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ARTICLE

Family involvement and innovation: a proposition for studies

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ABSTRACT

This literature review systematizes and analyzes the results of studies on innovation in family businesses, considering the involvement of the family. Following the protocol of a systematic review of literature, relevant studies on the topic were identified and analyzed. The results show that family businesses have distinct resources and capacities that are difficult to duplicate, resulting from the interaction of the family system with the business system itself. These capabilities enable family members to interact with the business system in a quick, flexible, and unstructured way, which promotes company competition and supports innovation. This study contributes to understanding that family involvement may increase and restrict the components of the capacity for innovation and these effects may imply the competitive advantage of the family business. The effects of family involvement demonstrate the heterogeneity among family businesses and offer insight into how these companies manage and are capable of maximizing or minimizing the effects of such involvement on company innovation. At the end of this review, we present a structure of topics related to innovation based on family involvement derived from the categorization and analysis of the reviewed studies.

KEYWORDS: Family businesses; Family firms, Familiness; Family involvement; Innovation

1. Introduction

In the literature review on family businesses, it is possible to find cases of companies that have passed generations, and one of the elements that arouse the interest of research is the ability to innovate (DASPIT; LONG; PEARSON, 2019). Family businesses are particularly characterized by the centrality of ownership and management by family members (CHUA; CHRISMAN; SHARMA, 1999). However, one of the main challenges in the transition processes of these generations is associated with the family company's ability to innovate. Innovation is an important element for long-term success and prosperity of family firms (CALABRÒ et al., 2019). In the context of family firms, innovation may guarantee the vision of transgenerational continuity and succession (CHUA; CHRISMAN; SHARMA, 1999), contributing to the development of these companies, as well as to the global economy (HATAK et al., 2016).

Family involvement is a distinctive feature in explaining the strategic behavior of a family business (CHRISMAN; CHUA; STEIER, 2005), which makes it possible to understand the benefits or minimize possible effects that are contrary to those benefits (DASPIT; LONG; PEARSON, 2019) on the results of the business. For example, Pagliarussi and Costa (2017) identify in their study that hiring a family member manager results in greater expectations for the business, and shares better the risks between the parties. Alayo, Iturralde and Maseda (2022) show that the level of family involvement in the top management team (TMT) affects the relationship between innovation and internationalization. Jocic, Morris and Kuratko (2021) in their study, demonstrate that the dimensions of familiness influence entrepreneurial orientation, which in turn affects a number of innovation outcomes.

In differentiating family firms from nonfamily firms, family firms express heterogeneous characteristics that are unique (FRANK et al., 2011; MEMILI; DIBRELL, 2019). This singularity of family firms is conceptually defined as familiness (HABBERSHON; WILLIAMS, 1999; HABBERSHON; WILLIAMS; MACMILLAN, 2003). The concept of familiness can provide an adequate framework for explaining innovation in the family business (RÖD, 2016), as it may affect the family firm's innovation efforts (CARNES; IRELAND, 2013). The family role and especially the duality between business and family contribute to the alignment of strategies, including the business' innovativeness (WEISMEIER-SAMMER, 2014).

However, innovation in family business presents a research gap preventing a better understanding of the innovative behavior of these companies, especially innovation's contribution to the company, from the interaction between family and business (WEISMEIER-SAMMER, 2014). While some studies point out that family-owned enterprises stimulate innovation (DE MASSIS; FRATTINI; LICHTENTHALER, 2012), others demonstrate that family factors based on the family system affect the various stages of the company's innovation process (Röd, 2016). These results suggest that family businesses and nonfamily businesses differ in relation to the elements of innovation, particularly in regard to unique and distinct behaviors, with resources and capacities that family companies present, due to family involvement (PADILLA-MELÉNDEZ; DIEGUEZ-SOTO; GARRIDO-MORENO, 2015).

Evidence indicates that family businesses are heterogeneous (D'ANGELO; MAJOCCHI; BUCK, 2016), and familiness may contribute to explain how family businesses adopt innovative behavior. Thus, given the association between familiness and innovation, we extend the conceptualization of familiness to understand its effects on innovation in family businesses, and to more precisely understand how the involvement of family affects the family firm's innovation behavior. In this literature review, the authors organize a wide selection of studies to evaluate the state of the art of innovation in family businesses.

