



Servitization through open service innovation in family firms: Exploring the ability-willingness paradox

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ABSTRACT

Services constitute strategic components of firms' value proposition, specifically for manufacturing firms currently called to servitize their products to develop product-service systems. In order to develop new services, they need to acquire, assimilate, transform and exploit external knowledge, thereby partnering with external stakeholders, a strategy labelled *open service innovation*. Yet research on innovation management in general and open innovation in particular has mostly focused on product innovation, leaving this area of research scantily understood. This is particularly true for manufacturing firms involving a family in the business, namely family manufacturing firms, acknowledged for adopting distinctive innovation behavior. With the intention of addressing this gap, we conceptually investigate open service innovation in family manufacturing firms by embracing a relational perspective. In so doing, we identify drivers and contingencies of family manufacturing firms' innovation behavior that might trap them in their own net(work) and suggest managerial solutions to escape from such trap.

1. Introduction

Services contributes the vast majority of the advanced economies' GDP and allow manufacturing firms to develop long-term customers engagement, thereby increasing their revenues (Rigtering, Kraus, Eggers, & Jensen, 2014; Vargo & Lusch, 2008). Innovating services is a "sustainable way to grow a business and fight off pressure that companies are facing with the commodization of products" (Chesbrough, 2011, p.13). Therefore, services represent the booster of firms' growth and service innovation a key driver of economic development (Barrett, Davidson, Prabhu, & Vargo, 2015; Kraus, 2013). As such, services are no longer the remit of specialist providers but are increasingly integrated in the business model of traditionally manufacturing firms (Mina, Bascavusoglu-Moreau, & Hughes, 2014). The complexity of intra- and inter-organizational value networks, intertwining products and services into the so-called *product-service system* (Neely, 2008), requires professional value co-creation within and outside the firm under the paradigm of open innovation, a strategy labelled *open service innovation* (Chesbrough, 2011).

This is also true for family firms – the most ubiquitous form of

business organization in any world economy – whose relationships with external stakeholders and the ability to engage with customers are recognized as key sources of competitive advantage (Arregle, Hitt, Sirmon, & Very, 2007; Dunn, 1996; Ireland, Hitt, & Vaidyanath, 2002; Miller & Le Breton-Miller, 2005), even though not always captured in their revenue models. Yet, most of research on family firm innovation has focused on product innovation (Calabrò et al., 2019; Casado-Belmonte, Capobianco-Urriarte, Martínez-Alonso, & Martínez-Romero, 2021), and we know very little about service innovation in general and *servitization* – i.e., the business model transition from products to bundles of product and service (product-service systems) transforming a product-oriented manufacturing firm toward a service-oriented one (Clauss, Kesting, Naskrent, & Management, 2019; Clauß, Laudien, & Daxböck, 2014; Kastalli & Van Looy, 2013). This is surprising since stakeholders are of enormous value for family firms (Miller & Le Breton-Miller, 2005), and their sustainability over the long run strongly depends on their ability to engage with them in long-term relationships (Arregle et al., 2007; Le Breton-Miller & Miller, 2016). In order to develop innovative services, family manufacturers need to rely on external knowledge and competences (Brinkerink, 2018), an endeavor

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that might compromise their socioemotional wealth (Filsler, De Massis, Gast, Kraus, & Niemand, 2018; Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007) and might be at odds with family noneconomic goals (Kotlar & De Massis, 2013). Indeed, scholars have found that family firms are characterized by an “ability-willingness paradox” of innovation (Chrisman, Chua, De Massis, Frattini, & Wright, 2015) meaning that for a number of reasons they are more able to innovate, but less willing to do so due to the fear of compromising the affective endowment that the family nurture toward the business¹. But is this true also for open service innovation in family manufacturing firms?

In this paper, we conceptually address this research question by embracing a relational perspective of collaborative innovation (Feranita, Kotlar, & De Massis, 2017) that considers the social network as a driver of family manufacturing firms behavior in *open service innovation*. By building three propositions on the distinctive behavior of family manufacturing firms in terms of open service innovation, we disclose how the specificity of service innovation spurs a different behavior of family firms in relation to the investigated *open product innovation* (e.g., Lambrechts, Voordeckers, Roijakkers, & Vanhaverbeke, 2017), leading them to be more willing to rely on external knowledge and partners to innovate, especially under challenging circumstances of urgency. However, their willingness is contingent on the reliance on close networks of relationships, since by co-creating service innovation with partners in their close networks they can leverage shared languages and frames necessary in circumstances of urgency, which compromise the degree of newness of knowledge and information accessed. Therefore, under challenging circumstances family manufacturing firms suffer from a different configuration of the ability-willingness paradox, as being more willing to openness yet less able to do so as trapped in their own close social network. Through our conceptual development, we offer important implications to family business innovation, service innovation and open innovation research, and trace directions for future research in this currently overlooked but prominent phenomenon.

2. Open service innovation

As postulated by Vargo and Lusch (2008), “all economies are service economies” (p. 7). Due to the central role that service and servitization play in current economies, as focal in the value proposition and creation, the dearth of research on the topic of service innovation is a deafening silence (Keupp, Palmié, & Gassmann, 2012). The vast majority of innovation research has focused on products (Page & Schirr, 2008), and has only recently started including services as innovation outcomes, without acknowledging their distinctive aspects. Service innovation is defined as the “rebundling of diverse resources that create novel resources that are beneficial (i.e., value experiencing) to some actors in a given context” (Lusch & Nambisan, 2015, p.161). Differently from products, services are intangible, inconsistent and inseparable in their production and use, requiring interaction with customers during service production and consumption (Sirilli & Evangelista, 1998; Storey, Canturaran, Papastathopoulou, & Hultink, 2016). These traits might motivate the reason why less research has been conducted on the topic as being less visible and observable in terms of research and development as well as prototyping and implementation.

¹ It is worth noting that Chrisman et al. (2015) mainly refer to ability as discretion to act, whereas here, drawing on De Massis et al. (2015) and De Massis, Frattini, Majocchi, and Piscitello (2018), we mainly refer to “ability as capability” or “ability as resources,” which refers to those capabilities that members of the involved family need or should use to allocate resources and competences as well as make effective and rapid decisions in the desired direction. Thus, we argue that, given a certain level of the ability as the discretion of the family to direct, allocate, or dispose of a firm’s resources, there will be differences in the behavior of family versus nonfamily firms as well as among family firms depending on the level of ability as capability.

Nevertheless, the separation between products and services is blurring, as products require services to develop and keep customer engagement, and services involve some form of product or tangible artifact to be delivered (Bryson, Daniels, & Warf, 2004). Coherently with this perspective, *servitization* strategies allow organizations to extend their offer by selling integrated products and services, also named product-service systems (Neely, 2008; Parida, Sjödin, Wincent, & Kohtamäki, 2014). Under the paradigm of servitization, the product-service system does not consist in the combination of product and service as component of the value delivery, but it is their integration that provides firms the opportunity to achieve superior market advantages and resist erosion by competitors (Bharadwaj, Varadarajan, & Fahy, 1993). Such goals can be pursued by fostering customer retention, customer loyalty, brand reputation and cost efficiency (Salunke, Weerawardena, & McColl-Kennedy, 2013). The reasons that trigger manufacturers to include services in their offer are manifold. First, firms can secure flows of revenues and higher profit margins by locking customers in long-term service agreements (Kohtamäki, Partanen, Parida, & Wincent, 2013). Second, customized combinations of product and service are less imitable (Gebauer & Fleisch, 2007). Third, services attract more sales for the product component (Kohtamäki et al., 2013). Therefore, the combination of product-service system allows firms to develop longer-term competitive advantage.

