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Abstract

Drawing on the dynamic capabilities framework (DCF), this exploratory study examines family firms' involvement in innovation practices, including reasons and ways to innovate. The cases of four family firms operating in an emerging economy (Uruguay) are investigated. Semi-structured, face-to-face and telephone interviews were conducted with owners and managers, and complemented with email correspondence. Based on the imperious need to solve problems in their industry, firms' management were intensively involved in various innovative processes. These processes included quality improvements, responding to a dynamic and competitive business and consumer environment, and extending the life and survival of the family enterprise for future generations. Notably, the importance of sensing and learning in the form of identifying and assimilating key information, and seizing, applying such information to develop or adopt innovation, including new technologies, emerged strongly. The findings also highlight the usefulness of the DCF to understand firms' integration, and transformation of learning.

Keywords: Innovation, innovative practices, dynamic capabilities, family firms, emerging economy

1 Introduction

A family business has been defined in various ways. For example, the European Commission (EC, 2009) proposed various guidelines that, together, conform such definition, namely: a) When most decision rights are in possession of the individual(s) who started the firm, their parents, children, or spouses; b) When most decision-making rights are direct/indirect; c) When one or more kin or family representatives are formally participating in governing the firm; and d) In the case of listed companies, when the individual(s) who acquired/established the business (share capital), their descendants or families own 25 percent of decision making rights (EC, 2009). This definition takes into consideration self-employed and sole proprietors (EC, 2009).

A wealth of academic studies and industry reports document the important socioeconomic contribution of family firms in numerous countries and regions (Australian Government, 2015; Bakar, Ahmad, and Buchanan, 2015; Bertrand and Schoar, 2006; Horak and Isely, 2015; Kraus, Pohjola, and Koponen, 2012). In the United Kingdom (UK), family firms contributed as much as £125 billion in taxes between 2015/2016; in addition, these firms employed 12 million individuals, and represented one fourth of the UK's gross domestic product (GDP) (Institute for Family Business, IFB, 2016). In the European Union (EU), family firms account for over 60 percent of all businesses (EC, 2009).

An earlier study conducted in the United States (Astrachan and Shanker, 2003) used broad, middle, and narrow definitions to estimate family businesses' contribution. Under the narrow, or most modest definition, the three million existing family businesses in Astrachan and Shanker's (2003) model employed 36 million individuals, or 27 percent of the workforce. Furthermore, they accounted for 29 percent of GDP (Astrachan and Shanker, 2003). A more recent study (Horak and Isely, 2015) suggests that family firms contribute 57 percent to the GDP of the United States' economy.

Arguably, innovation, including innovative initiatives and practices, represents one of the key pillars determining the survival and success of many businesses, including those owned by families. Among many definitions, innovation has been conceptualised as the acceptance, generation, and application of new products, ideas, services, or processes (Thompson, 1965),

and as “the process of bringing any new, problem-solving idea into use” (Kanter, 1983, p. 20). Indeed, innovativeness is a key entrepreneurial capability that can be employed by family firms to gain competitive advantage (Llach and Nordqvist, 2010). Furthermore, a comprehensive review of the family business literature by Fuetsch and Suess-Reyes (2017) concluded that much of existing research underscores innovation as a key element strengthening family firms’ performance. These authors further posited that innovation is essential in helping “family businesses remain competitive in their respective market” (p. 44). Brines, Shepherd and Woods (2013) provided a similar argument concerning the significance of innovation for small and medium-sized family firms.

However, despite the apparent agreement on the importance of innovation to family businesses, numerous knowledge gaps remain in the literature. Notably, so far, the role of innovation in family businesses “has been mostly neglected in existing academic research” (Kraus et al., 2012, p. 265). Similarly, there is an argument that family firm innovation is not a major topic in the literature (Llach and Nordqvist, 2010). Cassia, De Massis, and Pizzurno (2012) caution that the failure of innovation management research to embrace and recognise family firms may result in missing “family-related factors” (p. 199), preventing the development of more valuable and robust theories.

The fundamental objective of this investigation is to fill some of these recognised knowledge gaps, and contribute to the literature on family firm entrepreneurship both empirically and theoretically. Moreover, the study focuses on the extent to which family firms operating in the emerging economy of Uruguay (South America) are embracing innovation. To date, family firm research, particularly on innovation, has also been very limited within the South American continent.

The findings could be useful in highlighting how innovative activities contribute to firms’ problem-solving (Kanter, 1983) goals, as well as identifying specific forward-thinking strategies that family firms are employing. Added new information could be also useful for government entities and chambers of commerce, in designing and executing plans to nurture a culture of innovative practices, thereby assisting family firms to embrace innovation and become more dynamic, productive and competitive.

To guide and inform the research, and aligned with one of the few contemporary academic contributions (Chirico and Nordqvist, 2010), the study adopts the DCF (e.g., Teece, Pisano, and Shuen, 1997). The study will therefore make a theoretical contribution, adopting the DCF to study innovative activities among Uruguayan family firms.

2 Literature Review

2.1 Firm innovation: comparing family versus non-family businesses

Many academic contributions illustrate the strong interest in researching innovation in the context of family businesses. One research stream has endeavoured to explain the extent to which both family and non-family firms differ in relation to innovative practices, or level of innovation adoption. According to Chrisman et al. (2015), owing to the significance of innovation, a rational theory of firm behaviour suggests that non-family and family firms employ comparable levels of innovation, with similar performance and success. However, based on empirical evidence, such suggestion does not hold (Chrisman et al., 2015).