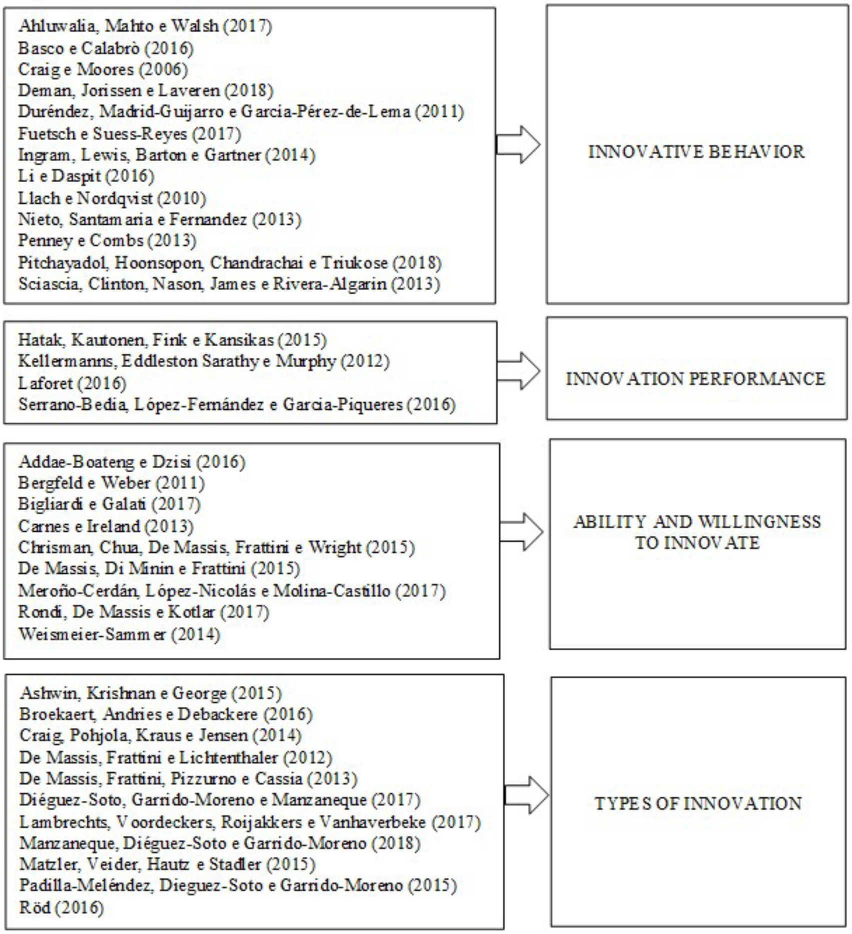
The study contributes to the literature on the topic explored in several ways. First, it contributes to the literature on innovation in family businesses and, in particular, how family involvement is related to the process of innovating in family businesses (PADILLA-MELÉNDEZ; DIEGUEZ-SOTO; GARRIDO-MORENO, 2015). We understand that family involvement may increase and restrict the components of the capacity for innovation and these effects may imply a competitive advantage of the family business. The family effect aims to contribute with family business research, providing an insight into the role of familiness in the pursuit of achieving innovation results. Second, the effects of family involvement demonstrate the heterogeneity among family businesses and offer insights into how these companies manage and are capable of maximizing or minimizing the effects of such involvement on company innovation. The third contribution is in the development of this review. Literature reviews enable a review of methodological issues, summarize existing knowledge, and provide recommendations on the researched topic (AGUINIS; RAMANI; ALABDULJADER, 2020).

The present review provides a systematization of studies on the topic of innovation in family businesses published in international journals of academic relevance, given that systematization allows us to recognize the existing knowledge on the subject (PARÉ et al., 2015). Thus, the main objective of this study is systematize, analyze and categorize the results of studies on innovation in family business. It provides insights into research in this field, revealing existing studies on the subject, and contributing to a better understanding of the process of innovation in family businesses (Dieleman, 2019) to the literature. At the end of this review, we present a structure of topics related to innovation based on family involvement (Figure 1), derived from the categorization and analysis of the reviewed studies, which highlights practical implications to new insights for future research on the subject study.

2. Methodological procedures

This study consists of a review of the literature, which adopts a systematic and transparent process as suggested by Kunisch et al. (2018). The planning and conducting phase (Table 1) of this literature review is built upon an established research objective. As previously

FIGURE 1
Topics related to innovation in family business.



Source: Own elaboration.

TABLE 1
Stages of literature review employed

Filter	Description
Stage 1	Formulation of the research question and aims
Stage 2	Definition of databases, search criteria and sources
Stage 3	Mapping classification and categorization of topics
Stage 4	Reading of studies on the subject
Stage 5	Summary discussion and analysis of classified studies

Source: Own elaboration.

mentioned, this research aims to systematize, analyze and categorize the results of studies on innovation in family businesses, considering the involvement of the family. Thus, the adopted technique allows the identification of standards of this topic's research field, contributing with relevant reflections for future investigations.

2.1 Step 1 - Database selection and search terms

Regarding data collection, queries were made on the Scopus, Web of Science and Science Direct databases. In these databases, one may find articles with titles, keywords and/or abstracts containing at least one of the search terms from (CALABRÒ et al., 2019), by linking the strings with the booleans operators (or - and). We use search terms such as family firm*", family business*", familiness*", family corporation*", family enterprise*", family control*", innov*. The use of characters * (asterisk) and " (double quotes) delimit the search of the terms in a more precise and objective way.

2.2 Step 2 - Scope of review

After defining the objective of the research, we carried out a general review of the literature to investigate the existing knowledge about innovation in family businesses (PARÉ et al., 2015). In this process, we identified a wide set of 904 articles with representative characteristics, but not necessarily comprehensive on the topic (AGUINIS; RAMANI; ALABDULJADER, 2020). As a definition of the research criteria, we limited the research to articles published in academic journals with peer review in English, omitting books, book chapters, event articles and other publications. The review is restricted to peer-reviewed articles written in English, due to the fact that peer-reviewed journals articles are regarded for the recognition of its scientific knowledge, and also, for the possibility of having a higher impact in the field of knowledge (CHRISTOFI; LEONIDOU;

VRONTIS, 2017; KEUPP; PALMIÉ; GASSMANN, 2012). For this review, we considered empirical and theoretical studies, published and in press, with the interest of explaining all aspects related to the research theme that is being published. The period considered in this review was from January 1, 1990, to December 31, 2019, including articles in press. This time frame demonstrates that studies involving the theme of innovation in family businesses have been evolving since the 1990s. Afterwards, we proceeded with the refinement of the research using the category of articles published in business studies, management and accounting, economics, and business finance, since these as areas of study are directed to the field of research in management. This second survey resulted in 602 articles.

2.3 Step 3 - Selection of articles

In this step, researchers applied the inclusion and exclusion criteria, with articles that referenced the theme in the title, keywords and abstract (CALABRÒ et al., 2019), in order to perform the second screening. After debugging, 176 duplicate articles and 312 articles that were in fact used to refer to innovation as a general concept or methodology rather than their full use were excluded, which is rather common in the first round of a systematic literature review search (BAKKER, 2010; DINH; CALABRÒ, 2019). This screening was only possible after reading the summary of these articles. Subsequently cleaning the articles, the sample was reduced to 114 titles, for further analysis. In the second screening, we read the introduction of the selected articles. At the end of this step, after a comprehensive evaluation of the objectives of each study, 77 articles that we considered as non-relevant for family research in those publications were excluded, resulting in a final sample of 37 articles, which we synthesized, analyzed and used to structure the review. The inclusion and exclusion criteria can be identified in Table 2.