The transition from the traditional product offering to the provision of advanced services has triggered manufacturers to offer maintenance and after-sale services, vertically integrate to directly reach consumers, or operate products sold to their customers. Such servitization transition is challenging, as firms need to reconfigure their business models by developing service strategies, thereby realigning resources and capabilities (Huikkola, Kohtamäki, & Rabetino, 2016), developing channels to deliver the created value and defining novel pricing model that allow to capture such value. Interestingly, in a recent meta-analysis of antecedents of innovation, innovation strategy emerges as one of the most critical driver for service innovation, contrary to its limited relevance for product innovation (Storey et al., 2016). Moreover, service innovation is hard to protect and, unlike innovative products that might be covered by patents, it is usually easy, quick and cheap to imitate (Prajojo, 2006). Therefore, to maintain ahead of competitors, firms need to keep innovate their services and do it more radically than their product-oriented counterparts.

In the recent decades, service innovation has been rapidly developing through innovation and communication technologies and more in general digitalization (Yoo, Boland, Lyytinen, & Majchrzak, 2012). Digitalization offers new opportunities for firms servitization in the business ecosystem, fostering the collaboration and service interactions across firms and increasing the connectivity of actors (Sjödin, Parida, Kohtamäki, & Wincent, 2020). Indeed, by including technological tools in delivering services, firms can develop entirely new markets or categories of services by adopting industry 4.0 solutions as internet of things in their product-service systems (Gaiardelli et al., 2021), or smart product-service systems that combine the aim of satisfying customers with the goal of environmental sustainability (Zheng, Lin, Chen, & Xu, 2018). This trend has been labelled *digital servitization* – “the transformation in processes, capabilities, and offerings within industrial firms and their associate ecosystems to progressively create, deliver, and capture increased service value arising from a broad range of enabling digital technologies” (Sjödin et al., 2020, p.478).

However, servitization in general and digital servitization in particular are highly challenging for organizations because of the need for customer contacts to realize service design through co-creation as well as the pace of change and complexity of digital systems (Gebauer et al., 2020; Grönroos, 2011). Nowadays, servitization requires manufacturers to adopt open innovation strategy to transform their products into platforms that incorporate *outside in* (using external partners’ ideas in a firm’s own business) and *inside out* (allowing external partners to use a firm’s ideas in their businesses) knowledge and solutions. Indeed, in

order to accelerate the commercialization of innovation, firms increasingly open and span their boundaries to collaborate and exchange knowledge with external stakeholder possessing complementary assets and capabilities. This process is defined as open innovation (Chesbrough, 2003). According to the open innovation paradigms, organizational boundaries are permeable to inflows and outflows of knowledge co-created and distributed across the network of actors (Kraus et al., 2020b). With particular reference to service and servitization, Chesbrough (2011) introduced the label *open service innovation* and suggests four steps for its development: 1) think about the business as a service business, even if traditionally has been a manufacturing firm, 2) invite customers to co-create innovation, 3) use open innovation logics to turn the business into a platform and accelerate service innovation through the integration of internal and external competences, capabilities and solutions, and 4) transform the business model by delivering and captured the value created through the platform.

Since service offerings are increasingly based on collaborative arrangements and partnerships (Agarwal & Selen, 2009), open service innovation represents a key strategy for manufacturing firms. Inter-firm knowledge flows have the potential to improve the firm's existing output and incorporate valuable feedback, yet the reliance of firms on open service innovation strongly depends on the level of connections, social capital, and trust in the relationships available in the organizational external social network (de Zubielqui, Jones, & Audretsch, 2019). Yet, research on open innovation mirrors the sickness of innovation management literature, as investigation in this area has mostly dealt with manufacturers engaging in open product innovation, leaving open service innovation a relatively under explored area (Mina et al., 2014).

Besides the well-known best practices by large firms with dispersed ownership such as IBM, Xerox or Rolls Royce that derive growing shares of revenues from servitization and develop their business model by partnering with external actors, also other types of firms can benefit from open service innovation in this fast-changing environment. This is especially true for small and medium-sized enterprises owned and/or managed by families that are characterized by strong and long-term relationships with their stakeholders (Le Breton-Miller & Miller, 2016; Miller & Le Breton-Miller, 2005). For instance, Notre Art, an Egyptian family firm that blends Egyptian craftsmanship with French artistry by developing furniture, spurred by the current pandemic, has recently embraced open service innovation to online market and building a robust digital infrastructure to co-design bespoke products with customers worldwide (Sekulich, 2021). Another example comes from Enrico Monti, a family business recognized as representative of the excellent Italian artisan craftsmanship, that in the sector of tailored suits and shirts has introduced body scanning to be located in their customers' retail stores to ensure the best measures and then co-create the suits with retailers. These examples show that family manufacturing firms constitute an interesting arena for investigating the strategy of open service innovation.

3. Open innovation in family firms: A relational perspective

The involvement of the family in the ownership and/or management of a firm is recognized as affecting innovation behavior (e.g., Chrisman et al., 2015; Chrisman & Patel, 2012; Sánchez-Marín, Pemartín, & Monreal-Pérez, 2020). Research addressing the phenomenon of family firm innovation has focused on the ambivalent effects that family involvement exerts on innovation (Filser, Brem, Gast, Kraus, & Calabrò, 2016; Röhl, Fink, & Kraus, 2010). Scholars found that family firms tend to be risk averse, as the concentration of wealth in the hands of family owner(s) limits propensity to invest capital to fund innovation projects that have uncertain outcomes (Block, Miller, Jaskiewicz, & Spiegel, 2013). Moreover, family firms may need to rely on nonfamily members to gather the necessary financial capital to invest in innovation, which in turn might compromise the family-centered noneconomic goal of keeping control over the business in the long-run (Kotlar & De Massis,

2013) and erode the socioemotional wealth – i.e., the affective endowment that the family attaches to the firm (Gómez-Mejía et al., 2007; Mensching, Kraus, & Bouncken, 2014). Negative aspects also concern a conservative posture and organizational rigidity of family firms in relation to innovation as well as the commitment to traditional product lines (Calabrò et al., 2019). Yet, the distinctive long-term orientation and the involvement of multiple generations in the firm foster innovation capabilities (De Massis, Di Minin, & Frattini, 2015). Family firms may suffer from constrained availability of resources in terms of human, intellectual and financial capital so that they invest less in R&D; however, they are found better able to convert innovation input into output, thereby innovating more with less thanks to their better network access (social capital) (Duran, Kammerlander, Van Essen, & Zellweger, 2016).