Chrisman and Patel (2012) explored research and development (R&D) investments, an action which helps increase firms’ ability to innovate. Their findings implied that investment in R&D was much lower and that the variability of R&D levels was higher among family than non-family firms. Furthermore, when performance fell below competitive aspirational or historic levels, R&D investment was higher among family firms (Chrisman and Patel, 2012).

Similarly, Nieto, Santamaría, and Fernández (2005) identified much more limited involvement in innovative practices among family owned firms. In addition, this group of

firms was less prone to consider external sources, including technological collaboration, as a means to innovate. This last finding is in agreement with more recent research (Kotlar et al., 2013), underlining that family firms were in general more reluctant to procure external technology.

However, there is evidence arguing against the notion that family firms are less active than non-family firms in innovative practices and activities. According to Duran et al. (2016), for instance, family firms are indeed among the world's most innovative businesses. Based on firm data from 42 countries, these authors confirmed their hypothesis that, while investing less in innovation, family firms had higher conversion rates of innovation inputs and outputs. Ultimately, family firms experienced higher innovation outputs (Duran et al., 2016).

In addition, Llach and Nordqvist's (2010) contribution noticed that family firms were more innovative than non-family firms in a number of dimensions. For example, with regard to marketing capital and innovation, family firms appeared to launch more radical than incremental innovations than did firms of the non-family group (Llach and Nordqvist, 2010). A plausible reason for this result was that, having highly qualified staff and/or high levels of cooperation with other firms allowed family firms to launch new services, or make new products based on customers' needs and wants (Llach and Nordqvist, 2010).

2.2 Theoretical background: Dynamic capabilities (DCs)

This study adopts the DCF as a lens that guides and facilitates understanding of the extent to which the participating firms are innovating. The justification for choosing this approach will be discussed in the following paragraphs. Essentially, the DCF is an extension of the resource-based view (RBV) of the firm (Eisenhardt and Martin, 2000; Rothaermel and Hess, 2007). The framework helps "explain the sources of enterprise-level competitive advantage over time" (Teece, 2007, p. 1320), and capture key relationships and variables to protect, leverage and create intangible assets and "achieve superior enterprise performance" (p. 1341).

The RBV framework, on the other hand, emphasises the importance of certain vital characteristics for firms' resources to be sources of competitive and sustained competitive advantage (Barney, 1991; Peteraf, 1993). Moreover, to achieve these competitive goals, firm resources need to be heterogeneous, and immobile; furthermore, they should be valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991).

Teece et al. (1997) posit that, to enable intellectual dialogue and theory development, there is a need for acceptable definitions. First, they explain that the term 'dynamic' highlights firms' "capacity to renew competences" (p. 515) attain congruence, and respond to the changing business landscape. In addition, innovative responses are demanded from organisations, especially when a) timing is critical, b) the characteristics of future markets and competition are difficult to ascertain, or c) in view of rapid technological changes (Teece et al., 1997). 'Capabilities', on the other hand, underscores the fundamental role played by firms' strategic management, appropriately integrating, adapting, or reconfiguring functional competences, external and internal organisational skills, and resources to meet the demands of a changing business environment (Teece et al., 1997). Both definitions have strong associations with the problem-solving emphasis of innovation (Kanter, 1983), as well as with that of applying new ideas, processes, or products (Thompson, 1965).

Various scholars (e.g., Chirico and Salvato, 2008, Eisenhardt and Martin, 2000) assert that the rapid pace of change in the competitive business landscape had led organisations to develop processes aimed at changing organisational capabilities, a term which refers to high-level routines that provide organisations with decision-making options (Winter, 2003). Furthermore, the recognition of "enablers of dynamic organizational adaptation" (Chirico and Salvato, 2008, p. 169) can help enhance firms' competitive fit and strategic adaptiveness. In

this context, Chirico and Salvato (2008) identify the significance of DCs, which, complementing the above definitions, relates to firms' ability to attain new types of competitive advantage (Teece et al., 1997). In turn, competitive advantage is composed of those identifiable and specific organisational processes, including strategic decision making, or product development (Eisenhardt and Martin, 2000).

Thus, Teece et al. (1997) argue that firms' competitive advantage lies with their organisational and managerial processes, and is characterised by three roles representing the foundation of DCs:

1) *Coordination/integration*, which essentially highlights management's activities inside and outside the firm; importantly, strategic advantage depends on the integration of external technologies and activities (Teece et al., 1997). To some extent, this role is related to absorptive capacity, that capability or ability of firms to identify "the value of new, external information, assimilate it, and apply it to commercial ends" (Cohen and Levinthal, 1990, p. 128). Absorptive capacity is fundamental to firms' innovative capabilities (Cohen and Levinthal, 1990).

2) *Learning*: Possibly more significant than integration (Teece et al., 1997), learning is a process, whereby experimentation and repetition allow for performing tasks quicker and better. Within the firm's environment, various key characteristics are attributed to learning, with the first comprising both individual as well as organisational skills. Moreover, learning processes are essentially collective and social, and do not only take place through emulation/imitation, but also through joint contributions to understand complex problems (Teece et al., 1997). Secondly, the organisational knowledge emanating from the above activities exists in routines, a new logic of organisation, or new patterns of activity (Teece et al., 1997).

3) *Reconfiguration and transformation*: in referring to the contributions by Amit and Schoemaker (1993) and Langlois (1994), Teece et al. (1997) highlight the ability for firms to sense the necessity to reconfigure their asset structure in order to achieve external or internal transformations. This process demands continuous surveillance of technologies and markets "and the willingness to adopt best practice" (Teece et al., 1997, p. 520).