TABLE 2
Research inclusion and exclusion criteria

Criterion	Inclusion Criteria	Exclusion Criteria	Number of articles remaining
Central focus	Addressing the theme of innovation in family businesses in the title, keywords and/or abstract.	Referring to innovation or family businesses in a generic way, involving another topic or area of knowledge.	312 articles
Theoretical framework	Presenting different typologies or concepts of innovation applied in family businesses.	Not directly addressing the issue of innovation in family businesses.	312 articles
Document access	Having access to the entire document file. Being written in English, Portuguese or Spanish.	Not having access to the work, or not being written in English, Portuguese or Spanish.	232 articles
Unit of analysis	Family businesses from different market segments, including small, medium and large companies.	Studies focusing on other types of nonfamily companies.	114 articles
Quality	Reading of the introduction with evaluation of the objectives of each study, focusing on the theme of innovation in family businesses.	Studies in which the objectives were not clear regarding the researched topic.	37 articles

Source: Own elaboration.

2.4 Step 4 - Categorization and systematization of the articles

Based on research in the databases and the selection of articles, we proceeded with the categorization and systematization of the articles classified for review. The data synthesis configures the production of knowledge aggregating value for a review, resulting from the data collection and the detailed analysis performed (PADILLA-MELÉNDEZ; DIEGUEZ-SOTO; GARRIDO-MORENO, 2015). The process used for the categorization of articles was content analysis. We used a qualitative approach to analyze the topics presented in each article. We followed an inductive process to identify the central topics of the article that were coded in this review (AGUINIS; RAMANI; ALABDULJADER, 2020). The content of each article was examined to identify the main themes related to family involvement in family business innovation. After categorization, the articles were inductively organized into four groups according to their similarities or thematic differences (FRANK et al., 2011; PARÉ et al., 2015). In this step, we read the articles in full, and at the end of the reading, they were categorized as some topics that related family involvement to innovation. This coding was performed in an Excel® spreadsheet, and the summary of the results is shown in Figure 1.

2.5 Step 5 - Assessment and synthesis of data

An analysis of the studies on innovation in family businesses that emerged from our review of the literature leads to the identification of several recurrent topics. In Figure 1, we propose a framework to organize extant research on innovation in family businesses. The content analysis made it possible to divide the contents according to the main concepts of the articles, and to elaborate a table with the most relevant information extracted from the sections of each article. This coding followed the central theme discussed in each study, grouping them according to this theme. This grouping allows classifying the revised articles into five categories that demonstrate the main topics, which are: innovative behavior, capacity and willingness to innovate, innovation performance, technological innovation and types of innovation. The categories show the central and similar aspects of the studies. In order to perform this analysis, the problem, objectives, and main results presented in each study were evaluated.

2.6 Step 6 - Reporting the findings

Finally, the content analysis of the texts provided a systematized view of the literature in its current stage of research, on the topics listed in the present review. It is worth noting that the method used for classifying the articles was based on the contributions of authors such as Casillas and Acedo (2007), Debicki et al. (2009), Frank et al. (2011) and Benavides-Velasco, Quintana-Garcia and Guzmán-Parra (2013). In this step, a final document was elaborated, which resulted in this article of literature review, aiming to present the main results and conclusions on family involvement and innovation in family businesses. Figure 1 shows the structure of the research studies categorization that originated the final set of this article.

3. Results

Considering the methodological procedures presented, 37 scientific articles were identified and distributed among the journals listed in Table 3.

The selected articles were published in 24 different journals from 2006 to 2018, with most articles (31) emerging from 2013 on. The publications were evenly distributed among the journals during the period, and we perceived a proportional increasing number of articles since 2010. Most of the studies used quantitative methodologies (Table 4), and the companies studied are distributed in geographical contexts such as Europe, and countries such as the USA, Chile, India and Ghana. The studies still reveal a small number of qualitative studies (only 7 in this review) on innovation in family businesses, as the issue is not yet addressed in the contexts of countries in South America, Asia and Africa.

In the studies classified in this review, the definition of family businesses most frequently adopted is based on family involvement regarding ownership, management and control (ASTRACHAN; KLEIN; SMYRNIOS, 2002), considering: the property as the majority share in family business; the management as the number of family members present in high positions, such as managers; and the governance as the number of family members actively participating in the company's

TABLE 3
Article Sources Magazines

Journal	Total Articles	Year of Publication
Journal of Small Business Management	4	2013-2017-2018
Entrepreneurship Theory and Practice	3	2013-2014
Journal of Family Business Strategy	3	2016-2017
Family Business Review	2	2006-2012
Innovation Management Policy and Practice	2	2016-2018
International Journal of Entrepreneurial Venturing	2	2010-2014
Journal of Family Business Management	2	2016-2017
Journal of Product Innovation Management	2	2015
Small Business Economics	2	2012-2016
Academia Revista Lationamericana de Administracion	1	2016
Asia Pacifica Journal of Management	1	2015
California Management Review	1	2015
Creativity and Innovation Management	1	2014
Economics of Innovation and new Technology	1	2017
European Journal of Innovation Management	1	2017
Family Relations	1	2013
Innovar - Revista de Ciencias Administrativas Sociales	1	2011
International Journal of Entrepreneurship and Innovation Management	1	2011
International Journal of Innovation Science	1	2015
Journal of Small Business and Enterprise Development	1	2016
Management Decisions	1	2018
Organizational Dynamics	1	2017
RBGN-Revista Brasileira de Gestão de Negócios	1	2015
Technological Forecasting and Social Change	1	2015
Total	**37**	

Source: Own elaboration.

board of directors. However, some studies (CARNES; IRELAND, 2013; CHRISMAN et al., 2015; RÖD, 2016) argue that family involvement stems from either idiosyncratic and heterogeneous characteristic (HABBERSHON; WILLIAMS, 1999; MEMILI; DIBRELL, 2019) objectives, governance, culture, or interactions between family and business, influencing company outcomes such as innovation (CARNES; IRELAND, 2013).

