March 3rd): *"In the company, there is lot of flexibility. When there is a call to arms, we are always present"*.

Moreover, the low availability of human resources and competences influences neither the digitalization acceptance of employees nor the favorable collaborative climate within the companies, as E2's owner emphasized "*in any case they are tools that help them in carrying out their work . . . in easier way, the digitalization is not perceived as a threat to one's workplace, but as an additional help*".

Additionally, in one case, the company (E8) explained that the reason for this resides in the ability of digital tools – especially the communication ones – to reinforce the personnel's sense of belonging to the company, by increasing internal awareness about digital initiatives: *"let's say that the degree of digital communication has certainly allowed for greater involvement of the employees within the company, and for its greater embeddedness in the company logics too"*.

Going deeper in the analysis, interviewed were able to identify a new entrepreneurial mind-set, which has changed among generations as expressed by E1's owner: "*For them [those of old generations] the idea was of making wine and selling it . . . Vineyard and cellars were simply workspaces"*, concept also underlined by E8's owner. Emphasizing the idea that nowadays "*the approach is completely different from the past*" – as stated by E6's owner-some interviewed (E1, E6) identify the speed at which the changes happen and the economic evolution as main determinants of this transformations, while others (E1, E6, E7, E8) individuated as driving forces that push firms toward the adoption of digital changes, the new consumption habits. Additionally, E5 declared that "*the older generations were more competitive. Among us of the new generations, however, there is more desire to create a system . . . We have realized that we are a team and therefore that we must bring Sicily into the world, even if it is clear there are specificities among us (. . .) Therefore, today there is more collaboration between wineries, there is almost less envy, there is a desire to collaborate and to*

share ideas and projects". The concept of openness when managing digital transformation emerges also for E8, which stressed the importance of networking at local levels and with the universities and research entities. Finally, at more individual level, most of the companies highlighted that beyond personal experiences and educational background (E2) – even if technical and scientific backgrounds seem to be preferable (E3, E4) – other personal traits matters when undertaking digital transformation: curiosity (E5), desire to experiment (E4, E8), openness and the propensity to innovate (E3, E4, E8, E9), ability to communicate what you are, what you are doing and what your wines are telling (E6, E8) and mental elasticity to connect the present with the future, without forgetting about the past (E6).The same concept was expressed by the family member of E8 in his/her interview for Enoweb in 2016.

4.2.2 Processes. A sort of urgency for digital transformation emerged from all the interviews, even if the analysis brought out that a strategic formulation for digitalization is still quite absent. Instead, our sampled SMEs seem more likely to evolve stepwise following digital technologies advancements in most of their processes. While every sampled firm showed at least some efforts in adopting digital technologies, the sample substantially differs in terms of degree of their digital transformation, and this depends not only on the strategy each firm decide to follow but also on some external – both environmental and institutional – factors. Every sample firm was engaged in process and service digitalization, while only one firm (E8) also referred to a product innovation. In most of the cases, digitalization activities took place in the cellars and translates in machinery and equipment investments for vinification processes, such as grape filter tank (E2, E6), tangential filtration systems (E2, E5, E9), labeller (E2, E5, E7), the encapsulator (E5, E9), the controlled temperature or the refrigerator systems (E2, E4, E7, E8, E9) or the QR-code technology for traceability (E4, E5, E6, E7). In addition, for those firms with mechanical harvesting (E2, E3, E4, E5, E7, E8, E9) digitalization requires the purchasing of other machinery, such as, among others, the plow or the grape harvester. Those digital technologies allow wineries to gain higher levels of control on the vinification processes (E2, E3, E4, E9) and more autonomy in the work, still maintaining high product quality (E8). Differently, all the sampled companies declared to have management software to track the incoming and outgoing flows of productive inputs and outputs. As E2 reported "*For example, a few months after I joined the company, my brother and I decided to invest in a management program, with which we have taken an extra step in digitalization, because it allows to manage all the production flows, from the loading of dry products and material to the bottles (. . .) Also, in terms of the billing systems, it allows for a traceability at 360 degrees of the entire business"*. From the same point of view, E8 affirmed "*Considering that there was an expansion of the company, we had to purchase a management software, which would allow us to digitize, and therefore also reducing human intervention. Thanks to the introduction of a CRM software, and with an investment that is not low but still simple to manage, we were able to improve themselves. This is because, for example, through the software and the training of one/two people within the company, it has been possible to simplify processes that were perhaps hand-done before and where there could be potential errors*". When shifting to the downstream phases of the wine supply chain, many companies show a more advanced digitalization engagement, because they recognize the great potentiality offered by the new digital solutions in the communication process as a way to reach and retain customers and to offer them more personalized customer experiences. As supported by E8 *"[In my opinion] digitalization also means using automatisms [in the communication and marketing strategies], that in their simplicity are based on artificial intelligence . . . I think to the investments I made in marketing operations, and we are talking about advertising campaigns, sales processes (. . .)"*. During the interviews all the companies spoke about the effort they are making in reshaping their websites in a more interacting way, not only as a showcase website. In this direction, E6 stated "*When talking about digitalization from a marketing point*

