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HOW DOES KNOWLEDGE SHARING ACROSS GENERATIONS IMPACT INNOVATION?

PAUL J. WOODFIELD*

*Auckland University of Technology
Private Bag 92006, Auckland 1142, New Zealand
paul.woodfield@aut.ac.nz*

KENNETH HUSTED

*The University of Auckland, Private Bag 92019
Auckland 1142, New Zealand
k.husted@auckland.ac.nz*

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We explore how knowledge sharing impacts innovation across generations of a family firm. We argue that each generation contributes to the knowledge pool differently, and there can be different levels of hostility towards sharing knowledge that can impact a family firm's ability to innovate. We present two models distinguishing the source of knowledge from the receiver of knowledge for each generation. When the senior generation is the source of knowledge, business tends to be as per usual. Conversely, when the source of knowledge is the next generation, this can lead to new approaches to doing business being introduced, with potential for innovation activities and outcomes. We suggest that to minimise hoarding and rejection of knowledge, strategies need to be in place to avoid redundancy in the knowledge production and problem-solving processes.

Keywords: Family firm; bidirectional knowledge sharing; innovation; business model; traditional industry.

Problem

Intergenerational knowledge sharing has been revealed to be bidirectional (Woodfield and Husted, 2017). Based on the understanding that the next generation's (NG) knowledge base is across a number of dimensions (e.g., tacit/explicit, domain-specific/external), different from the senior generation (SG), we

*Corresponding author.

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1 argue that there is potential for significant innovation activities and outcomes when
the source of the knowledge is the NG. We further argue that hostility towards
3 engaging in knowledge sharing — that is, hoarding and/or rejecting knowledge —
can eventuate when there are tensions between the generations, when a preferred
5 outcome would be creating conditions that stimulate innovation behaviour (Husted
et al., 2012). We demonstrate that different levels of hostility towards engaging in
7 knowledge sharing (from high to low) held by the SG and the NG can impact
the ability of the family business to innovate and how the innovation activity is
9 carried out.

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Current Understanding

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While it is a common perception that banks and other corporations have con-
trolling ownership in the world, it is in fact family businesses that dominate
15 ownership control (La Porta *et al.*, 1999). Family businesses not only contribute to
50% of the workforce (Family Enterprise USA, 2018; Glassop *et al.*, 2006), but in
17 some countries such as Germany, Australia and Brazil they contribute over 50% to
GNP (IFERA, 2003). Fuelling this contribution — among other factors — is the
19 prevalence of innovation in family firms (Calabrò *et al.*, 2019; Bigliardi and
Galati, 2018; Feranita *et al.*, 2017; Röd, 2016; Gjergji *et al.*, 2019). Innovation is
21 important for family businesses to compete effectively (Holt and Daspit, 2015) in
order to avoid stagnation or decline (Hoy, 2006). Also for family firms, knowledge
23 is a key input and strategic resource to innovation (Cabrera-Suárez *et al.*, 2001).
However, the connection between the innovation process and knowledge as a
25 catalyst for innovation in family firms is relatively unexplored (Calabrò *et al.*,
2019). Much of the research to date has investigated knowledge and knowledge
27 flows related to innovation from a firm level (e.g., Daspit *et al.*, 2019; Patel and
Fiet, 2011) or accessing external knowledge through open innovation (e.g.,
29 Classen *et al.*, 2012; Casprini *et al.*, 2017). To a lesser degree, the impact of how
both tacit and explicit knowledge are shared between generations on innovation
31 outcomes has been explored (Woodfield and Husted, 2017; Cabrera-Suárez *et al.*,
33 2018).