Subsequent contributions (Teece, 2007, 2014) also included the reconfiguration component, and further underlined its importance, namely, through the modification and recombination of existing resources. Teece's work also identified two other fundamental clusters, which firms need to develop, engage with and operationalise these two clusters in order to create and maintain competitive advantage; they are:

- *Sensing*- as well as shaping- new opportunities encompasses learning, creating, interpreting, and scanning activities (Teece, 2007). Sensing involves diagnosis (Teece, 2014), and necessitates "learning about the environment and new technological capabilities" (Teece, 2007, p. 1339).
- *Seizing*: Teece (2007) explains that once a market or technological opportunity has been sensed, it should be addressed (seized) through new services, processes, or products. Thus, seizing entails mobilising resources, addressing opportunities and needs, and capturing value (Teece, 2014).

The academic literature also discusses the links between DCs and innovation. Rothaermel and Hess's (2007) research, for instance, concludes that, based on the DCF, antecedents of

innovation are present at firm, network, or individual level. These authors underscore the importance of individual antecedents in the form of intellectual human capital, which seems to substitute for network-level and firm mechanisms, or firm-level antecedents to innovation, in the form of research and development capabilities. Furthermore, developing a strong foundation of intellectual capital requires committing resources and time, two essential ingredients not always available to firms facing demands and adapting to new technological paradigms (Rothaermel and Hess, 2007). Earlier research examining the case of Cisco Systems (Lawson and Samson, 2001) proposes that innovation management can be perceived as a type of organisational capability. Importantly, successful businesses nurture and invest in this capability, which allows them to implement effective innovative processes that are exemplified, for instance, through new services, products, or superior business performance outcomes (Lawson and Samson, 2001).

Despite its theoretical merit, the DCF is not free from criticism (e.g., Barreto, 2010; Dangol and Kos, 2014; Easterby-Smith and Prieto, 2008). For instance, distinguishing between capabilities that are operational (ordinary/mundane) and dynamic remains an unresolved issue (Helfat and Winter, 2011). Furthermore, a broad complaint among researchers concerns the insufficient empirical evidence underpinning the concept of DCs (Easterby-Smith and Prieto, 2008). Similarly, Drnevich and Kriauciunas (2011) posit that “the role of capabilities and their proposed contributions have been narrowly theorized and insufficiently tested” (p. 254).

While the DCF could be beneficial to examine and understand family firms’ potential to innovate and achieve competitive advantage, the adoption of this ideology in the field of family business has been limited. In one of the few examinations to date, Chirico and Nordqvist (2010) sought to conceptualise and examine processes based on knowledge that help generate DCs, and develop entrepreneurial performance concerning strategic adaptation and product innovation for firms to compete in dynamic business environments. Chirico and Nordqvist’s (2010) findings revealed the importance of knowledge, primarily enhanced by a high degree of family members’ emotional involvement in the firm, and social capital. Combined, these factors were vital for firms’ transgenerational value creation (Chirico and Nordqvist, 2010). Finally, there is a dearth of research exploring innovation from a family business perspective (Benavides-Velasco, Quintana-García, and Guzmán-Parra, 2013).

2.3 Proposed theoretical framework

The present empirical study will adopt the DCF to gain a deeper understanding of the extent to which family firms in an emerging Latin American economy are innovating, considering both reasons and ways of approaching innovation. Figure 1 illustrates this study’s proposed theoretical framework, which depicts various hypothesised scenarios and associations. First, the framework hypothesises existing links between family firms, DCs and innovation, and reasons to innovate. These key elements conform the backbone of the framework. Relating to this first dimension, and aligned with research supporting the notion that family firms are indeed among the most active in innovative practices (Duran et al., 2016; Llach and Nordqvist’s, 2010), the following hypothesis is formulated:

H1: The participating family firms innovate primarily to ‘solve problems’ such as adapting to a rapidly changing business environment, increasing product/service quality, and overall, helping extend their firm’s life.

Figure 1 Here

Furthermore, the framework depicts an association between the antecedents of innovation (Rothaermel and Hess, 2007), both at individual and firm level, ways of innovating, and the postulated roles and clusters (Teece, 2007, 2014; Teece et al., 1997). Moreover, in the case of the participating family firms, this scenario illustrates the relationship between ways of innovating and various DCs. These relationships include identifying and assimilating newly acquired information from external sources (coordination/integration, sensing), the operationalisation of such information, building alliances to mainly make knowledge-based improvements (learning, seizing), or further learning, modernising, and adapting (reconfiguring and transforming). Given the significance of ways of innovating as a critical link between antecedents of innovation and DCs, the following hypothesis is proposed:

H2: The participating firms are innovating in ways closely associated with DCs, including through absorptive capacity, learning processes, by building alliances, and by integrating processes/technologies.

Finally, and once again based on the broader definition of innovation (Kanter, 1983), the framework also illustrates that these associations have problem-solving related impacts for firms, for instance, in the form of higher productivity or in adding value to products or services. Finally, the framework's implications highlight the significance of absorptive capacity, investments, and, ultimately, of sustained competitive advantage.

3 Methods

This study investigates the extent and ways of innovating of family firms operating in an emerging economy (Uruguay); thus, the study's unit of analysis entails innovation from the perspective of family firms. In order to gain a more thorough understanding of firms' innovative practices, the DCF will be adopted. The choice of family firms of a South American country is based on several factors. Fundamentally, as most countries in this continent, Uruguay's economy has a history of instability and stagnation (Timpers, 1996). In addition, while in the last few decades the country has made remarkable strides towards poverty reduction and economic growth, it is however vulnerable to various internal and external forces (Cabanillas et al., 2015). Internal risks include high inflation and slow growth, while externally high economic dependence on neighbours that, as in the cases the Argentina and Brazil, also have their own vulnerabilities (Cabanillas et al., 2015). Studying family firms operating in such environment, particularly those with a long history could be important, in identifying aspects, including innovative strategies that contribute to firm resilience and survival.