TABLE 4
Selected articles for review

Author (s) – Year	Main results	Method
Addae-Boateng and Dzisi (2016)	The results show that the innovative capacity of family businesses can be boosted by the listed factors such as: financial resources, skilled labor and organizational culture.	qualitative
Ahluwalia, Mahto and Walsh (2017)	The results indicate that family businesses are more likely than nonfamily businesses to invest in innovation. The study results suggest that family employees are a key element of innovation in companies.	quantitative
Ashwin, Krishnan and George (2015)	The results show that family members with greater ownership and control can promote a greater level of these investments, and also facilitate access to foreign technology, complementary resources, and technical talent.	quantitative
Basco and Calabrò (2016)	The results reveal that small family businesses do not differ from nonfamily businesses in their internal innovation activities to develop or create new products, services, and/or processes.	quantitative
Bergfeld and Weber (2011)	The results of the study show that the family businesses analyzed have a high innovation orientation. Family involvement focuses on maintaining long-term innovation capability in front of the incremental innovation challenges of everyday business.	qualitative
Bigliardi and Galati (2018)	The review show that the dichotomy between ability and willingness is due to the involvement of the family in the dimensions of governance. The characteristics of family businesses are described by the company's ability to manage and willingness to participate in collaborative innovation projects.	literature revision
Broekaert, Andries and Debackere (2016)	The results confirm that family businesses invest less in R&D activities, and the long-term orientation of families can stimulate these activities. The focus of the family business is on creating value for the family, family harmony, and business continuity, and risk aversion reduces investments for innovation.	quantitative
Carnes and Ireland (2013)	The review that through the resource aggregation sub-processes, it is possible to identify that family resources, familiness, and differentially influence innovation because of organizational activities.	literature revision
Chrisman et al. (2015)	The literature-based review presents a framework for how family involvement influences innovation management based on capacity (discretion to act) and willingness (willingness to act), which distinguish family businesses from nonfamily businesses and lead to heterogeneity family businesses.	literature revision
Craig and Moores (2006)	The results indicate that innovation is related to the life stage of companies, and the levels of innovation are related to the life stage of companies. Family firms may be better able to change their information acquisition behaviors in response to changes in the environment or in relation to innovative strategies.	quantitative
Craig et al. (2014)	The results show that risk-taking does not affect the production of innovation in family businesses, while in nonfamily businesses, the production of innovation is increased through risk-taking. Furthermore, proactive family firms influence their innovation output more positively than proactive nonfamily firms.	quantitative
De Massis, Di Minin and Frattini (2015)	The review presents a model an adjustment between the dimension of the heterogeneity of the characteristics of family businesses (where the company wants to go, how the company can reach its final objective, and what it takes to reach this objective) with the heterogeneity of innovation decisions (where to look for resources and knowledge to innovate, the innovation strategy to invest, be it products, services, processes, and how you are willing to invest).	literature revision

Source: Own elaboration.

TABLE 4
Continued...

Author (s) – Year	Main results	Method
De Massis, Frattini and Lichtenthaler (2012)	The review study shows that family involvement has direct effects on innovation inputs, activities, and outcomes. It also presents theories applied in family business research to discuss opportunities to extend technological innovation structures considering family involvement.	literature revision
De Massis, Kotlar and Cassia (2013)	The analysis shows that family businesses differ from nonfamily businesses about product innovation strategies and the organization of the innovation process.	qualitative
Deman, Jorissen and Laveren (2018)	The results reveal that family-controlled companies are less innovative than nonfamily-controlled companies. However, companies where the board of directors performs control tasks are more prone to innovation. Family businesses with a low percentage of family directors are more likely to adopt innovative attitudes and behaviors.	quantitative
Diéguez-Soto, Garrido-Moreno and Manzaneque (2018)	The results show that family management increases the rate of conversion of innovation inputs into process innovation results. There is also evidence of the existence of a non-linear relationship between the mix of innovation inputs and process innovation, indicating that there are both a minimum and a maximum level in the efficient use of resources in process innovation.	quantitative
Duréndez, Madrid-Guijarro and García-Pérez-de-Lema (2011)	The results confirm the existence of cultural differences between family and nonfamily businesses. Family businesses have their own values and cultural beliefs higher than nonfamily businesses.	quantitative
Fuetsch and Suess-Reyes (2017)	The results of the review show that the dominant theme investigated in the articles reviewed approach innovation and its relationship with the components of family involvement, and unanimously show the importance of innovation for strengthening business performance. When considering innovation in family businesses over different life cycles, it appears that innovation declines with the age of the business, interrupted by innovative impulses followed by generational changes. Thus, family business succession constitutes a window of opportunity for innovation.	literature revision
Hatak et al. (2016)	The results show that the ability to develop and launch product innovations (innovativeness) contributes positively to the performance of the family business. This implies that owner families must avoid their level of commitment stabilizing between high and low if they want to convert their company's innovation into performance.	Quantitative
Ingram et al. (2016)	Studies emphasize that family businesses are inherently paradoxical and that tensions such as tradition versus change, family liquidity versus business growth, and founder control versus successor autonomy can both inhibit and foster innovation. Study results indicate that paradoxical tensions can impede innovative behavior, but that leaders' paradoxical thinking is positively related to innovative behavior.	Quantitative
Kellermanns et al. (2012)	The results indicate that the more concentrated the ownership in relation to its generations, the greater the innovation, and in turn, the greater the innovation in family businesses, the greater the performance.	Quantitative
Laforet (2016)	The results show that an externally oriented, flexible, proactive, and long-term oriented entrepreneurial culture leads to the high performance of organizational innovation in family businesses. Whereas an internally focused culture, such as the founding culture, impedes innovation.	Quantitative

Source: Own elaboration.