of view, for me it is a bit complicated. Here I'm getting help from a technician – a visual manager - because I do not know anything about it and we are starting with this transformation, from the modification of the site to the presence on social networks, also in trying to talk about ourselves through these IT channels. We are trying to tell who we are, where we come from, because - well - there are many young companies in the competitive arena and since we have a story, we are trying to tell this piece of history, also with respect to the experiences we offer . . .". Moreover, for all companies, these efforts have been especially intensified during the Covid-19 pandemic, as E4 highlighted: "*Covid has presented us with incredible challenges. We had no reference points, but we had to move forward. Creativity, imagination and love for our business have been essential in overcoming the crisis. It also pushed us to introduce innovation that maybe without it we were not interested to do".* The same boosting effect of the pandemic period was expressed by E2' owner that stated, *"Despite the difficult moment for everyone, our company wants to invest, also modernizing us from a technical point of view but also from an energy point of view"* (VinUp, interview of 2022, December).

Surprisingly, even if a kind of skepticism about the concrete utility of an e-shop for our sampled companies (E1, E2, E8) still persists, because only a small amount of their turnover comes from online purchasing, some of them are present on digital platforms (E3, E6).

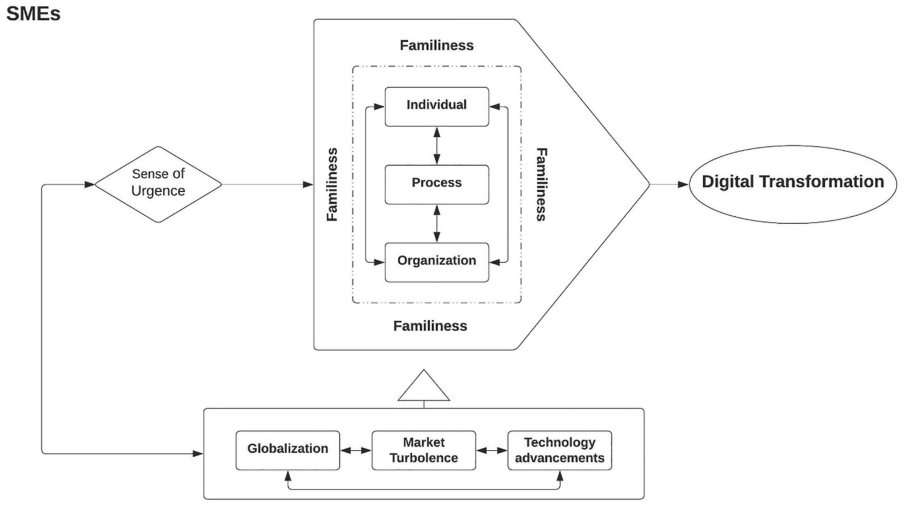
4.2.3 Organization. The third aspect of digital transformation of Sicilian family wineries we observed was related to the organizational factor. Even if all our sampled firms are actively involved in digital transformation processes, little has been made so far in organizational terms, and no one is actually introducing a revolutionary business model innovation. From the organizational point of view, some firms (E2, E4, E5) declared to implement cloud solutions and connectivity in sense of the IoT, meaning that they have access to a shared online space, for technical information of wines, for inbound and outbound protocols and wine catalogues. This is a first attempt to facilitate the informational flows within their environments. From a more advanced stage, E2 tested a more decentralized decision system, by stating that: *"[digitalization] has allowed us and still allows to make decision with a little more autonomy respect to my dad. We refer to him for purely economic decision, while with respect to decision-making, control and production processes we have almost total autonomy*". Contemporaneously, E6 expressed as follows: *"It helps to have the traceability of all the movements and the identification of the role of the person in charge of a specific manufacturing process (. . .) and this guarantees speed because everyone has its role, and it is easily identified in case of error. You can identify it immediately and you know who is responsible for it".* Emphasizing the role of digitalization in improving and reshaping the control structures of the companies, there is another side of the coin because *"[having more control on organizational process] allows having care and more attention to the processes"* (E8) but also "*more attention to the pricing, because digitalization helps us to better control the costs of the product and to save time*" (E3).