In line with earlier family business studies (e.g., Ainsworth and Cox, 2003; Knapp et al., 2013), this research adopts a constructivist and an inductive approach. Jonassen (1991) explains that constructivism is concerned with how humans construct knowledge, and how they do so is a function of their previous experiences, beliefs, and mental structures they use to interpret events or objects. Thus, constructivism suggests that humans construct their own reality through the interpretation of "perceptual experiences of the external world" (Jonassen, 1991, p. 10). Dessler and Owen (2005) explain that constructivists follow "a strongly inductive approach to theory development" (p. 599).

An inductive methodology "is a systematic procedure for analysing qualitative data in which the analysis is likely to be guided by specific evaluation objectives" (Thomas, 2006, p. 238). Moreover, it relates to approaches that mainly employ comprehensive readings and interpretation of raw data to develop themes, a model, or concepts (Jebreen, 2012; Thomas, 2006). Both constructivist and inductive approaches also fit with the study's aim of gathering- and learning from- perspectives voiced by individuals involved in family business

operations (firm owners/managers). Moreover, these perspectives are based on participants' experience, and the ways in which they interpret past, current or future events. The researcher(s) will then also interpret these shared experiences to develop themes, concepts, or models. These notions are in accord with the principles of constructivist and inductive ideologies and justify their adoption in this study.

The study of various Uruguayan family firms also justifies the adoption of a qualitative case study methodology, which allows researchers to investigate complex, contemporary phenomena within their boundaries using various data sources, and where the investigator has limited or no control (Baxter and Jack, 2008; Yin, 2009). While case study research does not follow a specific approach or formula, Yin (2013) posits that, the more the research questions pursue the explanation of a present circumstance, for instance, 'why' or 'how' a social phenomenon works, the more relevant case study research will be. Importantly, in the context of this research, case study research has become an important methodological approach for academics attracted to family business inquiry (Leppäaho, Plakoyiannaki, and Dimitratos, 2016).

To address the proposed research questions, which were designed upon a review of pertinent family business research exploring strategic innovation (e.g., Cassia et al., 2012; Grundström, Öberg, and Rönnbäck, 2012; Kraus et al., 2012), various Uruguayan family firms were selected. The identification of these firms is based on one of the researcher's experience while conducting field research in Uruguay between December of 2014 and January of 2015. Based on in-depth interviews with Uruguayan government, industry, and chamber of commerce representatives, the names of six companies, that is, businesses that were leaders in innovation and entrepreneurship in their industry, were mentioned to the researcher.

The above form of identifying participants follows a purposeful sampling strategy, which involves "studying information-rich cases in depth and detail" (Patton, 1999, p. 1197), and its focus is on illuminating and understanding significant cases as opposed to making generalisations "from a sample to a population" (p. 1197). Rigour in the selection of cases includes thoughtfully and explicitly choosing cases that are consistent with the research purpose, and will provide data on key questions (Patton, 1999).

To design the questions for this study, several contemporary family business studies were consulted, including research on family firms and DCs (Chirico and Nordqvist, 2010) and on family firm innovation (Carvalho and Williams, 2014; Classen, Carree, Van Gils, and Peters, 2014; Memilli, Fang, and Welsh, 2015).

The chosen businesses were subsequently contacted; the electronic message sent to the attention of the owner/manager explained the purpose of the investigation and requested a face-to-face interview. Four of these firms responded positively. In four cases, unstructured, face-to-face interviews were conducted with four participants at each of the firms' premises; these interviews lasted 60 minutes on average and were recorded with participants' consent. In one case (Firm 1, Participant 2), due to issues beyond the participants' control, it was agreed to collect data through telephone and email correspondence.

Apart from acquiring information pertaining to firms' demographic characteristics, in this study, the following fundamental questions were examined:

- Why is your firm innovating? In other words, what motivates your firm's innovation initiatives (e.g., proactive/reactive measures)?
- How is your firm innovating? For instance, in what ways, if any, is your firm innovating?

The data collection was complemented with other forms of information gathering, such as through company website information, or industry reports about the firms. These complementary ways of data gathering are also aligned with case study research (Yin, 2009). In addition, email contact was maintained with the participating firms through 2015 and the beginning of 2016, which allowed for further information exchanges.

The interview data were transcribed verbatim and translated into English by one member of the research team, who is bilingual. Complementing the adopted constructivist and inductive approaches regarding data interpretation, both interview and email data were analysed employing qualitative content analysis. This methodology, which has been adopted in previous family business research (McKenny et al., 2012), consists in subjectively interpreting “the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh and Shannon, 2005, p. 1278). Finally, verbatim comments in this study will be labelled using the company name abbreviations illustrated in Table 1.

3.1 Demographic characteristics of the participating firms

The majority of the participants were co-owners of their firm (Table 1). Three of the firms were involved in the production of foods and one in wine. Firm 2 (Carrau Wines) and Firm 4 (Black River Caviar) were exporting at the time of the study, while the other three were planning to export in the near future. Three of the firms fit the category of medium sized businesses according to the guidelines of the MERCOSUR (Gatto, 1999), or, in the case of Uruguay, firms employing between 20 and 99 individuals; the fourth firm employed over 100 employees and is therefore considered large in size. All of the firms were well established in their respective industries. Firms 1 and 2 are extensions of existing enterprises. For instance, Firm 1 was originally started by family ancestors in the 18th Century, while Firm 2 was established in the 1960s as a provider/supplier for fishing and other large vessels.