With some clarity, we understand that knowledge is a source of competitive
35 advantage (Trevinyo-Rodriguez and Tàpies, 2006) and considered an important
dynamic capability (Chirico and Salvato, 2008) or contributing to an entrepre-
37 neurial legacy (Jaskiewicz *et al.*, 2015). Intra-organisational sharing of knowledge
is one of the core knowledge processes for generating these benefits and out-
comes for the organisation. However, as alluded to above, the concept of
39 knowledge sharing is largely missing in family business research. This is surprising,

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1 considering the emphasis on maintaining knowledge long-term across generations
2 of a family (Cabrera-Suárez *et al.*, 2001). Current knowledge sharing arguments
3 tend to address challenges of shared knowledge in one direction only (Cabrera-
4 Suárez *et al.*, 2018; Distelberg and Schwarz, 2015) — that is from the SG to the
5 NG. Challenging traditional incumbent–successor relationships, Woodfield and
6 Husted (2017) argued that knowledge sharing in family firms is in fact “bidirec-
7 tional”. That is, not just when the SG nurtures the NG by sharing the deep
8 knowledge generated from operating the family firm, but when the NG also
9 contributes valuable knowledge to the family firm given their often distinctive
10 knowledge base acquired through formal education and/or work experience from
11 outside the family firm.

12 In this paper, we investigate how the readiness of the SG and NG to engage in
13 knowledge sharing impacts the core activities in the innovation process of the
14 firm. The core activities are clustered into four generic groups — Search, Select,
15 Implement and Value capture (Tidd and Bessant, 2018). *Search* relates to which
16 internal and external knowledge sources the firm uses for generating innovation
17 ideas and how the firm processes the input and ideas. *Selection* is then about how
18 firms decide which innovation ideas to pursue further. *Implement* is a set of
19 activities related to transforming the idea into something which is market ready.
20 This set of activities includes, for example, access to key resources needed in the
21 innovation process and routines for organising the innovation process. Finally, the
22 last set of activities under the label of *capturing value* is related to activities and
23 routines that are in play within the firm to sustain the most value capture from the
24 innovation activity. We then explore to what extent these activities in the inno-
25 vation process are influenced by the direction of the knowledge flow, for example,
26 from SG to NG or vice versa. Tensions between each generation can result in
27 hoarding and/or rejecting knowledge, whereas the preferred outcome would be to
28 create the conditions that stimulate innovation behaviour efficiently (Husted *et al.*,
29 2012). While hoarding and/or rejecting knowledge may have damaging effects in
30 any organisation, we reason that family firms typically have stronger motivation
31 to mitigate knowledge sharing hostility. There are various reasons for this moti-
32 vated behaviour including the need to ensure future ownership, to develop and
33 maintain a common vision (Hubler, 2009) and retain a long-term orientation
34 (Lumpkin and Brigham, 2011). However, the issue of reliance on a shared un-
35 derstanding of the content of knowledge between those transmitting and those
36 receiving the knowledge still remains (Husted and Michailova, 2002). In sum, this
37 study addresses issues related to knowledge sharing between generations and the
38 impact this can have on stimulating innovation in a family firm. Our research
39 question is: How does knowledge sharing across generations impact innovation in
the family firm?

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1 or families". As such, to qualify, family businesses needed to be family owned and
2 managed, with the potential for passing on the firm to the family's NG. We only
3 investigated family businesses that had at least two generations in tenure. Our
4 study included 27 interviews conducted across three case sites in the New Zealand
5 wine industry (refer Table 1). We also draw upon secondary data to support our
6 cases and provide examples.