One of the most critical aspects of family firm innovation is the paradoxical tension between *ability* and *willingness*. Chrisman et al. (2015) theorized that some distinctive features of family firms allow them to be more able than nonfamily firms to allocate resources and capabilities to innovation². However, the pursuance of family-centered non-economic goals as family harmony, family social status and the intertwined relationship between family and business identity may spur family firms to fear of losing control or reputation by innovating, thereby limiting their willingness to do so. This tension is labelled the “ability-willingness paradox” of family firm innovation (Chrisman et al., 2015). Building on this, research has examined *family-driven innovation* (De Massis et al., 2015), *organizational ambidexterity* (Veider & Matzler, 2016) and *family business innovation posture* (Rondi, De Massis, & Kotlar, 2019) to manage such paradoxical tension and unlock family firms' innovation potential.

The willingness of family firms to innovate has been found even lower in case of collaborative relationships requiring outside-in knowledge flows and more in general knowledge exchange with external partners (De Massis et al., 2015). To innovate, family firms need to acquire, assimilate, transform and exploit external knowledge – i.e., *absorptive capacity* (Cohen & Levinthal, 1990). In this regard, Kotlar, De Massis, Frattini, and Kammerlander (2020) conceptually examine the effect that family ownership exerts on the ability and willingness of family firms to develop absorptive capacity, and identify motivation and implementation gaps that can limit the incorporation of external knowledge, and therefore innovation, in these firms. Furthermore, the examination of absorptive capacity in manufacturing small and medium enterprises shows that family firms fear open innovation (Chesbrough, 2003) as it may restrict the control over the product's technological trajectory (Brinkerink, 2018), consequently hampering the implementation of this strategy by accentuating the paradoxical effect (De Massis et al., 2015). Yet, open innovation, which is based on the collaboration with external stakeholders, can be an effective means for family firms to overcome intra-organizational innovation constraints (De Mattos, Burgess, & Shaw, 2013). In a recent literature review, Feranita et al. (2017) organized the research on the topic of collaborative innovation in family firms into three major perspectives: strategic, transactional, and relational. The strategic perspective builds on the resource-based view of the firm (Penrose, 1959) and examines how firms can access and recombine resources through external sources to achieve innovation. The transactional view builds on transaction cost economics (Williamson, 1979) and game theory, focusing on governance structure and opportunistic behavior by partner organizations. The relational view builds on social network theory (Burt, 1997), focusing on how different aspects of relationships influence partner selection, willingness to collaborate and trust. Family firms' networks positively influence innovation (Carrasco-Hernández & Jiménez-Jiménez, 2013), and when based on trustful relationships enable the willingness to share

² As noted, while Chrisman et al. (2015) refer mainly to ability as discretion, here drawing on De Massis et al. (2015; 2018) we refer particularly to “ability as capability.”

knowledge with limited need for formalized contracts (Hatak & Hyslop, 2015).

In a recent exploratory investigation, Casprini, De Massis, Di Minin, Frattini, and Piccaluga (2017) found the key role played by networks with external stakeholders that Loccioni, an Italian family firm providing high-tech measurement solutions, developed and maintained over time as an extension of the family with the founder acting as a broker by connecting otherwise disconnected alters in the network of excellence. By shaping a network of trustful partners, who feel part of the extended family, Loccioni facilitates knowledge exchange. To our best knowledge, this is the first study to refer to open innovation strategy by examining the co-development of service innovation with customers, suggested as a valuable means to create, share and benefit from external knowledge. Other than this exception, research has limited the examination of family firm innovation mainly to new product development and process innovation, leaving the understanding of service innovation in general and open service innovation in particular in this context largely unaddressed. Indeed, most of the research on family firm innovation does not distinguish among types of innovation, with only few studies mentioning the heterogeneity of innovation outputs (as products and services), albeit without studying them separately (e.g., De Massis, Sharma, Chua, & Chrisman, 2012). Similarly, open innovation in family firms is a phenomenon that has received little attention so far (Feranita et al., 2017), and further research is called to explain family firms' benefit from their networks in open innovation (Brinkerink, Van Gils, Bammens, & Carree, 2017). In the attempt to address these aspects, we conceptually embrace the relational view of open innovation to delve into the phenomenon of open service innovation in family manufacturing firms.

4. Exploring the family business ability-willingness paradox in open service innovation

According to the above-mentioned motivations, we argue that cooperating with actors outside the firm to develop and deliver service innovation is crucial for family firms in today's economy. To manage the knowledge created and shared through open innovation, family manufacturing firms need to develop capabilities to acquire, assimilate, transform and exploit external knowledge. According to the relational perspective (Feranita et al., 2017), inter-firm collaborations are not based only on transactions but involve exchanges of resources (tangible and intangible) in the embedded network of relationships in a period of time. Therefore, the identification of the right partner who possesses complementary assets within the network represents a key contingency to social capital (Burt, 1997).

Openness is characterized by a tension between the need of revealing some knowledge to external stakeholders in order to gather relevant insights, while protecting the intellectual property from opportunistic behavior or knowledge leakage (Laursen & Salter, 2014). Such tension is exacerbated in small and medium enterprises with limited resources to enforce formal mechanisms for intellectual property right protection (Brinkerink & Rondi, 2021; Freel & Robson, 2017). Therefore, open product innovation is often hampered by family manufacturers who fear the risk of losing control and eroding competitive advantage by disclosing secrets and tacit knowledge about their traditional – sometimes unique – products delivered to customers' niches (Eddleston, Sarathy, & Banalieva, 2019). In fact, research has shown that technological solutions and recipes may be custodied for generations, becoming the iconic elements that make family firms unique (Erdogan, Rondi, & De Massis, 2020; Kammerlander, Dessi, Bird, Floris, & Murru, 2015). Yet, we contend that such unwillingness (or lower willingness) is mitigated in family manufacturing firms dealing with open service innovation. Service innovation may require new skills and resources that are not present within the family manufacturing firm, yet by conducting open service innovation they can foster servitization to boost their market share in selling products and enrich their source of revenues

from services. Indeed, open service innovation allows to preserve product-related tacit knowledge, thereby not compromising the sustainability of the manufacturing component of the family manufacturing firm's value proposition in the long run, while improving customers' engagement and relationships through co-created services. The enhancement of services allows the family manufacturing firm to protect and boost corporate reputation, a key family-centered non-economic goals that drives them to provide excellent customer service in combination with product quality (Binz, Hair, Pieper, & Baldauf, 2013). Moreover, innovation in services is increasingly relying on the interaction with platforms and therefore specific and quickly evolving competences are needed to deal with the different interfaces. By partnering with highly-specialized external actors who possess complementary competences and capabilities, family manufacturing firms can achieve service innovation by providing better solutions while maintaining their traditional product-identity focus on their unique resources and core competences (Bustinza, Gomes, Vendrell-Herrero, & Baines, 2019). Such strategy allows family manufacturing firms to better interact with their customers, potentially even to vertically integrate, so as to increase family control over the value chain. Thus, we argue that:

P1: Family manufacturing firms are more willing to rely on open service innovation rather than on open product innovation.