Table 1 Here

4 Results

The content analysis (Table 2) illustrates some common threads in participants’ comments, which point at the significance of innovative practices. Importantly, the different emerging threads also confirm the previously formulated hypotheses. Essentially, one key reason to innovate was associated with a recognised urgency to address external threats, such as the growing competitiveness of a globalised world economy, and continuously increasing consumer demands. The following sub-sections will present the extent to which the participating family firms were innovating, and by doing so address the questions asked to respondents concerning a) their reasons for innovating, and b) ways in which they innovate.

Firm 1

Four decades ago, the ownership of Carrau Wines, the 10th generation of a wine producing business, made a conscious decision to depart from conventional growing, production, ageing, and marketing/sales processes in order to internationalise, become more competitive and extend the life of the family wine tradition, which originally dates from the 18th century. Such decision was based on the growing need of the local sector to producer higher quality wines and become more competitive in what was an increasingly globalised wine business environment. As F1P1 explained:

“Our family has a very long tradition, which is very rare in the world [of wines]... In 1975, our family business started a pioneering, revolutionary

viticultural project, which entailed various stages, including reconverting our old vineyards, replacing them with disease-free new vines, or clonal selection, something unknown in Latin American wine regions at that time. To produce great wines you need to grow excellent grapes and to grow these we needed to procure certified vines... our project was based first and foremost on [product] quality, and second, on opening up markets for Uruguayan wines in the world, not only thinking of the local market... ”

Furthermore, F1P1 reflected on the very long journey to consolidate a product and brand, which includes the work at the vineyards until they started producing grapes, improvements in acquiring the latest equipment and technologies, as well as training staff to match the new demands of the international wine market. During the journey, F1P1 travelled to different international wine events *“to learn the types of wines that buyers of different wine markets are demanding”*, and also as a way to market the firm’s wines. For the last 30 years, the firm has been exporting its wines, first to neighbouring Brazil, progressively growing its horizon to a total of 30 countries at the time of the study.

Both F1P1 and F1P2 also highlighted the innovative practices aiming at completing tasks in a more environmentally-friendly manner. One illustration was a gravity system, as opposed to using diesel- or electricity-run pumps, which helped in the vinification process at one of the firm’s vineyards; this gravity system, according to the respondents, was the first in any Latin American winery. In addition, F1P2 commented on the firm’s innovative approaches, in helping develop Uruguay’s wine tourism, creating a wine trail in collaboration with other wineries. The firm was already planning its generational future, with at least one family member completing a science degree abroad, and becoming involved in technical aspects of the firm’s wine-making processes. Finally, there was interest (F1P1) that such involvement included engaging with social media as a promotional/marketing tool, an aspect that F1P1 acknowledged needed further improvement in view of its current global relevance.

Firm 2

Black River Caviar started from a former business venture by the firm’s founder, the father of the current owners (second generation). His personal networks with former Soviet ship vessel crew and researchers led to an extensive and intricate learning process, and eventually to the establishment of a sturgeon farm, one of very few in the Southern Hemisphere in the late 1990s. Innovative practices and initiatives are at the core of Black River Caviar. First, according to both participants, the learning process carried out by both family generations has and continues to be at the core of the firm’s competitiveness. F2P1, for instance, explained:

“Essentially, we had access to important information indicating that this environment was appropriate for breeding sturgeon. However, no one could guarantee that there could be a commercial caviar operation, not even scientists. With the available information, we started a trial and error process; we brought the first female eggs, and all of them died. We brought another batch; some eggs survived and from there we started a slow process of adapting to each breeding process... Even today, we are solving problems, and continue to work on new mechanisms and technologies to improve production... and solve key issues, including climate change...”

Both F2P1 and F2P2 also highlighted the vital importance of the natural environment where sturgeon grow. Moreover, one key innovative practice is also one of the firm’s main advantages. As F2P2 underlined, the sturgeon farm receives a vital circulatory flow of water

from a nearby river dam in the form of 2,000 litres of water per second. Through gravity, the water circulates- and oxygenates- the numerous pools where sturgeon grow. As a result, the level of oxygenation ranges between 90 and 100 percent; thus, both innovation and the natural environment are key contributors to the quality of the firm's Caviar. Not surprisingly, and benefitting from a sophisticated logistics system, the firm today exports- and is certified to export- caviar to numerous countries, including to the highly demanding markets of Japan, the European Union and Canada. One fundamental element that can determine the future of the firm's management, or the preservation of future stocks of sturgeon, is also strongly related to innovative practices. Indeed, F2P1 mentioned the collaborative relationships between the firm and a local university to develop a set of vaccines and improve the immune system of the species.

Table 2 Here

Firm 3

Penino and Corona was founded in 1949, and is currently owned by the second family generation, with the third starting to occupy executive roles. At the time of the study, the firm's ownership was in the process of expanding its facilities by merging two production sites to maximise equipment and human resources and consolidate production. The firm's main products are candies, which, over the last decades, have been subject to increased regulation due to such health concerns as sugar/calorie consumption. Partly due to these changes, the firm has sought to diversify its product range to include healthier options.