TABLE 4
Continued...

Author (s) – Year	Main results	Method
Lambrechts et al. (2017)	The results reveal that family entrepreneurs can use different mechanisms to face the challenges between the conflicting objectives in the family business and in the family system. The first mechanism is related to the congruence of goals and the shared vision of open innovation within the family. The second mechanism refers to the search for an effective open innovation strategy to ensure the continuity of the family business. And the third mechanism involves the leadership conduct with its partner's external knowledge, minimizing the possibility of losing control over the goals and strategic trajectory, and maintaining control of the family business.	Qualitative
Li and Daspit (2016)	The present review identified that the family business' risk orientation, the innovation goal, and the diversity of knowledge vary depending on the degree of family involvement in governance and objectives.	literature revision
Llach and Nordqvist (2010)	The results show that family businesses are more innovative than nonfamily businesses, as cooperation is greater than in nonfamily businesses, which is a strong point that can support innovation.	Quantitative
Manzaneque, Diéguez-Soto and Garrido-Moreno (2018)	The results indicate that family-run companies decide to invest less in order to preserve the socioemotional wealth of the family. Family management also raises the possibility that innovation decisions may be based on altruism and nepotism hindering innovation outcomes.	Quantitative
Matzler et al. (2015)	The results show that family participation in management and governance has a negative impact on innovation inputs and a positive influence on innovation output, so family members are risk-averse and reluctant to invest in innovation, but when they do, the result is more effective.	Quantitative
Meroño-Cerdán, López-Nicoláz and Molina-Castillo (2017)	The results confirm that family involvement does not alter the relationship between risk aversion and business performance. However, they confirm that risk aversion contributes to performance indirectly through increased innovation, suggesting that family firms' ability to innovate is related to long-term performance.	Quantitative
Nieto, Santamaria and Fernandez (2015)	The results show that family businesses make less effort towards innovation, and resort less to external sources of innovation such as technological collaboration. They also suggest that family firms are more likely to carry out incremental innovations than radical innovations.	Quantitative
Padilla-Meléndez, Dieguez-Soto and Garrido-Moreno (2015)	The review first identifies the influence of family involvement in leadership. Second, it identifies that organizational, contextual factors, leadership intentions, and organizational outcomes are vital to enabling innovation. Third, it identifies the business processes of organizations. Fourth, it analyzes how business innovation is affected by the characteristics of the company's sector, and fifth, it identifies studies of innovation as a scarce process.	literature revision
Penney and Combs (2013)	The literature identifies a complex model of family structure and innovation through three elements: cohesion (refers to the emotional attachment of family members), flexibility (the ability of family members to assume different roles), and communication (a positive element).	literature revision
Pitchayadol et al. (2018)	The results of the study confirm that power, experience, and culture accelerate innovation in small family businesses, showing that the role of the family in innovation can bring competitive advantage and success to these companies.	Qualitative

Source: Own elaboration.

TABLE 4
Continued...

Author (s) – Year	Main results	Method
Röd (2016)	The review proposes a conceptual framework to provide a holistic view of the innovation process including the family system as an important variable. The framework demonstrates how family factors affect the various stages of the innovation process in the family business. Family business innovation behavior depends on contextual factors such as risk performance, type of family involvement, and generational effects.	literature revision
Rondi, De Massis and Kotlar (2019)	The review develops a typology of four innovation postures in the family business according to levels of risk propensity and attachment to tradition. Family businesses can adopt four different orientations to stimulate innovation: Seasoner, Re-enactor, Digger, and Adventurer.	literature revision
Sciascia et al. (2013)	The study based on the literature review presents a model of the relationship between family communication guidelines and innovation, creating six family communication patterns in business as antecedents for innovation in family businesses.	literature revision
Serrano-Bedia, López-Fernández and Garcia-Piqueres (2016)	The results indicate that the CEO mandate, strategic orientation, and innovation-decision present an important relationship in Spanish family businesses. They also confirm that risk-taking, cost of innovation, lack of qualified personnel, and customer indifference have a negative relationship with the innovation-decision in these companies.	Quantitative
Weismeier-Sammer (2014)	The study shows that familiness has an impact on the business system. The family system plays a vital role in the business' ability to innovate, develops new ideas, and invests in their development. Innovation is passed on to succeeding generations as a principle. The values and structure of the family are aligned with innovation and result from the history of the business.	Qualitative

Source: Own elaboration.

The understanding of how family involvement on the dimensions of innovation happens in family business relationships is still limited (PADILLA-MELÉNDEZ; DIEGUEZ-SOTO; GARRIDO-MORENO, 2015). The different intentions and motivations of the family may influence the management behavior of the company, resulting in a greater or lesser tendency to innovate (Röd, 2016). Thus, familiness, as an exclusive resource of the family business, may affect efforts to innovate; however, this result depends on how companies manage their innovation capacity, turning those characteristics into potential resources that benefit innovation projects (CARNES; IRELAND, 2013). Therefore, the tendency of family businesses to innovate depends not only on the family ownership but also on the level of involvement in governance and the variety of economic and noneconomic objectives leading, or not, to innovative behavior (CHRISMAN et al., 2015).

In an attempt to better understand innovation in family businesses, we present a structure of the main topics related to innovation, following a logical description of categorization of the studies analyzed (Figure 1).

3.1 Innovative behavior in family business

Innovative behavior is a complex issue that implies the survival of companies. In addition, understanding the dimensions of this behavior may determine the effects and implications of company performance (LLACH; NORDQVIST, 2010). This behavior does not differ between family and nonfamily businesses; however, family businesses have their own cultural values and beliefs (DURÉNDEZ et al., 2011), which are distinctive capacities, difficult to imitate, and are identified as familiness (HABBERSHON; WILLIAMS, 1999). Thus, they use their own strategic resources (LLACH; NORDQVIST, 2010) that foster the development of an innovative culture, which allows sustainable competitive advantages to be achieved (DURÉNDEZ et al., 2011). Therefore, family experience is an essential competency in promoting a company's innovative behavior, and familiness encourages and supports management over innovation, enabling long-term success (PITCHAYADOL et al., 2018).