The nature of innovation in product-service solutions requires co-creation of value, mostly with customers. This implies a shift from a transactional to a relational approach to customers (Gaiardelli et al., 2021). Sjödin, Parida, and Wincent (2016) disentangle the process of value co-creation according to three overarching phases: 1) requirement definition to map customer needs, 2) customization and integration by jointly designing, modifying or selecting the product-service system, and 3) implementation and operation as delivering and starting up the solutions, providing customers with the appropriate education and information to optimize the experience with the product-service solution. For family manufacturing firms, the direct contact and long-term engagement with customers is often a strategic component of the value proposition, coherently with the traditional orientation toward customer care, even if not always captured as part of the revenue model. However, challenging times as those brought about by the current pandemic (De Massis & Rondi, 2020), put the direct interaction with customers under jeopardy and requires family firms to re-design and implement new service solutions to maintain customers' engagement, mostly through digitalization (Kraus et al., 2020a). Indeed, family firms have to quickly adapt and implement changes in the processes and modes to deal with their customers in order to keep engagement. The lack of innovation might erode service to stakeholders and ultimately compromise firms' viability (Le Breton-Miller & Miller, 2016) and family reputation (Binz et al., 2013). Yet, the magnitude and rapidity of change limit the possibility for the family manufacturing firm to internally develop digital capabilities necessary to develop service solutions but likely far from their domain of competencies. The need to build novel competences, specifically in the digital fast changing environment based on the dialogue across products and services through technologies as internet of things, cloud computing and big data analytics (Ceipek, Hautz, De Massis, Matzler, & Ardito, 2020; Gaiardelli et al., 2021), limits the possibility for family manufacturing firms to internalize the needed skills and competences.

This tension can be framed as a tradeoff among dimensions of socioemotional wealth. On one hand, the threat of losing control over the business by sharing internal knowledge with external actors. On the other hand, the risk of losing customer engagement by not implementing service innovation, thereby undermining binding social ties as well as firm's reputation, consequently eroding family's reputation (Binz et al., 2013). We argue that in this trade-off, depending on the level of expectations and performance, family manufacturing firms envisioning an erosion of socioemotional wealth in case of inertia and hyper-conservatism (Le Breton-Miller & Miller, 2016) are more willing to engage in open service innovation. Open service innovation allows

family manufacturing firms to benefit from external competences (as digital skills) for the co-creation of novel services by partnering with external actors without the need for fully outsourcing the service solution development, thereby keeping control over the firm and the value chain while preserving corporate reputation. For instance, under current pandemic circumstances with forced social distancing and limited freedom to travel (Clark, Davila, Regis, & Kraus, 2020; De Massis & Rondi, 2020), the fear of losing customers' engagement has forced family manufacturing firms to overcome reluctance over partnering with external actors for designing novel product-service system solutions. Thus, we propose:

P2: Under challenging environmental circumstances, the need for fast implementation of service solutions distant from the firm's competences leads family manufacturing firms' to rely on open service innovation rather than closed innovation or outsourcing.

The level of trust built with external stakeholders, such as customers and suppliers, is a main antecedent of open service innovation behavior (de Zubielqui et al., 2019). Miller and Le Breton-Miller (2005) identify the social capital based on long-lasting relationships with external partners as a trait of long lasting family firms. Traditionally, family social capital cultivated in kinship and strong bonds within the family has important reverberations on the relationships within and outside the organization (Arregle et al., 2007). By delving into the cognitive interdependence of family and nonfamily employees through a transactive memory perspective, Madison, Daspit, and Maret (2020) found that higher understanding of “who knows what” within family firms increases innovation ability. While this study examines the role of network within the organization as source of information in the innovation process, the open innovation paradigm requires family firms to span the organizational boundaries for accessing external knowledge. In this regards, scholars found that the social capital available to the organization through the external connections of non-family employees has more impact on innovation than social capital among family firm members (Sanchez-Famoso, Akhter, Iturralde, Chirico, & Maseda, 2015). Indeed, closed families hamper the access to diverse knowledge, the strong binding social ties that family firms develop with their employees also decrease the level of turnover, thereby limiting the construction of new external connections (Li & Daspit, 2016).

While the product-dominant logic would create a clear separation between “producers” and “customers”, with the producer responsible for the value creation; the service-dominant logic engenders more ambiguity on the roles as customers interact with providers in co-creating product-service solutions (Vargo & Lusch, 2008). Coherently, when examining the external network of connections with whom family manufacturing firms can co-create solutions, we argue that their “who knows what” attitude (Madison et al., 2020) leads them to rely on a restricted and close network of external contacts. In fact, an important driver of willingness to innovate in family firms is constituted by interorganizational trust (Arregle et al., 2007), as their collective and cooperative culture allows to pursue innovation with lower monitoring and incentive costs (Pearson, Carr, & Shaw, 2008). However, the need to secure the knowledge exchanged with external partners combined with the potential urgency of finding innovative service solutions limit the plethora of external collaborators in the organizational network with whom the family manufacturing firm is willing to conduct open service innovation. Coherent with the concept of social network closure, open service innovation conducted through partnering with external close contacts allows to leverage higher reciprocal understanding, familiarity and potentially cemented trust because of shared language and frames of reference, which increases the propensity to collaborate and fastens the development of new service solution, a crucial aspect in situations of urgency. Thus, we postulate the following:

P3: In open service innovation, family manufacturing firms are more likely to leverage their long-term external stakeholder network rather than developing new relationships.

As a consequence of the above, we further suggest:

P4: The willingness of family manufacturing firms to partner with long-term external stakeholders rather than developing new relationships constrains their ability to servitize distantly from their knowledge domain.

Yet, despite their higher willingness to collaborate with external stakeholder in open service innovation the redundant information and overlapping knowledge that family manufacturing firms can access through close contacts (Gargiulo & Benassi, 2000) compromises the ability to innovate and the benefits of the open service innovation strategy. Selecting long-lasting relationships to collaborate might limit family manufacturing firms' ability to access complementary external knowledge, eroding the efficiency of such strategy (Clauss & Spieth, 2017). In so doing, family manufacturing firms might end up in the reversed paradox of being more willing to collaborate with external stakeholders who are linked by long-term relationships, yet such network configuration is likely to hamper their ability as capability to actually access novel external resources, since complementary knowledge and capabilities would be too much embedded in a close network of ties. Following this line of thought, while open service innovation would be intended to widen the range of competences and resource for exploration, would lead family firms to somehow vanishing the potential benefits of open innovation. Therefore, as illustrated in Fig. 1, open service innovation that at first sight might seem to solve the family firm ability-willingness paradox might ultimately lead to a different configuration of the same paradox that family firms need to acknowledge to avoid being trapped in their own net(work).