Digitization also simplifies the organizational structure of companies in the face of complexity, in bureaucratic terms (E5) and of improved efficiency in the use of both limited resources (E3, E8) and processes (E4).

5. Discussions

Since previous research has emphasized that family businesses differ from non-family businesses (Miller *et al.*, 2008) and that SMEs differ from large companies, in this work we followed the assumption that family-owned SMEs could be distinctive in their processes focused on the introduction and use of innovative digital technologies.

In general, the evidence presented in our findings supports the proposition of a conceptual model analyzing the digital transformation process in family-owned wine SMEs (Figure 2).



Source(s): Authors' own elaboration

Figure 2.
A theoretical model of the digital transformation in family-owned SMEs

Indeed, the findings of our study revealed that family-owned winery SMEs heavily perceive a sense of urgency for digital transformation, even if there is a little emphasis on digital strategizing, little management digital technological expertise combined with still strong top management centralization, as a way for guarantying the perpetuation of family dynasty among generations. Our study leads to mixed results when trying to synthesize the effect of familiness on digital transformation. For some companies, family tradition has positive effect on the digitalizing strategies, due to the more informal and simpler decision-making processes, which allow maintaining the necessary degree of flexibility and agility required in turbulent and continuously evolving context. On the other side, there are some firms for which familiness acts as an obstacle for the digital transformation processes. Those firms emphasize the still too high level of reluctance of the senior family members to digital technologies, because of their difficulties in understanding the potential values of new digital solutions, especially when the investments required for undertaking such digital advancements do not immediately translate into an economic return. Thus, our findings also support the existing literature about the difficulty of family-owned firms in embracing digital transformation, because of the pressing preference of senior-family members for incremental innovation rather than radical ones (König *et al.*, 2013). These mixed results allow us to state that also for family-owned winery SMEs, digital transformation is not a status or an event into which firms can transition through a specific form of digital innovation (Matt *et al.*, 2015) but, conversely, it is a stepwise process (Garzoni *et al.*, 2020; Soluk *et al.*, 2021).

In addition, this configuration of digital transformation allows us to gather additional insights about the main factors of digital transformation processes. We were able to individuate and characterize three family-owned SMEs factors of digital transformation: individual, process and organization.

Our insights support the proposition of previous research in small- and medium-sized companies (Habbershon and Williams, 1999), in that the human factor becomes one of the key components to consider. Our companies face impediments related to unskillful management (Arasti, 2011) – and, in extreme cases, to the absence of managerial competences – that represents an important obstacle to digitalization activities. This must summed-up to their

limited financial access, because even if some of our companies perceive the necessity of hiring new competencies, especially for the management of digital marketing strategies, they do not have the required financial resources for investing in the acquisition of those competencies. Interestingly, the management of our sampled businesses seems to be overconfident about their existing internal competencies and capabilities (Bouncken and Schmitt, 2022), by declaring that they are still sufficient to manage digital transformation. However, this conclusion must be read in the lens of their greater emphasis on digitalization in the downward process of the wine supply chain (i.e. communication, social media and digital marketing strategies) rather than on its productive part (in the vineyard and in the cellars). With respect to the process dimension of digital transformation, in fact, our results confirm a more advanced engagement in digital solutions applied to marketing activities (Saura *et al.*, 2022; Ziółkowska, 2021) – from the website development and the e-shop (Madill and Neilson, 2010) and the CRM strategies – compared to productive phases, and this translates in the most immediate changes in the business model of family-owned Sicilian SMEs. Changes that our companies made and are still making are market-driven and go into the direction of developing new ways to create and deliver value to their customer's segments. Our companies use principally digital tools for enhancing the customer experience and for increasing the information for the customers (about both products and company). In fact, they increased their presence in social media, invested in Instagram and Facebook, communicated their corporate brand and their histories, for enhancing interactions with their customers. Those results are in line with previous studies (Matarazzo *et al.*, 2021; Taiminen and Karjaluoto, 2015) that individuated social media tools as one of the enablers of value creation of the entire business model. Finally, on the third factor of digital transformation – the organizational one – our results support the previous literature that states that digital tools reach their full potential in the firms when information are freely shared within the company (Volberda *et al.*, 2021), by allowing for a greater organizational speed and more agility. In our firms, digitalization has enabled simplification in hierarchical structures as well as the first steps towards decentralization of decision-making processes, boosting their ability to quickly react to external pressures and stimulating innovativeness (López-Fernández, 2016), while maintaining a strong anchorage to their histories, traditions and values.