Some of the firm's innovative practices are related to acquiring knowledge, including continuous research to identify new market/consumer trends, and new technologies to improve processes and develop new products. Contacts with a local technology centre allowed for carrying out joint studies and developing technologies for the firm to manufacture alternative products. In fact, one of the firm's ongoing objectives is to manufacture products with a substantial reduction of sugar:

"We are looking at an alternative product to substitute 50 percent of sugar in one type of candy. We already run tests, which were successful; we just need to adjust the flavours... our medium-term goal is to manufacture three different types of candies: regular (sugar content), one with 50 percent reduction, and one with no sugar at all... we also developed a product that is suitable for diabetics, with 44 percent calorie reduction..."

While arguably these new objectives are in response to more rigorous legislation and contemporary consumer demands, the firm has proactively embraced innovative practices for a number of years. One example is its business relationships with a Uruguayan laboratory, which manufactures health products (cough syrups, skin creams, and ointments) based on propolis, which, as F3P1 stated, *"is like an antibiotic that bees produce to keep their beehive healthy..."* The participant also acknowledged that his firm had manufactured candies for over three decades based on honey and propolis for this laboratory. These products, which can help heal throat infections and other health issues, are both sold in local pharmacies as well as in demanding foreign consumer markets. As a result, the firm also has to develop complementary innovative products: *"The laboratory exports three batches of our candies a year to Japan... the laboratory's management therefore asked us for a special [airtight] package to seal the candies and avoid any potential contamination."*

Firm 4

Similar to Firm 3, the second family generation is currently managing Cattivelli Brothers, and, as F4P1 acknowledged, there is already a third generation making its presence felt to lead the firm's future, which is one of the firm's primary concerns: *"Our biggest challenge is to survive, to make the leap to the third generation."* Due to modified legislation allowing Uruguayan firms to import of equipment and technology, Cattivelli Brothers have been able to modernise their production facilities. However, as F4P1 also recognised, the cold meats industry is very traditional in Uruguay, and innovative practices have focussed on improving key aspects of the products on offer: *"Essentially... product quality has increased, and some of the products have become more attractive to consumers."*

Thus, the traditional aspect of the core products the firm is involved in requires more creativity and flair to render these more appealing in the eyes of consumers. Innovation is therefore essential for Cattivelli Brothers (F4P1): *"We totally depend on innovation, from sales and to penetration of various markets... we must change the presentation and other aspects of the product, so that consumers' perceptions are influenced."* Furthermore, the firm's management have developed new, more sophisticated packaging alternatives that add value to their products, including offering portioned cold meats in air-tight sealing.

In addition, and as in other countries, there has been a trend for cooking TV shows that, to some extent, has created a revival, and an even stronger desire, to taste certain traditional products: *"...some industries have ventured in the ready-to-eat dishes... which is benefiting us because it is making the consumption of cold meats more fashionable..."* Traceability of product lines is yet another innovative practice that the firm is incorporating; as F4P1 explained, this move is also response to its wider usage by other companies located nationally and internationally.

The incoming third generation of the family is already making plans that significantly demand innovative strategies and initiatives, for instance, to develop new, more sophisticated product lines, an even more attractive visual presentation, in essence, to add more value to the firm's current product portfolio. Furthermore, the third generation is also looking at export markets. These innovative initiatives are also nurtured and supported within the family (F4P1): *"We have various mechanisms, such as providing advice, that help strengthen these relationships [with third-generation family members]. In addition, we have a 'laissez-faire' system that encourages family member involvement and participation."*

Discussion

The following sections discuss the findings, and how these are associated with the proposed framework (Figure 1). A predominant theme identified through participants' comments and aligned with earlier research (Kanter, 1983; Thompson, 1965) highlighted that firms' philosophy consisted of accepting the need to solve problematic situations in their industry.

A review of the family firm literature (De Massis, Frattini, and Lichtenhaler, 2012) identified differing research outcomes in regards to firms' uptake of innovation or R&D initiatives. For instance, Block's (2012) study noticed "that family ownership decreases the level of R&D intensity" (p. 248); similarly, Chen and Hsu (2009) highlighted "a negative relationship between family ownership and R&D investment" (p. 358). In this study, however, participants' comments demonstrated that each firm generated and applied new processes and ideas based on knowledge gathering and, subsequently, investment in equipment and different technologies. Thus, these findings are more in accord with other empirical studies that found strong links between family firms and innovation. For example, the implications of Craig and Moores's (2006) investigation pointed at "substantial importance on innovation practices and strategy" (p. 7) among established family firms. Furthermore, the findings by Mcann, Leon-Guerrero, and Haley (2001) underscored the significance of innovation for family firms' market competitiveness.

From a theoretical point of view, the proposed framework has several strong associations with the study's findings, and confirm the two formulated hypotheses. Regarding the second hypothesis, for instance, and cascading down from the reasons to innovate, the fundamental roles and clusters proposed in the literature (Teece, 2007, 2014; Teece et al., 1997) emerged in many of the participants' reflections.

In regards to coordination/integration, the comments demonstrated the importance of sources of information, particularly in extending an existing family venture and with it the opportunities of changing product focus. For instance, Firm 1's case illustrates the importance of the generational tradition of wine production, with preceding generations passing down vital industry, and internal firm information for the next generation to exploit opportunities. While seemingly static, this expertise and knowledge entailed dynamic elements. Indeed, aligned with Teece (2007), accumulated expertise and knowledge can enhance the process of scanning the business environment, and is associated with sensing- and therefore capitalising on- new opportunities. For example, expertise and industry knowledge can be operationalised by incorporating new technologies to support the wine-making process, or concepts and ideas, including international promotion campaigns. In addition, during the interview process it was noticed that the winery was strongly engaged in energy-effective production processes, as well as in diversification strategies, such as drawing national and international visitors to tour the facilities.