Case background

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9 Established early in the 1900s, *Case One* is the oldest winery in this study and is
10 into their third generation. Spread over four regions in New Zealand, with 300 ha,
11 they produce wine at their original estate with further production through a joint
12 venture at one of their other estates. Each generation of the family was brought up
13 on the winery, however not all the NG showed interest, or were indeed unsuitable
14 to be a successor. At the time of the study, the family had one son who had entered
15 the business with significant commercial experience as well as being a wine
16 maker, with the prospect of his cousin joining him. *Case Two*, on the other hand, is
17 a younger firm with a founder who pioneered wine making in the region where he
18 established an estate in the 1970s. Facilities for producing wine were again on their
19 original estate which included 200 ha in a single region. Each of the three children
20 was employed in the winery with distinct responsibilities including winemaking,
21 viticulture and marketing. Although the son had always worked in the business,
22 his two sisters worked in other industries prior to joining the family business. All
23 the children grew up during the nascent phase of the business, which later included
24 a restaurant and conference rooms. Different again from Cases One and Two, *Case*
25 *Three* was founded by a viticulturalist with a significant corporate background in
26 the wine industry. The original wine estate was set up as a contract vineyard in the
27 1970s. Circa 1990, a winery was established on the original estate, although the
28 family leased half the 200 ha they managed and owned the rest. For the most part,
29 their vineyards were in one region with a niche vineyard in another region to grow
30 certain grape varieties. The family has three children who all have a role in the
31 family business including winemaking, viticulture, hospitality and marketing.
32 While the two youngest children had always been involved in the winery, they had
33 travelled and completed vintages in other regions. The eldest daughter had an
34 established career in hospitality and was five years older than her siblings.

Approach to data analysis

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37 An iterative process utilising NVivo qualitative software was implemented to
38 organise and synthesise data, establish patterns and recognise themes (Bazeley and
39 Jackson, 2013).

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1 Table 1. Cases summary.

Case study	Respondent pseudonym	Generation	Age range	Years in business (approx.)	Role
5 Case study One (CS1)					
7 Senior generation (SG)	CSSG1.1	Second	65+	60+	Chairman
	CSSG1.2	Second	65+	50–60	Managing director
	CSSG1.3	Second	65+	30–40	Administration
9 Next generation (NG)	CSNG1.4	Third	40–65	10–15	General manager
11 Employees (E)	CSE1.5	N/A	40–65	10–15	Senior winemaker
	CSE1.6	N/A	40–65	≤ 5	Production manager
13 Case study Two (CS2)					
Senior generation	CSSG2.1	First	40–65	30–40	Co-founder
	CSSG2.2	First	40–65	30–40	Co-founder
15 Next generation	CSNG2.3	Second	30–40	10–15	Winemaker
	CSNG2.4	Second	30–40	10–15	Winemaker
	CSNG2.5	Second	20–30	5–10	Marketing
17 Employees	CSE2.6	N/A	30–40	≤ 5	Senior winemaker
	CSE2.7	N/A	20–30	≤ 5	Accounts
19	CSE2.8	N/A	40–65	≤ 5	Cellar hand
	CSE2.9	N/A	40–65	30–40	Cellar hand
21	CSE2.10	N/A	20–30	≤ 5	Administration
23 Case study Three (CS3)					
Senior generation	CSSG3.1	First	40–65	30–40	Co-founder and Chair
	CSSG3.2	First	40–65	30–40	Co-founder
25 Next generation	CSNG3.3	Second	30–40	10–15	Marketing director
	CSNG3.4	Second	20–30	10–15	Winemaking director
27	CSNG3.5	Second	20–30	≤ 5	Viticulturist director
29 Employees	CSE3.6	N/A	30–40	5–10	Chief winemaker
	CSE3.7	N/A	40–65	≤ 5	Operations manager
	CSE3.8	N/A	30–40	10–15	Financial manager
	CSE3.9	N/A	30–40	≤ 5	Restaurant manager
31	CSE3.10	N/A	30–40	5–10	Function/events manager
	CSE3.11	N/A	20–30	5–10	Vineyard manager

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Typology Matrices and Discussion

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Our findings are first summarised in Table 2. In the table, we categorise whether the predominant source of knowledge is from the NG or the SG. For each of the innovation examples, we illustrate how knowledge sharing impacts the core activities in the innovation process by presenting examples at each phase of the

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Table 2. Innovation impact through knowledge sharing illustrated through selected innovations from case studies.