In order to meet long-term survival strategies and adapt to new conditions that arise, they tend to develop strategies for incremental innovations (FUETSCH; SUESS-REYES, 2017), thus preserving the family's socioemotional wealth (SEW), and at the same time remaining competitive (NIETO; SANTAMARIA; FERNANDEZ, 2015).

When considering innovation in family businesses throughout different life cycles, innovation tends to decline over the age of the business and is interrupted by the impulses of generational changes (FUETSCH; SUESS-REYES, 2017). Previous research has revealed that small businesses are more likely to invest in innovations, in different successive generations, than larger businesses (PITCHAYADOL et al., 2018). The results of these authors also show that the small family business tends to be more agile in its operational activities, and has very close relationships with its clients, which may help to quickly identify the needs of the client and contribute to innovative solutions. The environment of these companies also allows the elimination of barriers among suppliers, companies and employees, increasing the involvement of all with the business, awakening creativity and innovative solutions (PITCHAYADOL et al., 2018).

Hence, owners and managers can develop joint strategies supported by all parties involved in the business, as well as by family members involved in subsequent generations, to strengthen the business capacity for innovation (FUETSCH; SUESS-REYES, 2017), which promotes innovative behavior. Family business owners can also foster innovation by allocating resources to innovative long-term projects under careful monitoring of the associated risks (Kammerlander & Ganter, 2015). Management characteristics as a background to innovation may positively affect the level of innovation in a family business through the CEO's commitment to performing his or her task (DEMAN; JORISSEN; LAVEREN, 2018).

Family and nonfamily businesses have a constant need to innovate, and do not differ in how they seek innovation to remain competitive, what differs are their innovative research strategies, that is, their innovation behavior to develop or create new ideas, products, services and processes (BASCO; CALABRÒ, 2016). The open innovation studies in family businesses argue about the importance of preserving family's socioemotional wealth (SEW) (GÓMEZ-MEJÍA et al., 2007), that is, the family's welfare toward the business, a characteristic defined as unique in these companies (LAMBRECHTS et al., 2017). Business survival and continuity, and family's socioemotional wealth are influenced by the leader's decision-making, leading to a significant responsibility (BASCO; CALABRÒ, 2016) for business decisions, which affects the family due to the interaction of the two systems. Decisions on investment in innovation are included in these decisions. Therefore, leadership actions may moderate and influence the tensions generated by the divergence of opinions, values and objectives, intensifying the innovative behavior.

3.2 Performance-related innovation in family business

The involvement of the family in the performance may also be related to innovation performance, since the relationship between innovation and performance demonstrates that specific characteristics of family businesses and commitment of the family owner to the company play an important role in translating the impact of innovation on performance (HATAK et al., 2016). Initiative, creativity and exposure to risk are positively associated with corporate entrepreneurship (ZAHRA; HAYTON; SALVATO, 2004), creating a long-term organizational culture that benefits the ability to create and invest, contributing to innovation capacity and promoting performance.

The results of Laforet (2016) show that the externally oriented family organizational culture has a positive effect on the performance of family business innovation. This externally oriented organizational culture refers to the company's orientation to the market, adaptability, and interaction with the external environment. For family businesses, this interaction includes clients, competitors, suppliers, shareholders and nonfamily employees, promoting an open culture of the family business. The results of this study also demonstrate that the flexibility of organizational culture promotes teamwork, work practices, employee training and commitment, and use of technologies. These practices lead to a context of constant change, necessary for the company's development, and consequently, for the achievement of a higher performance.

3.3 Ability and willingness to innovate in family business

Differences in innovation behavior between family and nonfamily businesses may be explained by the capacity or willingness of businesses to innovate (BIGLIARDI; GALATI, 2018). Capacity is associated with the way the family direct, allocate, add, or dispose of a firm's resources" (DE MASSIS et al., 2014, p. 346). In order to minimize the paradox between the capacity and the disposition that the family business has to innovate, De Massis, Di Minin and Frattini (2015) developed a family-oriented innovation model called Family Driven Innovation. The model presents an adjustment between the heterogeneity of family business characteristics and the heterogeneity of innovation decisions.

The heterogeneous characteristics of companies are related to the disposition of family members involved with the business, to dispose and to lead resources and abilities in the use of these resources to reach the objectives that promote the innovation. The characteristics of innovation decisions refer to the search for resources and knowledge necessary for the company to invest in different types of innovation (products, services and processes) in a radical or in an incremental way. These adjustments contribute to unlocking the innovation potential to generate competitive advantage in the family business environment.

Capacity may be a necessary and sufficient condition, for most family businesses, to create value through innovation. Thus, the ability to manage successful family businesses implements unique characteristics that follow a more conservative behavior (MEROÑO-CERDÁN; LÓPEZ-NICOLÁZ; MOLINA-CASTILLO, 2017). In addition, long-term orientation contributes to the alignment of the family objectives with the business objectives, allowing the visualization of results' achievement while ensuring the continuity of the business.

Hence, the familiness can support innovative organizational attitudes, while informal and flexible structures of the family system may foster new ideas and innovation development, promoting the implementation of innovation in the business system, which, in turn, plays an important role in enhancing the innovation capacity of the business, and in aligning the values and norms of the family with the business (WEISMEIER-SAMMER, 2014).

3.4 Areas of innovation in family business

Organizational innovation can be delineated as a multi activity process, admitting innovation activities such as innovation input, and innovation output (LUMPKIN; STEIER; WRIGHT, 2011). According to the authors, the activities of innovation output consist of the forms and the magnitude of innovation. Forms of innovation are related to product, service, processes and business models, and the magnitude is related to radical and incremental innovation.