5. Discussion

By examining open service innovation (Chesbrough, 2011) in family manufacturing firms through a relational perspective (Feranita et al., 2017), our primary purpose was to explore the implications that servitization triggers for the “ability-willingness” paradox of innovation (Chrisman et al., 2015). Disentangling the ability and willingness dimensions in relation to the scantily investigated phenomenon of open service innovation, our conceptual examination opens the gate for a paramount research stream on service innovation in family firms. Our study provides hints about the crucial role of service innovation in general and servitization in particular in world economies (Vargo & Lusch, 2008), and conceptually unveils the distinctive behavior of family manufacturing firms in this matter – especially under challenging circumstances such as those brought about by the current COVID-19 pandemic (De Massis & Rondi, 2020). While the ability-willingness paradox theorizes that family firms have higher ability yet lower willingness to innovate, here by focusing on ability as a capability we argue that, in relation to service innovation, family manufacturing firms might end up having higher willingness but lower ability to innovate distantly from their current knowledge base through open service innovation. The urgency for external complementary knowledge spurs family manufacturing firms to rely on external close contacts who are more likely to bring overlapping competences and skills that are beyond their product-focus realm of competencies, trapping family firms in their own net(work). Our study unveils a potential oscillation between ability and willingness as alternative constraints to family firm innovation. Family firms that innovate through servitization might do it in a way that is constrained in terms of their ability to actually leverage novel competences and skills to properly engage in open innovation, ultimately resulting in servitization happening in close knowledge domains. Our study contributes to a more refined understanding of the family firm innovation paradox, shedding light on open innovation as a special strategy that deserves further investigation, by taking into account the idiosyncratic characteristics of this type of firms. Moreover, we highlight the need for disentangling service innovation from other types of innovation as an important driver of the distinctive family firm behavior, specifically in relation to collaborative innovation. Finally, we offer a nuanced perspective on open service innovation by conceptually linking a firm's ownership and management characteristics such as the

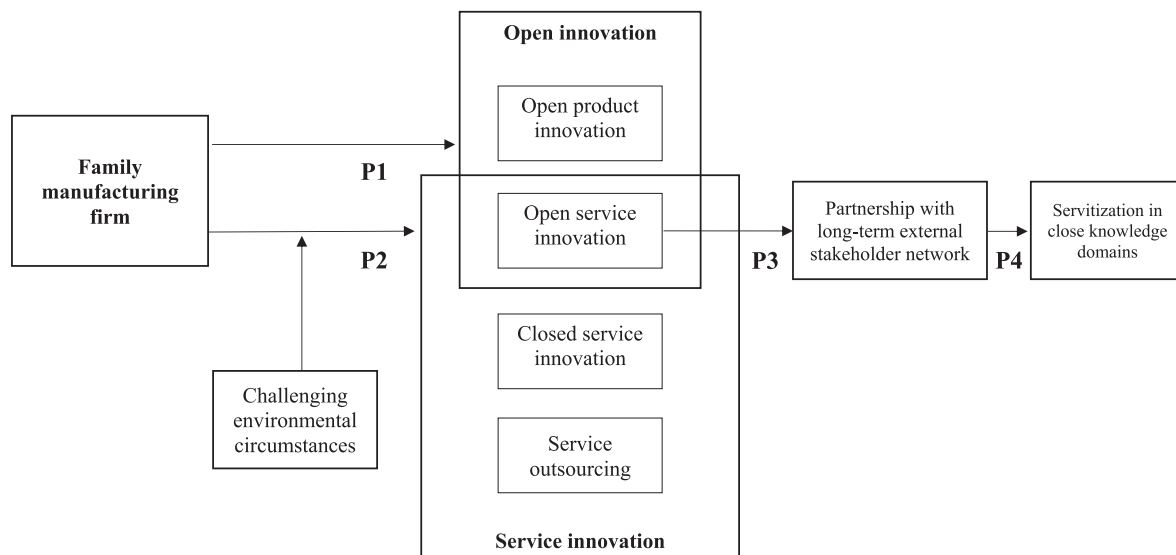


Fig. 1. Integrative framework of family manufacturing firms' servitization through open service innovation.

presence of a family involved in a business organization as drivers of distinctive behavior.

Although our propositions emphasize the open service innovation strategy, our conceptual development lays the ground to extend our analysis to the broader service innovation, which is in need for further investigation in the context of family firms. To spur the development of this area of research, we start constructing a research agenda (see Table 1 for a synthesis) that paves the way for future investigation. Future work, especially empirical studies, could examine the micro-foundations (De Massis & Foss, 2018) and psychological foundations of management (Picone, De Massis, Tang, & Piccolo, 2020) of service innovation in family firms, unveiling at the micro level how they implement novel solutions and how such solutions are integrated in traditional family business models. For example, does the digital innovation in services influence family manufacturing firms value capturing in revenue models? Can family manufacturing firms preserve customer engagement and more in general their stakeholder relationships by including digital service innovation in their interactions with customers? Would this behavior persist after the pandemic when social distancing will be relaxed?

In our conceptual examination, we treated family manufacturing firms as a monolithic group of firms, yet research has acknowledged the heterogeneity of family firms and highlighted that family firms might be even more heterogeneous among themselves than in comparison with nonfamily firms (Chua, Chrisman, Steier, & Rau, 2012; Memili & Dibrell, 2019). One of the main drivers of family firm heterogeneity is their governance (Daspit, Chrisman, Sharma, Pearson, & Mahto, 2018), and the presence of the family in the ownership and/or management is also likely to influence the organizational external relationships and consequently the connections leveraged in open service innovation. For instance, in multi-family business the presence of two (or more) families might widen the network of contacts the firms can rely on, potentially limiting the issue of network redundancy (Chrisman, Madison, & Kim, 2021). Quantitative studies are needed to test the influence that different types of family involvement exert in the service innovation behavior and related performance. Moreover, family firm heterogeneity might emerge in relation to heterogeneous family aspects as structures, functions and interactions (Combs, Shanine, Burrows, Allen, & Pounds, 2020) shaping the development of family and organizational social capital as well as the pursuit of family noneconomic goals. As such, the detachment of the family identity from the business identity might provide further degrees of freedom in the experimentation of radical service innovation. Longitudinal qualitative studies would be ideal to

explore the underlying dynamics that connect family and firm goals to behavior in service innovation.

Another important stream in family business innovation research is composed by those studies exploring tradition (Rovelli et al., 2021). Yet, this area has only considered product innovation and the influence that values and beliefs imprinted through generation exert on new product development strategies (De Massis, Frattini, Kotlar, Petruzzelli, & Wright, 2016; Erdogan et al., 2020). Building on this line of inquiry, scholars could examine whether service innovation fosters or compromises customers' perception of family firms' traditional products and whether sophisticated digital services, perhaps developed through open service innovation, might undermine the allure of genuineness and authenticity. This is particularly relevant for family craftsmanship that might be empowered by digitalization in reaching customers far from the regions where embedded, but this strategy might end up compromising the image of high-quality uniqueness and localness which contributes to the value proposition (Eddleston et al., 2019). The service itself might be imbued with or even embedded in family tradition as the style of customer care and the direct interaction with long-term customers might be transferred across generations. The lack of tangible elements through in which service tradition can be codified might undermine the possibility to innovate it for the fear of fully losing it if not perpetuated as well as wasting customer relationships.