Innovation process/product	Winning with organic winegrowing	Beer producing winery	Westie wine	Mixing it up	Craft wine; Wine from the barrel	Keg concept wine storage	The need for speed	Refocusing
Source of knowledge	NG	NG	NG	NG	NG	NG	NG	SG
Search	External idea generation from other vineyards and education	External idea generation from general interest in brewing	Combined internal and external idea generation playing to signals in the market for local wine and constrained by regulatory controls in the region	External internal and external idea generation	External and internal idea generating to signals where craft beer is on the rise	External science/tech-based ideas improved through combination with internal input	External and internal idea generation to meet contemporary needs in the market	External and internal idea generation to meet contemporary needs in the market
Select	Outside standard selection but somewhat aligned with operations within the firm	Outside standard selection but still in the beverage sector	Variation of existing products in the firm but new positioning strategy; ad hoc opportunity recognition	Recombination of craft beer concepts applied to wine	Recombination of craft beer concepts applied to wine	Driven by strategy to maintain their position in the market and for growth	Reconfiguration of the product (type of wine, packaging, branding), leveraging a long heritage in winemaking	Reconfiguration of the product (type of wine, packaging, branding), leveraging a long heritage in winemaking

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1 innovation process (i.e., Search, Select, Implement and Value capture). The
2 findings provided in Table 2 will be used to empirically ground the development
3 of the typology matrices of the relationship between the source of knowledge,
4 knowledge sharing and innovation outcomes in family firms. Additionally, the
5 development of the matrices will be supported by quotes from the case studies.
6 The case support is primarily adding empirical nuances to predominantly conceptual
7 arguments.

8 Approaching knowledge sharing as bidirectional between generations in the
9 family firm, we found that the impact of knowledge sharing on innovation within
10 the family firm depends on which generation was the source of ideas and which
11 was the recipient. We consider a scenario in which the SG is the source of the
12 knowledge to be *obverse* knowledge sharing, which is seen to be the traditional
13 model and likely to result in “business as usual”. When the source of knowledge is
14 the NG, we consider this scenario to be *reverse* knowledge sharing. Through the
15 new experiences and competencies held by the NG, there is potential for more
16 radical innovation and new business models being developed to capture value. We
17 demonstrate these scenarios through Fig. 1 (SG is the source of ideas) and Fig. 2
18 (NG is the source of ideas). Each matrix presents a continuum from low to high
19 knowledge sharing hostility.

20 The first model illustrates a likely case of innovation as business as usual,
21 whereas the second model is associated with a potential for more radical inno-
22 vation and fundamental adjustments in the innovation process to accommodate
23 this. A distinguishing feature of the knowledge sharing scenarios is the power
24 relationship between the generations. For example, an innovative idea presented
25 by the SG may be implemented even if rejected by the NG. The opposite is true,
26 when the source of an innovative idea is the NG. In that situation, the innovation
27 idea may never be implemented or even developed further if rejected by the SG.
28 However, when there is synergy with the SG when the NG is the source of ideas,
29 there is potential for radical innovation that is improved and implemented through
30 a collaborative innovation process. In this case, new business models are likely to
31 be developed if needed for capturing value from that particular innovation. This is
32 not to say new business models are not developed when the SG is the source, but
33 emphasis is placed on the synergy between the generations rather than an auto-
34 cratic approach on the part of the SG.