Similarly, Firm 4, with the second family generation providing advice to the third, highlights the important role of internal coordination. In addition, the cases of Firms 2 and 3 further underscore the strategic advantage the firms gained through external information from experts, which led to innovative ways of monitoring production, and even revolutionise their industry, with clear links to the 'sensing' cluster.

However, learning and seizing emerged as the strongest elements or roles of firms' DCs. First, in line with the absorptive capacity framework (e.g., Cohen and Levinthal, 1990), firms were clearly assimilating the information they accumulated to make informed decisions, thus, developing their DCs. As illustrated in Figure 1, this process of information gathering and assimilation is also aligned with the antecedents of innovation, in that a) firms have undergone an intellectual development based on the single members of the ownership, and b) such development has been extended and reinforced through R&D capabilities, including by continuous investment in equipment and technologies.

Second, as a result of assimilating and applying the gained information, all four firms were experimenting, and strongly engaged in innovative practices. Given the family nature of all four firms, and based on many of participants' comments, firms' learning processes are arguably collective, social, and, in some cases (Firm 2, Firm 3) they are enhanced by external contributions or collaborative partnerships. These external collaborations contribute to a better understanding of complex problems (Teece et al., 1997) that are vital for firms' survival and for building competitive advantage. An argument is made that learning helps develop firm members' intellectual capabilities, and can result in firms' proactiveness towards continuous R&D investments; hence, this role also appears to be strongly associated with the antecedents of innovation (Rothaermel and Hess, 2007).

Third, the findings confirm the significance of reconfiguration and transformation. Indeed, the participants representing Firms 3 and 4, for instance, mentioned the need to address new trends in their industry. One of these trends (Firm 3) was encouraged by government legislation and/or by consumer demands, which resulted in developing new, healthier alternative products, which in turn allowed the firm to open up new markets and enhance their competitive advantage. This process of identifying new trends was based on the ownership's intellectual human capital, which was complemented and supported by collaborative efforts with a local technology centre, also suggests the firm's ability to exploit

both internal and external R&D capabilities. Therefore, strong links between the role and antecedents of innovation were again demonstrated. Figure 1 also proposes that the different roles and clusters associated with DCs, and the antecedents of innovation have implications, for instance, for facilitating and encouraging firms' effectiveness alongside competitive and sustained competitive advantage.

Overall, the findings also illustrate that firms were developing their DCs through innovative activities and initiatives to adapt to a changing business environment, as opposed to continuing to rely on their usual or traditional operational activities. In this context, Dongol and Kos (2014) provide an illustration based on the extant literature to separate both. For example, the authors refer to Teece's (2007) work to emphasise DCs through firms' capacity to sense both opportunities and threats, seize opportunities, and sustain competitiveness by protecting, combining, enhancing, or reconfiguring their tangible and intangible assets. These elements which were extended and complemented through firms' innovation, emerged as key findings, as opposed to employing the same techniques, or static resources that do not lend themselves to induce change (Dongol and Kos, 2014).

Conclusions

Family businesses are significant for many countries' economies; such relevance has been documented in many studies and reports (e.g., Australian Government, 2015; EU, 2009; Horak and Isely, 2015; Kraus et al., 2012). Similarly, studies discuss the role that innovation plays in family firms' survival and success (Brines et al., 2013; Fuetsch and Suess-Reyes, 2017; Llach and Nordqvist, 2010). However, various areas associated with this type of firms remain under-researched in the academic literature, including the role that innovation plays (Kraus et al., 2012).

This empirical research contributed to the family business literature, notably, addressing the gap identified by Kraus et al. (2012) through examining the extent to which family businesses innovate, including reasons for and ways of innovating. In this process, the research adopted the DCF (Teece, 2007, 2014; Teece et al., 1997), complemented with the antecedents of innovation (Rothaermel and Hess, 2007), and proposed a theoretical framework (Figure 1) to study family firms' innovative activities. Two hypotheses were formulated and confirmed in the findings.

Essentially, and strongly aligned with some definitions of innovation (Kanter, 1983; Thompson, 1965), the main reasons for innovating were significantly related to the continuous search for problem-solving ideas, initiatives, and processes for improvements. Importantly, these improvements are not only intended to help position and enhance the firms' competitiveness in light of demanding consumer trends and other challenges, but also, and importantly, extend their firms' longevity and survival.

Moreover, participants' comments were implicitly and explicitly related to the relevance of building a strong foundation based on knowledge gathering and subsequently on innovation in various ways. For instance, innovation was reflected through new product development, and by being engaged in alliances, including by collaborating with technology centres to develop technologies or products (e.g., Firms 2 and 3). Together, these efforts were expected to lead to competitive advantage, and to secure the firm's generational cycle. In some cases (Firms 1, 3, and 4) there was evidence that the next family generations were starting to become involved in the firm.

Implications

The study's findings underscore various implications. From a practical standpoint, the findings first confirm the strong links between the reasons to innovate, extend or sustain the survival of the family firm through future generations. Despite the diverse nature of the

industry in which the participating firms are involved, fundamentally, innovation is intrinsically associated with DCs, and therefore with addressing change. At the same time, the imperious need to be aware and be prepared to changes in the business environment was based on the desire to extend the firm's life into new generations. To do so, the participating firms are continuously seeking to adapt to the business environment, either through continuous quality improvements and control (Firms 1, 2), or identifying opportunities by scanning the environment and identifying new trends or more demand (Firms 3, 4). Thus, the first implication underscores the value of DCs to help firms gain in agility and adaptability.