Finally, in this study, open service innovation is considered as a static and event-based strategy, yet family manufacturing firms might develop over time competences about how to collaborate with external actors and through organizational learning understand how to be ambidextrous in their exploitative orientation toward close ties and exploratory orientation toward more distant and disconnected ties (Burt & Merluzzi, 2016). Coherently, process studies are needed to understand how family firms can learn from service innovation projects and how such expertise can be transferred throughout generations. Also, we welcome the study of temporal or situational aspects such as family and/or business life-cycle stages, ownership and/or leadership succession, duration of family ownership and/or leadership, family events like divorce, marriage, death, illness which might happen over the course of a family firm's life. This would contribute to understand the temporal evolution of service open innovation in family firms.

In line with the growing scholarly interest concerning family business innovation, we hope that our conceptual endeavor may serve as springboard for advancements intended to understand the phenomenon of service innovation in family firms.

Table 1
Selected opportunities for future research on family firm's service innovation.

Research perspective	Future research directions	Examples of research questions
(Psychological) Micro-foundations	Unveiling how family firms implement novel solutions and how such solutions are integrated in traditional family business models	<ul style="list-style-type: none"> Does digital innovation in services influence family manufacturing firms value capturing in revenue models? Can family manufacturing firms preserve customer engagement and more in general their stakeholder relationships by including digital service innovation in their interactions with customers? How do family (and nonfamily) members' heuristics, biases and values shape their behavior and decisions about open service innovation? How do their experiences, emotions and memories play a role in shaping the definition and/or implementation of an open service innovation strategy?
Heterogeneity	Examining the influence that the governance structure of family firms exerts on service innovation intention and behavior	<ul style="list-style-type: none"> Does the involvement of multiple families in the business mitigate the network redundancy in open service innovation? Are firms owned but not managed by families less prone to engage in service innovation? Does family characteristics impact the attitude and behavior toward service innovation? How do they differ from their impact on product innovation? What family firm's characteristics are drivers of different configuration of the willingness-ability paradox?
Tradition	Exploring the role of tradition in products and tradition in service exerts on the development of service innovation	<ul style="list-style-type: none"> How can family firms in the craft sector preserve their familiarity and artisanship while innovating their services? What is the role played by family history and tradition in shaping the open service innovation strategies of multigenerational family firms? Does service embody elements of the tradition that might be compromised through open service innovation? Do customers consider family firms more prone to engage in servitization when the firm and family name overlap?
Temporality	Investigating the processes of service innovation and the learning related to it	<ul style="list-style-type: none"> How can family firms learn from (failed) service innovation projects? How is service expertise transferred and innovated throughout generations in the family firm? Does the ability-willingness paradox oscillate for family firms over time? Does a family manufacturing firm suffer of different configuration of the ability-willingness paradox at the same time in relation to different type of innovation? Or consequently? How can it manage this issue?

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References

- Agarwal, R., & Selen, W. (2009). Dynamic capability building in service value networks for achieving service innovation. *Decision Sciences*, 40(3), 431–475.
- Arregle, J. L., Hitt, M. A., Sirmon, D. G., & Very, P. (2007). The development of organizational social capital: Attributes of family firms. *Journal of Management studies*, 44(1), 73–95.
- Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015). Service innovation in the digital age. *MIS Quarterly*, 39(1), 135–154.
- Bharadwaj, S. G., Varadarajan, P. R., & Fahy, J. (1993). Sustainable competitive advantage in service industries: A conceptual model and research propositions. *Journal of Marketing*, 57(4), 83–99.
- Binz, C., Hair, J. F., Jr, Pieper, T. M., & Baldauf, A. (2013). Exploring the effect of distinct family firm reputation on consumers' preferences. *Journal of Family Business Strategy*, 4(1), 3–11.
- Block, J., Miller, D., Jaskiewicz, P., & Spiegel, F. (2013). Economic and technological importance of innovations in large family and founder firms: An analysis of patent data. *Family Business Review*, 26(2), 180–199.
- Brinkerink, J. (2018). Broad search, deep search, and the absorptive capacity performance of family and nonfamily firm R&D. *Family Business Review*, 31(3), 295–317.
- Brinkerink, J., & Rondi, E. (2021). When can families fill voids? Firms' reliance on formal and informal institutions in R&D decisions. *Entrepreneurship Theory and Practice*, 45(2), 291–318.
- Brinkerink, J., Van Gils, A., Bammens, Y., & Carree, M. (2017). Open innovation: A literature review and recommendations for family business research. The Routledge companion to family business, New York: Routledge, 241–266.
- Bryson, J. R., Daniels, P. W., & Warf, B. (2004). *Service worlds: People, technology, organizations*. London, UK: Routledge.
- Burt, R. S. (1997). The contingent value of social capital. *Administrative Science Quarterly*, 339–365.
- Burt, R. S., & Merluzzi, J. (2016). Network oscillation. *Academy of Management Discoveries*, 2(4), 368–391.
- Bustintza, O. F., Gomes, E., Vendrell-Herrero, F., & Baines, T. (2019). Product-service innovation and performance: The role of collaborative partnerships and R&D intensity. *R&D Management*, 49(1), 33–45.
- Calabrò, A., Vecchiarini, M., Gast, J., Campopiano, G., De Massis, A., & Kraus, S. (2019). Innovation in family firms: A systematic literature review and guidance for future research. *International Journal of Management Reviews*, 21(3), 317–355.
- Carrasco-Hernández, A., & Jiménez-Jiménez, D. (2013). Can family firms innovate? Sharing internal knowledge from a social capital perspective. *Electronic Journal of Knowledge Management*, 11(1), 30.
- Casado-Belmonte, M., Capobianco-Urriarte, M., Martínez-Alonso, R., & Martínez-Romero, M. J. (2021). Delineating the Path of Family Firm Innovation: Mapping the Scientific Structure. *Review of Managerial Science*. <https://doi.org/10.1007/s11846-021-00442-3>.
- Casprini, E., De Massis, A., Di Minin, A., Frattini, F., & Piccaluga, A. (2017). How family firms execute open innovation strategies: The loccioni case. *Journal of Knowledge Management*.
- Ceipek, R., Hautz, J., De Massis, A., Matzler, K., & Ardito, L. (2020). Digital transformation through exploratory and exploitative internet of things innovations: The impact of family management and technological diversification. *Journal of Product Innovation Management*.
- Chesbrough, H. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press.
- Chesbrough, H. (2011). *Open services innovation: Rethinking your business to grow and compete in a new era*. John Wiley & Sons.
- Chrisman, J. J., Chua, J. H., De Massis, A., Frattini, F., & Wright, M. (2015). The ability and willingness paradox in family firm innovation. *Journal of Product Innovation Management*, 32(3), 310–318.
- Chrisman, J. J., Madison, K., & Kim, T. (2021). A dynamic framework of noneconomic goals and inter-family agency complexities in multi-family firms. *Entrepreneurship Theory and Practice*, In press.
- Chrisman, J. J., & Patel, P. C. (2012). Variations in R&D investments of family and nonfamily firms: Behavioral agency and myopic loss aversion perspectives. *Academy of Management Journal*, 55(4), 976–997.
- Chua, J. H., Chrisman, J. J., Steier, L. P., & Rau, S. B. (2012). Sources of heterogeneity in family firms: An introduction. SAGE Publications Sage CA: Los Angeles, CA.
- Clark, C., Davila, A., Regis, M., & Kraus, S. (2020). Predictors of covid-19 voluntary compliance behaviors: An international investigation. *Global transitions*, 2, 76–82.
- Clauss, T., Kesting, T., Naskrent, J. J. R., & Management, D. (2019). A rolling stone gathers no moss: The effect of customers' perceived business model innovativeness on customer value co-creation behavior and customer satisfaction in the service sector. 49(2), 180–203.
- Clauß, T., Laudien, S. M., & Daxböck, B. (2014). Service-dominant logic and the business model concept: Toward a conceptual integration. *International Journal of Entrepreneurship and Innovation Management*, 18(4), 266–288.
- Clauss, T., & Spieth, P. (2017). Governance of open innovation networks with national vs international scope. *Journal of Strategy and Management*.

- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 128–152.
- Combs, J. G., Shanine, K. K., Burrows, S., Allen, J. S., & Pounds, T. W. (2020). What do we know about business families? Setting the stage for leveraging family science theories. *Family Business Review*, 33(1), 38–63.
- Daspit, J. J., Chrisman, J. J., Sharma, P., Pearson, A. W., & Mahto, R. V. (2018). Governance as a source of family firm heterogeneity. *Journal of Business Research*, 84, 293–300.
- De Massis, A., Di Minin, A., & Frattini, F. (2015). Family-driven innovation: Resolving the paradox in family firms. *California Management Review*, 58(1), 5–19.
- De Massis, A., & Foss, N. J. (2018). Advancing family business research: The promise of microfoundations. *Family Business Review*, 31(4), 386–396.
- De Massis, A., Frattini, F., Kotlar, J., Petruzzelli, A. M., & Wright, M. (2016). Innovation through tradition: Lessons from innovative family businesses and directions for future research. *Academy of Management Perspectives*, 30(1), 93–116.
- De Massis, A., Frattini, F., Majocchi, A., & Piscitello, L. (2018). Family firms in the global economy: Toward a deeper understanding of internationalization determinants, processes, and outcomes. *Global Strategy Journal*, 8(1), 3–21.
- De Massis, A., & Rondi, E. (2020). Covid-19 and the future of family business research. *Journal of Management Studies*, 57(8), 1727–1731.
- De Massis, A., Sharma, P., Chua, J. H., & Chrisman, J. J. (2012). *Family business studies: An annotated bibliography*. Edward Elgar Publishing.
- De Mattos, C., Burgess, T. F., & Shaw, N. E. (2013). The impact of r&d-specific factors on the attractiveness of small-and medium-sized enterprises as partners vis-à-vis alliance formation in large emerging economies. *R&D Management*, 43(1), 1–20.
- de Zubielqui, G. C., Jones, J., & Audretsch, D. (2019). The influence of trust and collaboration with external partners on appropriability in open service firms. *The Journal of Technology Transfer*, 44(2), 540–558.
- Dunn, B. (1996). Family enterprises in the uk: A special sector? *Family Business Review*, 9(2), 139–155.
- Duran, P., Kammerlander, N., Van Essen, M., & Zellweger, T. (2016). Doing more with less: Innovation input and output in family firms. *Academy of management Journal*, 59(4), 1224–1264.
- Eddleston, K. A., Sarathy, R., & Banaliev, E. R. (2019). When a high-quality niche strategy is not enough to spur family-firm internationalization: The role of external and internal contexts. *Journal of International Business Studies*, 50(5), 783–808.
- Erdogan, I., Rondi, E., & De Massis, A. (2020). Managing the tradition and innovation paradox in family firms: A family imprinting perspective. *Entrepreneurship Theory and Practice*, 44(1), 20–54.
- Feranita, F., Kotlar, J., & De Massis, A. (2017). Collaborative innovation in family firms: Past research, current debates and agenda for future research. *Journal of Family Business Strategy*, 8(3), 137–156.
- Filser, M., Brem, A., Gast, J., Kraus, S., & Calabrò, A. (2016). Innovation in family firms: Examining the inventory and mapping the path. *International Journal of Innovation Management*, in press, 1650054.
- Filser, M., De Massis, A., Gast, J., Kraus, S., & Niemand, T. (2018). Tracing the roots of innovativeness in family smes: The effect of family functionality and socioemotional wealth. *Journal of Product Innovation Management*, 35(4), 609–628.
- Freel, M., & Robson, P. J. (2017). Appropriation strategies and open innovation in smes. *International Small Business Journal*, 35(5), 578–596.
- Gaiardelli, P., Pezzotta, G., Rondini, A., Romero, D., Jarrahi, F., Bertoni, M., ... Cavalieri, S. (2021). Product-service systems evolution in the era of industry 4.0. *Service Business*, 15, 177–207.
- Gargiulo, M., & Benassi, M. (2000). Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, 11(2), 183–196.
- Gebauer, H., Arzt, A., Kohtamäki, M., Lamprecht, C., Parida, V., Witell, L., & Wortmann, F. (2020). How to convert digital offerings into revenue enhancement – conceptualizing business model dynamics through explorative case studies. *Industrial Marketing Management*, 91, 429–441.
- Gebauer, H., & Fleisch, E. (2007). An investigation of the relationship between behavioral processes, motivation, investments in the service business and service revenue. *Industrial Marketing Management*, 36(3), 337–348.
- Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. J., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from spanish olive oil mills. *Administrative Science Quarterly*, 52(1), 106–137.
- Grönroos, C. (2011). Value co-creation in service logic: A critical analysis. *Marketing theory*, 11(3), 279–301.
- Hatak, I., & Hyslop, K. (2015). Cooperation between family businesses of different size: A case study. *Journal of Co-operative Organization and Management*, 3(2), 52–59.
- Huikkola, T., Kohtamäki, M., & Rabetino, R. (2016). Resource realignment in servitization: A study of successful service providers explores how manufacturers modify their resource bases in transitioning to service-oriented offerings. *Research-Technology Management*, 59(4), 30–39.
- Ireland, R., Hitt, M., & Vaidyanath, D. (2002). Strategic alliances as a pathway to competitive success. *Journal of Management*, 28(3), 413–446.
- Kammerlander, N., Dessi, C., Bird, M., Floris, M., & Murr, A. (2015). The impact of shared stories on family firm innovation: A multicase study. *Family Business Review*, 28(4), 332–354.
- Kastalli, I. V., & Van Looy, B. (2013). Servitization: Disentangling the impact of service business model innovation on manufacturing firm performance. *Journal of Operations Management*, 31(4), 169–180.
- Keupp, M. M., Palmié, M., & Gassmann, O. (2012). The strategic management of innovation: A systematic review and paths for future research. *International Journal of Management Reviews*, 14(4), 367–390.
- Kohtamäki, M., Partanen, J., Parida, V., & Wincent, J. (2013). Non-linear relationship between industrial service offering and sales growth: The moderating role of network capabilities. *Industrial Marketing Management*, 42(8), 1374–1385.
- Kotlar, J., & De Massis, A. (2013). Goal setting in family firms: Goal diversity, social interactions, and collective commitment to family-centered goals. *Entrepreneurship Theory and Practice*, 37(6), 1263–1288.
- Kotlar, J., De Massis, A., Frattini, F., & Kammerlander, N. (2020). Motivation gaps and implementation traps: The paradoxical and time-varying effects of family ownership on firm absorptive capacity. *Journal of Product Innovation Management*, 37(1), 2–25.