35 The top left quadrant represents innovation ideas that the SG generates and
36 actions, and that the NG may oppose, but overall, go along with the idea. A
37 practical example from our study was when the SG of one family firm suggested
38 engineering and building a piece of equipment (stainless steel tanks) to undertake a
39 task, which could be fulfilled by a proprietary product. One son reflected on how
his father would simply say, “. . . we’ll build the four tanks, we’ll save \$200,000

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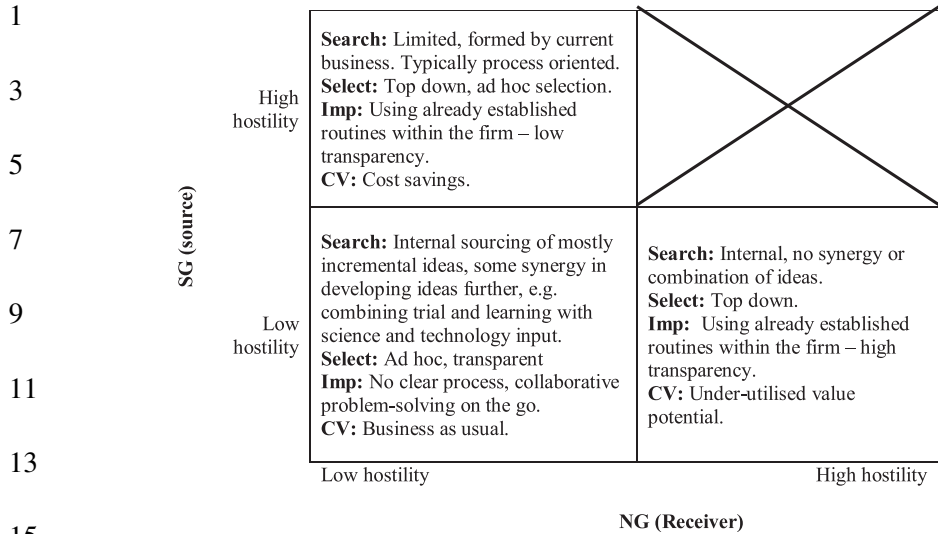


Fig. 1. Capturing value through obverse knowledge sharing.

and we can buy a Landcruiser each” (CSNG2.4) which his sister confirmed “. . . all our tanks are made in-house like that. [Dad] designs them. In the early days, he welded them himself. . .” (CSNG2.3). Conflict can occur when the SG does not share knowledge and instead just implements what he/she wants without consulting the NG. This could be particularly impactful when the NG is responsible for a task that has been overridden by the SG, in which case the NG may reject an

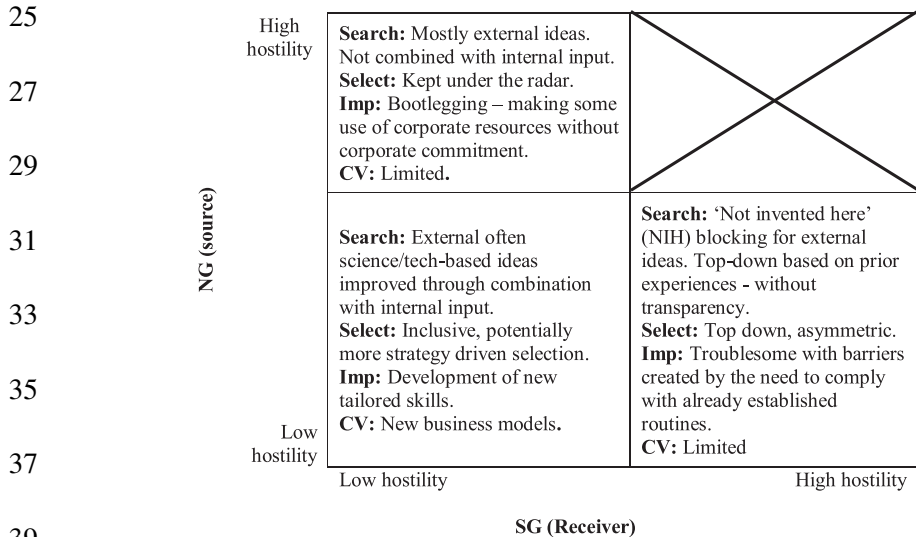


Fig. 2. Capturing value through reverse knowledge sharing.