6. Conclusions

6.1 Theoretical contributions

This study contributes to the existing literature by shedding light on the connection between digital transformation and family-owned organizations, especially small and medium enterprises, operating in the traditional sectors. Moving from the scarcity of scientific contributions on this research topic (Ceipek *et al.*, 2021; Soluk *et al.*, 2021) and drawing on the multiple case studies approach, the empirical evidences presented here provides valuable insights on the role that familiness assumes in defining and implementing digital transformation processes, by facing inevitable challenges determined by digital technologies adoption and the necessity to preserve the firm's sustainability within a context of increasing uncertainty and of possible business crisis (Chan, 2021).

More precisely, by responding to the calls of Nambisan *et al.* (2019) to promote research on digital entrepreneurship and of Ano and Bent (2022) to explore how families operate their strategic shift toward digital transformation, this study adds new knowledge, by explaining how the multidimensional construct of familiness within multigenerational owned family organizations can differently influence the firm's innovation processes, largely based on the concrete use of emerging and disruptive digital technologies oriented to enable business improvements (Kammerlander and Ganter, 2015). In that respect, our empirical analysis underlines how the different generational perspectives can explain the exploitation of digital opportunities and, consequently, the development of digital transformation projects. While

previous studies have shown that knowledge accumulation is significant in family businesses and that professionalization embedded in families' values and culture enables family-owned firms to be agile and to cope with complex environment (Zapata-Cantu *et al.*, 2023), our framework of analysis goes further by exploiting the dimensions of familiness' concept of Habbershon *et al.* (2003): the family, its individual members and the business. Based on those three dimensions, our findings lead to mixed results. In some cases, our results support the finding of Berrone *et al.* (2012), who consider the long-term perspective of family business organizations as one of the main dimensions of socio-emotional wealth that provides senior family-owner with a more cohesive strategy to deal with dynamic environmental changes (Filser *et al.*, 2018). Likewise, for some interviewed companies, familiness has slowed down the implementation and the development of a digital transformation, in line with Nieto *et al.* (2015). Furthermore, our results corroborate Jaskiewicz *et al.* (2015) who show that the entrepreneurial bridging, that is the period during which older generations manage the operations while younger ones implement innovative ideas, represents various opportunities for profitable inter-generation collaborations. Secondly, extending the work of Basly and Hammouda (2020), this study contributes to the evolution of family business research stream by categorizing three different factors – individual, process and organization – that influence and shape digital transformation processes in family-owned SMEs operating in the traditional contexts (Ceipek *et al.*, 2021). In our view, those factors are core dimensions in family-owned SMEs, which shape the ways family-owned organizations engage, address and succeed in their digital transformation challenges. Specifically, these factors can act as "barriers" or "facilitators" for adopting advanced digital technologies within the organizations involving activities, processes and resources and, in general, for facing the challenges related to the digital transformation initiatives by efficaciously addressing efforts and investments and achieving long-term objectives. In fact, the introduction of new digital technologies can effectively determine several substantial changes in a firm that calls the firm itself to redefine how it generates, delivers and captures value (Correani *et al.*, 2020).