- Kraus, S. (2013). The role of entrepreneurial orientation in service firms: Empirical evidence from Austria. *Service Industries Journal*, 33(5), 427–444.
- Kraus, S., Clauss, T., Breier, M., Gast, J., Zardini, A., & Tiberius, V. (2020). The economics of covid-19: Initial empirical evidence on how family firms in five European countries cope with the corona crisis. *International Journal of Entrepreneurial Behavior & Research*.
- Kraus, S., Kailer, N., Dorfer, J., & Jones, P. (2020). Open innovation in (young) smes. *The International Journal of Entrepreneurship & Innovation*, 21(1), 47–59.
- Lambrechts, F., Voordeckers, W., Roijakkers, N., & Vanhaverbeke, W. (2017). Exploring open innovation in entrepreneurial private family firms in low-and medium-technology industries. *Organizational Dynamics*, 46(4), 244–261.
- Laursen, K., & Salter, A. J. (2014). The paradox of openness: Appropriability, external search and collaboration. *Research Policy*, 43(5), 867–878.
- Le Breton-Miller, I., & Miller, D. (2016). Family firms and practices of sustainability: A contingency view. *Journal of Family Business Strategy*, 7(1), 26–33.
- Li, Z., & Daspit, J. J. (2016). Understanding family firm innovation heterogeneity: A typology of family governance and socioemotional wealth intentions. *Journal of Family Business Management*.
- Lusch, R. F., & Nambisan, S. (2015). Service innovation. *MIS Quarterly*, 39(1), 155–176.
- Madison, K., Daspit, J. J., & Maret, E. G. (2020). Does knowing “who knows what” matter for family firm innovation? Insights from transactive memory system theory. *Family Business Review*, 0894486520912879.
- Memili, E., & Dibrell, C. (2019). *The Palgrave Handbook of Heterogeneity Among Family Firms*. Springer.
- Mensching, H., Kraus, S., & Bouncken, R. (2014). Socioemotional wealth in family firm research – a literature review. *Journal of International Business and Economics*, 14(4), 165–172.
- Miller, D., & Le Breton-Miller, I. (2005). *Managing for the long run: Lessons in competitive advantage from great family businesses*. Harvard Business Press.
- Mina, A., Bascavusoglu-Moreau, E., & Hughes, A. (2014). Open service innovation and the firm’s search for external knowledge. *Research Policy*, 43(5), 853–866.
- Neely, A. (2008). Exploring the financial consequences of the servitization of manufacturing. *Operations Management Research*, 1(2), 103–118.
- Page, A. L., & Schirr, G. R. (2008). Growth and development of a body of knowledge: 16 years of new product development research, 1989–2004. *Journal of Product Innovation Management*, 25(3), 233–248.
- Parida, V., Sjödin, D. R., Wincent, J., & Kohtamäki, M. (2014). Mastering the transition to product-service provision: Insights into business models, learning activities, and capabilities. *Research-Technology Management*, 57(3), 44–52.
- Pearson, A., Carr, J., & Shaw, J. (2008). Clarifying the familiness construct: A social capital perspective. *Entrepreneurship Theory and Practice*, 32, 949–969.
- Penrose, E. (1959). *The theory of the growth of the firm*. Oxford, England: Basil Blackwell.
- Picone, P. M., De Massis, A., Tang, Y., & Piccolo, R. F. (2020). The psychological foundations of management in family firms: Values, biases, and heuristics. *Family Business Review*.
- Prajogo, D. I. (2006). The relationship between innovation and business performance—a comparative study between manufacturing and service firms. *Knowledge and Process Management*, 13(3), 218–225.
- Rigtering, C., Kraus, S., Eggers, F., & Jensen, S. H. (2014). A comparative analysis of the entrepreneurial orientation/growth relationship in service firms and manufacturing firms. *Service Industries Journal*, 34(4), 275–294.
- Rondi, E., De Massis, A., & Kotlar, J. (2019). Unlocking innovation potential: A typology of family business innovation postures and the critical role of the family system. *Journal of Family Business Strategy*, 10(4), Article 100236.
- Röbl, D., Fink, M., & Kraus, S. (2010). Are family firms fit for innovation? Towards an agenda for empirical research. *International Journal of Entrepreneurial Venturing*, 2(3/4), 366–380.
- Rovelli, P., Ferasso, M., De Massis, A., & Kraus, S. J. J. o. F. B. S. (2021). Thirty years of research in family business journals: Status quo and future directions. 100422.
- Salunke, S., Weerawardena, J., & McColl-Kennedy, J. R. (2013). Competing through service innovation: The role of bricolage and entrepreneurship in project-oriented firms. *Journal of Business Research*, 66(8), 1085–1097.
- Sanchez-Pamoso, V., Akhter, N., Iturralde, T., Chirico, F., & Maseda, A. (2015). Is non-family social capital also (or especially) important for family firm performance? *Human Relations*, 68(11), 1713–1743.
- Sekulich, T. (2021). Notre art: The alchemy of transforming furniture into art. Retrieved April, 2021.
- Sánchez-Marín, G., Pemartín, M., & Monreal-Pérez, J. (2020). The influence of family involvement and generational stage on learning-by-exporting among family firms. *Review of Managerial Science*, 14, 311–334.
- Sirilli, G., & Evangelista, R. (1998). Technological innovation in services and manufacturing: Results from Italian surveys. *Research Policy*, 27(9), 881–899.
- Sjödin, D., Parida, V., Kohtamäki, M., & Wincent, J. (2020). An agile co-creation process for digital servitization: A micro-service innovation approach. *Journal of Business Research*, 112, 478–491.

- Sjödin, D. R., Parida, V., & Wincent, J. (2016). Value co-creation process of integrated product-services: Effect of role ambiguities and relational coping strategies. *Industrial Marketing Management*, 56, 108–119.
- Storey, C., Cankurtaran, P., Papastathopoulou, P., & Hultink, E. J. (2016). Success factors for service innovation: A meta-analysis. *Journal of Product Innovation Management*, 33(5), 527–548.
- Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science*, 36(1), 1–10.
- Veider, V., & Matzler, K. (2016). The ability and willingness of family-controlled firms to arrive at organizational ambidexterity. *Journal of Family Business Strategy*, 7(2), 105–116.
- Williamson, O. E. (1979). Transaction-cost economics: The governance of contractual relations. *The Journal of Law and Economics*, 22(2), 233–261.
- Yoo, Y., Boland, R. J., Jr, Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization Science*, 23(5), 1398–1408.
- Zheng, P., Lin, T.-J., Chen, C.-H., & Xu, X. (2018). A systematic design approach for service innovation of smart product-service systems. *Journal of Cleaner Production*, 201, 657–667.