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1 idea and make their strong opposition known. The bottom right quadrant repre-
3 sents an under-utilisation of value potential, which could occur when, for example,
the NG rejects an idea. Extending the above example, in addition to the SG
5 deciding to engineer and build stainless steel tanks, he also had ideas about where
they should be placed, in this case outside the main tank building. The NG was of
7 a strong view the tanks should be placed inside for practical reasons given the
production was inside, and to maintain the aesthetics of the winery. However, the
9 NG did not have a say in where the tanks would be placed which caused the NG
frustration: “. . . the positioning of these tanks — we had a little bit of a head-to-
11 head . . . over where to put them. [We] were thinking ahead about future expansion
. . . But he really had an idea in his head that out there would be best so despite all
13 the discussion about it, that’s what’s happening” (CSNG2.3). In this scenario, both
generations agreed that new tanks were required and that they needed to be
15 specifically engineered for the site; however, their placement was not up for
discussion.

17 Finally, the bottom left quadrant represents an open sharing of knowledge when
innovation ideas are neither hoarded nor rejected. An example would be an NG
19 family member putting forward an idea that is accepted by the SG, encouraging
radical innovation to occur. Ingredients for this more diverse knowledge sharing
21 are good family ties and communication between the generations. From our study,
an example of the SG presenting an idea and the NG accepting and supporting it
23 was hospitality. The SG wanted to open a fine dining restaurant and with the
support of the NG, in particular, one daughter who was experienced in hospitality
25 was able to make this happen: “. . . and we opened the restaurant, and I just sort of
fell in there into that area, so I guess my background has been hospitality with no
27 formal training, tertiary training. . . . And I guess I’m a bit of an overseer of
everything.” (CSNG3.3). The daughter in this instance not only shared her ex-
29 perience in hospitality, but also was intimately involved with the marketing of the
winery. Her contribution led to the introduction of a new business model that
included a hospitality arm to the business.

31 There is a higher likelihood of inaction when the NG hoards ideas and/or has an
inability to enact solutions without permission from the SG. As with Fig. 1, there
33 is likely to be conflict when there is high hostility from both sides towards sharing
knowledge. The bottom right quadrant represents the NG sharing ideas while the
35 SG rejects knowledge. As the SG is often the authority within a family business,
they can choose not to implement the idea. An example would be when the NG
37 brings knowledge about a product or process they have learnt through education or
experience, however the SG is unwilling to change the status quo, or does not want
39 to break from tradition. A new business model could be introduced (bottom left
quadrant) when the NG presents solutions from their more recent education and

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1 experience (external knowledge) and there is synergy with the SG (internal
2 knowledge) who accepts the new ideas and supports the NG in their solution. A
3 practical example of diverse knowledge sharing being beneficial was the intro-
4 duction of organic grape growing and wine production by a daughter in one family
5 firm. There was some potential for tension because, like her father, she was a
6 viticulturist. Although risky given the extensive regulations around organic
7 winegrowing, she convinced her parents to set aside several hectares to experi-
8 ment. Upon generating a successful sub-brand, her father gave her more leeway to
9 experiment with different varieties on more land.

11 “And so I got into the viticulture and I really wanted to — be-
12 cause we’re a family company, we talk about generational
13 steps. . . I was like, well, folks, if you want to see the next gen-
14 eration [involved] you need to start preparing for it. So I con-
15 vinced Dad to give me four hectares to turn into organics. And
16 then that went quite well, and we made some really good wine. . .
17 because I’m able to make the wine as well. . . And then so he let
18 me loose, so now I’ve got 14 hectares of it.” (CSNG3.5)

19 Similarly, a son who had a hobby brewing craft beer was provided space,
20 equipment and seed capital to start his venture while carrying out his duties as a
21 winemaker. The knowledge sharing synergy between the generations contributed
22 to the growth of the enterprise, which was later listed publicly.