6.2 Managerial contributions

From a managerial point of view, this study supports family-owned low-tech SMEs oriented to consider the innovation paths related to the implementation of digital transformation and, consequently, to adopt digital technologies with the aim at improving business processes, gaining operational efficiency, reducing costs, and supporting interactions and relationships with customers (existing and potential). Our findings provided empirical evidence about the factors necessary to pursue an inevitable digital transition, which requires a reconfiguration of wine family companies' strategic and organizational models. Such transition requires the development of different professional competencies and capabilities, often acquired from external sources, or developed within the organization through adequate learning processes. In this perspective, firms have to consider that the efficacious introduction, adoption and use of digital technologies (blockchain, big data, artificial intelligence, etc.) in their activities and in their processes require innovative skills and competencies by activating a coevolution process between skills and competencies, innovation and digital technologies (Ciarli *et al.*, 2021). To remain competitive on the market, especially in times of major turbulence, companies are obliged to move in this new direction by investing in every aspect of their business models, but also in the underlying concept within which businesses operate and create value through new digital solutions. In this perspective, our findings confirm that family-owned low-tech SMEs approaching digital transformation' paths are called for an overall innovative cultural approach, to sustain the radical changes of the organizations, helping to overcome those factors that hinter or slow down digital transformation in the present as well as in the future. Indeed, our results highlight that family firms have the opportunity to act entrepreneurially, especially when their leaders trust digital advancements instead of being fearful of it.

Finally, although family businesses tend to prefer the *status quo*, family low-tech SMEs are well predisposed to embrace rapid changes, as they unquestionably possess unique features that could facilitate and boost the adoption mechanisms of new digital solutions.

Therefore, digital entrepreneurship should be implemented and managed by family firms' owners, as it does not automatically translate into a threat of the firms' survival, longevity and succession.

6.3 Limitation and future research

As occurs with any study, this research presents some limitations that provide potential opportunities for future research directions. Firstly, the theoretical insights here advanced are substantial rooted in the investigation of diverse case studies. Hence, scholars could consider research projects for the generalization of the findings by developing and performing other empirical investigations that are based on different methodological approaches (i.e. longitudinal case studies across diverse industry, surveys ad hoc, etc.) and innovative ways for collecting and analyzing data. Secondly, other limitations are linked to the sectorial and regional dimensions. In fact, the case studies here selected are representative of the phenomenon under investigation within the wine sector. However, as a future research direction, other studies in family-owned low-tech SMEs adopting digital transformation processes in different sectors, as different empirical settings, might strengthen the findings proposed by this study. In addition, this study focuses on the family-owned low-tech SMEs operating in Sicily. Therefore, examining family-owned low-tech SMEs operating in different geographical areas, with different historical, economic, cultural conditions, could be fruitful for additional investigations able to improve the existing literature at the intersection of the digital transformation and family involvement.

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Appendix
Draft key informant interview protocol

(1) Can you briefly describe the history of your firm? In particular, with respect to generational transitions, can you describe the most salient elements?

(2) What are the main challenges related to the digital transformation in terms of firm's strategy?

(3) Can you describe the main digital changes that have been introduced in your firm? In particular, can you distinguish in terms of product, process, distribution and sales channels, communication channels, internal resources management (i.e. human, logistics) and customer relationship management.

(4) Can you provide further examples – especially with respect to production, marketing and organizational processes – through which digital transformation manifests in your company?

(5) From your experience, what are the impacts of digital transformation on the organizational structure (i.e. changes on the control activities, decentralization, hierarchy, formalization, simplification)? Can you provide some examples?

(6) Can you describe which internal (digital) competences and capabilities are necessary for the use of the technologies described above and to support the firm's digital transformation process? How does your firm act to acquire adequate digital competences (e.g. updating existing competences scouting for new competences, etc.)?

(7) From your point of view, what are the cultural changes (mind-set) in the firm values and characteristics generated by the digital transformation? Can you also provide examples of any obstacles to change that you encounter in your firm?

(8) With respect to human resources, what are the main changes related to the digital in your firm (e.g. skills, trust, involvement, motivation)?

(9) What is the relationship between leadership styles and digital transformation? What are the elements, such as entrepreneurial orientation, educational level, manager's personality, previous experiences with digital, that influence the firm's ability to activate the digital transformation process?

(10) From your point of view, how does family management influence digital transformation processes of your firm?

(11) In particular, how do several elements linked to the family tradition (e.g. digital experience of family members, role of seniors and the next generation, generational transition, etc.) reconcile with digital transformation process of your firm?

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