In addition, and aligned with their reasons to innovate, all firms are heavily engaged in constant learning, as well as in making investments to address change, which is reflected, for instance, in consumer needs, wants, and demands. Thus, as opposed to relying on static resources, or on repeating existing techniques that are not conducive to inducing changes (Dongol and Kos, 2014), firms are in a constant state of transformation. Such process is fundamentally based on innovative principles and practices that contribute in the form of value added, which manifests itself in competitive advantage. Thus, a second key practical implication highlights the importance of continuous learning and transformation by embracing innovation in its different forms.

From a theoretical standpoint, the proposed framework can help identify relevant, insightful, and applicable ways of developing firms' DCs. In fact, this tool could guide both practitioners through integrating knowledge (information), expanding firms' learning, and transforming, or making firms more dynamic. Moreover, these key elements help identify changes, trends, opportunities and threats in their business environment.

Furthermore, the framework clearly presents the links between the reasons and ways to innovate, the characteristic roles/clusters of DCs, and the practical illustrations emanating from this research. For example, the assimilation of external information, the integration of technologies, and engagement in collaborative relationships with external bodies, as was the case of Firms 2 and 3, and adaptation to changes in the business/market environment illustrate key capabilities that family firms operating in an emerging economy seek.

Another important implication, which is insightful from both a practical and theoretical perspective, is the consideration of developing the intellectual capital of the firm; such was the case among three of the firms in relation to preparing the future generations of the family to uptake entrepreneurial roles. Together with firm-level R&D investments, the findings, combined with the proposed framework demonstrate the major implications for firms' competitive, sustained competitive advantage, and ultimately, for the preservation and extension of their family/generational cycle.

Limitations and Future Research

While the study makes two fundamental contributions, various limitations need to be recognised, one being the inclusion of only four firms. Another limitation is the consideration of known local firms, which, given their long life and significance in the local economy, for instance, providing employment, may not be representative of the bulk of Uruguayan family firms. A third limitation is the lack of a comparative component, for instance, between family and non-family Uruguayan firms, or between local and firms from other countries in the region. Given these limitations, the overall findings must be treated with caution.

However, these limitations also represent potentially insightful future research opportunities. Indeed, future investigations could complement and strengthen the present contribution in different forms. For instance, increasing the number of participating firms could be attempted in future research, which will contribute to more robust and potentially more generalizable findings. Similarly, gathering data from firms in various countries or regions, or from both family and non-family firms, would enable researchers to make useful

comparisons regarding reasons for and ways of involvement in innovative practices, and, overall, distinguishing valuable elements pertaining to the foundation of DCs (coordination/integration, learning, reconfiguration and transformation).

Future research could seek to take the outcomes of this empirical study further in various ways. For instance, research could seek to refine the proposed framework (Figure 1) further. This enhancement will add value, guiding the understanding of family firms' innovative and DCs, including, and in line with the present research, identifying specific reasons and ways of innovating.

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Table 1: Main demographic characteristics of participants and their firms

Firm	Firm name	Firm's industry	Role of Participant(s)	Age of firm (years)	Size of the firm (staff)
1	Carrau Wines, (F1P1, F1P2)*	Wine	Co-owners	42**	35
2	Black River (F2P1, F2P2)*	Caviar	Co-owner, manager	29***	40
3	Penino and Corona (F3P1)*	Candies	Co-owner	68	30
4	Cattivelli Brothers (F5P1)*	Cold meats	Co-owner	59	330

* Abbreviation for 'Firm' and 'Participant' (e.g., F1P1 = Firm 1, Participant 1).

** This family firm is an extension of a business established in the 18th century.

*** This family firm is an extension of a business established in the 1960s.

Firms' websites – Firm 1: <http://www.bodegascarrau.com/en/>;

Firm 2: <http://blackrivercaviar.com/en/#uruguay>;

Firm 3: http://www.peninoycorona.com/index_es.htm;

Firm 4: <http://www.cattivelli.com/home.asp>

Table 2: Content analysis – Reasons and extent to which the participating firms are innovating

Firm	Reasons for innovating (Hypothesis 1)	Ways of innovating (Hypothesis 2)
1	To follow the steps of a 10-generation family tradition, seeking to improve quality of production, and excel in wine production/exports.	Constant learning-investment process to maintain/improve product quality, for instance, acquiring new equipment, new technologies, updating staff training, promoting wines internationally.
2	To be able to control processes of caviar production, and maintain optimal quality, while following the initiatives of the firm's founder (first family generation) and extending the life of the firm.	Constant learning process, illustrated by traceability system in female sturgeons to monitor growth, health, and overall quality; natural water flow from a local river dam providing ideal oxygenation levels; self-production of sturgeon food.
3	Noticed a demand for the firm's products, especially in healthier products (e.g., sweet products suitable to diabetics). Shifting product focus and extending the life of the family firm (the third generation is already involved in the firm).	Constant learning process, demonstrated by working with local technology centre to develop new technologies in the manufacturing of candies/sweet with a substantial reduction of calories and sugar (or no sugar at all, including candies containing propolis).
4	Adjusting/adapting to new trends in the industry; seeking to preserve and extend the firm's competitiveness in the local market; planning to resume exports in the medium term (3 rd family generation).	Learning process, including following consumer trends, which is reflected in initiatives to add value. Adding value takes the form of making traditionally consumed products more appealing through portioning, packaging; traceability of product lines, for instance, to identify and have more data concerning the origin of foods and the supply chain.

Figure 1: The dynamic capabilities approach, innovation and the study's findings
 Based on Teece (2007, 2014), Teece et al. (1997); Rothaermel and Hess (2007)