From an integrative structure of determinants and dimensions, Padilla-Meléndez, Dieguez-Soto and Garrido-Moreno (2015) organized the research of innovation in family businesses, including the dimensions of innovation as result and process. However, in the studies of Broekaert, Andries and Debackere (2016) results distinguish product and process innovation, considering that product innovations are often developed internally, it means, they depend on internal knowledge and capabilities, whereas process innovations rely heavily on external resources, such as shared supplier technology.

Radical and incremental innovation strategies are differentiated by the way innovation is presented to the market, representing a breakthrough for the (radical) market or an (incremental) improvement (BESSANT et al., 2005). The radical strategy entails greater risks, compromises resources and has a higher cost (DE MASSIS; KOTLAR; CASSIA, 2013); however, it offers significant and faster improvements.

The results of most empirical studies have argued that family businesses are more innovative in incremental innovations due to lower resource investments, greater labor force involvement, and less risk involvement (Röd, 2016). This behavior is also found in the development of product innovations, where family businesses are more easily involved in innovation processes for new products, new markets, and more informal, less structured and risk-averse incremental environments (DE MASSIS; KOTLAR; CASSIA, 2013).

The structure of ownership differentiates the activities of technological innovation and its results in companies controlled by families, which may generate a different rate of innovation (DIÉGUEZ-SOTO; GARRIDO-MORENO; MANZANEQUE, 2018). Family businesses use technological innovation to feed competitive advantage and overcome economic and financial crises (GUDMUNDSON; HARTMAN; TOWER, 1999), nevertheless, they may reduce their participation in collaborative projects so as not to jeopardize their social capital. However, access to external knowledge through collaborative innovation agreements may be useful for family businesses, preserving their social-emotional wealth when they have strong patent protection over proprietary technologies (DE MASSIS; KOTLAR; FRATTINI, 2013).

Family involvement represents a moderating role in the relationship between inputs and outputs of technological innovation (DE MASSIS; FRATTINI; LICHTENTHALER, 2012). Moreover, one way of minimizing the effect of family management on technological innovation might be by contracting and maintaining qualified professionals capable of using innovative risk reduction techniques, promoting relationships and networking with key stakeholders, while preserving family socioemotional wealth in important decisions (DIÉGUEZ-SOTO; GARRIDO-MORENO; MANZANEQUE, 2018).

Open innovation is also a strategy associated with external partners' collaboration, aiming at making technological innovations to share and integrate knowledge (LAMBRECHTS et al., 2017). The access to this new knowledge through external sources, called open innovation search strategies (LAURSEN; SALTER, 2006), plays an important role in the company's ability to innovate; in addition, for family businesses, this knowledge may be provided through networks with customers, suppliers, and competitors (LAMBRECHTS et al., 2017).

4. Discussion and contribution

As the review of previous research has shown, there are research gaps on innovation in family businesses. Our literature review identifies that most of the previous research has focused on whether or not family businesses innovate. However, the gaps may help to identify reasons that lead a family business to innovate or not. In Figure 1 we propose a categorization of these topics. These categories are not exclusive; however, to avoid duplication, we placed the articles in the category that represents the main focus of the study, according to the content analysis performed in pairs by the authors. In order to identify the main trends in the family business literature, we outlined some possible future research opportunities, as shown in Table 5.

Results have shown that the behavior of family businesses about innovation is crucial for the continuity of the business. Research carried out shows that it is important to consider that family businesses are

TABLE 5
Selected Opportunities for Future Research on Innovation in Family Businesses

Research Gaps (RG)	Potential Theoretical Foundations
RG1: What characteristics of family businesses increase the propensity to innovate?	Behavioral theory
RG2: To what extent does the application of family resources in the business promote innovation in family businesses, generating competitiveness?	Resource-based view
RG3: Are the different generations that succeed the business more likely to invest in innovations, or does the innovation process decline in the succession of family businesses?	Behavioral theory
RG4: As the management of the family business becomes professionalized, does the propensity for innovation projects increase?	Agency theory
RG5: Do the values and beliefs present in the family business influence the adoption of innovative behavior?	Socioemotional wealth theory
RG6: How does family involvement contribute to greater innovative performance in family businesses?	Behavioral theory
RG7: Does family business culture influence innovative performance in family businesses?	Socioemotional wealth theory
RG8: Investigating how the socioemotional wealth of the family may have an effect on the willingness of family businesses to invest in innovation projects.	Agency theory
RG9: How does family management interfere with investments in technological innovations in family businesses?	Agency theory

Source: Own elaboration.

not homogeneous organizations (LI; DASPIT, 2016). Moreover, one of their characteristics is having different resources from nonfamily businesses, once these resources and capabilities are associated with the family, and allow family members to interact with the business system in a quick, flexible, and unstructured way, using decision assumptions that best meet the rapid return on family business needs. These assumptions are associated with the application of strategic and intangible resources, which often come from the family, whether financial or not, promoting company competition and supporting innovation. This behavior, developed by the family business' ability to apply and manage specific resources, fosters the development of innovative behavior, which is encouraged by the commitment of family managers or owners to the continuity of the business and by ensuring the company's image and reputation, consequently contributing to the performance of the business, and generating positive financial results.

Recognizing heterogeneity, comparisons between family businesses or nonfamily businesses may lead to different interpretations of these businesses behavior when innovating. Family businesses may invest less in innovation, as risk aversion makes their owners more parsimonious about investments in innovation. Innovation in family businesses usually happens after the certainty that the resources used are accurate and efficient, guaranteeing their capital. A family business' ability to engage in innovation is affected by family factors and characteristics that may contribute or limit the willingness of its owners to engage in new projects. Therefore, by encouraging future research that takes into account heterogeneity factors, it allows a better understanding of how differences in family business characteristics such as size, generation, degree of involvement of family members in management and governance, may affect innovative behavior.

Another innovation-related topic that the results have shown is associated with innovative performance. Innovative performance reflects the accumulated results of activities promoted by the company in the innovation of services and products (LONIAL; CARTER, 2015). Innovation stems from the application of the strategic resources available for the development of new products and services. Thus, when developing new products and promoting new services, companies seek to improve their performance. However, when the family is committed, reliability and ability of quickly responding are created, resulting in activities that stimulate innovation (HATAK et al., 2016). Therefore, the impact of innovation on performance is stronger when family commitment is higher.

Family involvement may directly affect the development of new products and services, as well as other company responses, affecting the company's competitive advantage (DE MASSIS; FRATTINI; LICHTENTHALER, 2012), and in turn, its performance. The factors of this involvement are also associated with the culture of the family business. Family members make strategic decisions regarding the company's business. These decisions are based on specific values and characteristics, as well as the commitment of the business owner or founder. Therefore, family business culture may directly influence innovative performance. It is also worth noting that the cultural differences of companies are also associated with their region or countries, as in the case of open innovation, study developed in Chile by Basco and Calabrò (2016). Thus, different world cultural perspectives may present differences in the behavior of family businesses in relation to innovation, among different regions of the world. Exploring these differences may also provide a research opportunity to a better understanding of innovative performance among family businesses.

A third topic identified in the review is the company's ability and willingness to innovate. Innovation research has investigated which factors affect the willingness or ability of companies to develop innovation (DE MASSIS; DI MININ; FRATTINI, 2015). These concepts address the differences in behavior and performance between family and nonfamily businesses, but also among family businesses itself (BIGLIARDI; GALATI, 2018) in relation to innovation. Capacity is associated with the action of allocating, adding or disposing of company resources to innovation projects, while willingness involves the will or motivations of family owners to get involved in innovation projects (DE

MASSIS et al., 2014). This dichotomy is also related to the involvement of a family by the company's ability to manage and the willingness to participate in innovation projects. Understanding the main factors that affect the ability and willingness of the family business to engage in innovation projects such as generations, presence of family managers, education level of CEOs, diversity of the management team, availability of resources and capabilities in the company, available capital, might be an interesting opportunity for future research.

To the extent that family businesses differ in their willingness and ability to engage in innovation projects, the survey results also demonstrate that innovation may vary in its form and magnitude (LUMPKIN et al., 2011). The fourth topic presented in the categorization of this study refers to the different types of innovation to which the family business is more likely to be involved with. The characteristics of these studies demonstrate that technological innovation, for example, is different in family and nonfamily businesses, while the collaborative approach may be an option for the company to expose its social capital to third parties.

The ownership structure implies different results in companies controlled by family management. The more flexible and the less formal the approach of family businesses is, the more it facilitates an incremental innovation approach, with greater control over the use of resources, especially financial ones, with less propensity to be exposed to major risks, and a greater level of autonomy and decision to manage the project. However, the innovation process, especially in smaller companies, depends on external sources of knowledge and technologies. By engaging at a lower level in collaborative innovations, the family business ends up lacking networks and relationships that contribute to generating new knowledge. These partnerships with customers, employees or suppliers enable innovation in creating new products and technologies for new business solutions.

Hence, it is understood that innovation in family businesses happens incrementally, using external resources in collaboration with its network of close relationships, and without the presence of major innovations in products or technology, which might compromise on a higher level due to the cost of these innovations and the return in the long-term.

5. Concluding remarks

Building on our review and systematization of prior literature, we identified research gaps raising opportunities for future research. We provided suggestions to guide future research about the impact of family involvement on innovation. Innovation studies need to consider family involvement as a variable in their research to explain behaviors, processes, and performance in organizations (DYER JUNIOR; DYER, 2009). Family involvement creates a unique set of hard-to-duplicate capabilities and capabilities that enable family members to interact with the business system in a quick, flexible and unstructured way, which contributes to rapid response to family business needs. These assumptions are associated with the application of strategic resources that promote and support innovation.

Based on the review we can argue that familiness encourages innovative behavior through the family's capacity and disposition in long-term investments, which strengthens the company's competitive advantage for its higher performance. The results also allow us to argue that innovation is still a broad topic in the family business literature, since it does not clearly state how innovation is present in these companies at a higher level of development. This can be justified by the involvement of the family in the business, due to different characteristics and heterogeneous ways of managing the family business. However, there is a greater propensity of family-owned businesses to engage in continuous innovations, which provide an adjustment between economic objectives, but at the same time, does not disregard the particularities of the family present in the business. Another aspect of the review shows that family businesses use external resources to improve their knowledge in search of new ideas for the business, but in a limited way, using, in particular, the relationships with customers, suppliers and partners, thus not compromising their differentiated resources.

Concerning practical contributions, this article shows that family business managers must recognize the important potential of innovation to ensure the competitive advantage of the family business throughout generations. Managers must consider the idiosyncratic characteristics of the family business and adjust their innovation management practices to meet these characteristics.

The categorization of the studies analysis in this review points to four topics related to innovation in family businesses. These topics can be investigated in the context of family businesses, from the perspective of familiness appeal. The results of the review demonstrate that the paradox between willingness and ability to innovate (DE MASSIS; DI MININ; FRATTINI, 2015) is an impacting factor in a family business. From this perspective, familiness may play an important role in strengthening the ability to innovate business by aligning family values and norms with business (WEISMEIER-SAMMER, 2014), and by contributing to the innovative behavior of these companies.

The advance of the theory is complemented by empirical tests, capable of measuring, analyzing and better understanding the practical action of companies. Future studies of different methodological approaches may offer new insights for the understanding of the topic, use of other databases and selection criteria different from those used in this research, contributing to new information on innovation related to different aspects of family businesses capacity and arrangement to innovate. Approaches based on qualitative and quantitative research can help track and explore the propositions and variables that identify and categorize the innovation in the family business. As well, quantitative approaches can measure and capture the effects of this influence, and qualitative approaches can explore the peculiarities of these influences.

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