23 “I’m a big beer fan. And came back to New Zealand and there
24 was nothing on the market, and I knew what I wanted, and I knew
25 what I liked. I contracted brewers to make my first few brews and
26 we just tweaked from there. We actually just grew from a tiny wee
27 bit of business. . . It was in a little shed. . . and now that’s my
28 brewery. . . But obviously it’s been backed by [the family]. I
29 couldn’t have done it without [the family] . . . I always try and
30 push the boundaries for beer. And I think I’ve been a real market
31 leader.” (CSNG3.4)

33 Meanwhile, the son remains the winemaker of the family business. Building on the
34 craft brewing example, the son, who by this stage had proven his ability to im-
35 plement new ideas, presented variations to winemaking and the storage of wine. The
36 wine is exclusively brewed in kegs using beer yeast. Using brewery techniques,
37 these brews are in limited batches and are either “on tap” or packaged in cans.

39 Furthermore, one of New Zealand’s pioneering winegrowing families exem-
40 plified the combination of external science/tech-based ideas and internal input
41 through the introduction of numerous technologies and techniques. These were a

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1 first for New Zealand winemaking and were modified as needed to suit local
2 conditions. Technologies included stainless steel tanks for fermentation and
3 storage; refrigeration for controlling temperature; the use of cultured yeasts and
4 cold pressure fermentation. The NG had brought his formal education and expe-
5 rience into driving a strategic push to make the winemaking process more efficient
6 in response to competition. The idea to move forward with this technological
7 advancement had some push-back from the SG, however “once they were con-
8 vinced the idea was their own and sound, they were ready to go all the way in
9 support” (Scoop, 2014).

11

Contribution

13 We conceptualised scenarios which address the question of how knowledge
14 sharing across generations impacts innovation outcomes and process in family
15 firms. Until now, knowledge sharing hostility has been addressed in the context of
16 non-family firms but not considered in the family business context. We have taken
17 this a step further by proposing that knowledge sharing is a continuum between
18 generations through core activities that cluster into four generic groups — Search,
19 Select, Implement and Value capture (Tidd and Bessant, 2018). Moreover, when
20 the NG is the source of knowledge, this can lead to new business models that
21 ultimately capture value where it did not previously exist in the family firm.

23 Advantages that a family firm has over corporate firms to facilitate knowledge
24 sharing include connectedness and cohesion (Björnberg and Nicholson, 2007),
25 trust and close ties (Sundaramurthy, 2008) and the ability to build tacit knowledge
26 between generations (Jaskiewicz *et al.*, 2013). By having strategies in place to
27 minimise hoarding or rejection of knowledge, redundancy in the knowledge
28 production and problem-solving processes can be avoided. Moreover, by being
29 cognizant of sharing knowledge positively, families can benefit from a learning
30 environment that encourages two-way or bidirectional knowledge-sharing
31 (Woodfield and Husted, 2017). This view is supported by Trevinyo-Rodriguez and
32 Tàpies (2006), who suggested the incumbent generation needs to transmit
33 knowledge to the NG at an early phase of their upbringing to achieve an effective
34 transfer of knowledge. This way, the NG could benefit from situations being
35 created for them to “act, reflect, and name the findings” (p. 348).

37

Practical Implications

39 One concern is that family businesses could be steered towards path dependency
when the future is conditioned by past learning rather than the absorption of

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1 external knowledge (Georghiou *et al.*, 1986; Pavitt, 2005). In this case, the ex-
2 ternal knowledge could be that of the NG who, as a matter of course, has had
3 experience outside the family organisation, including their formal education and
4 their vocation. Their vocation could be working in a similar business to their
5 family business, for example, training as a viticulturist or winemaker and working
6 in Europe, or perhaps working in engineering or commerce, which have attrib-
7 utable knowledge similar to or quite different from the family business. Ultimately,
8 this paper introduced knowledge sharing as a modus operandi for family busi-
9 nesses to stimulate innovation, addressing how knowledge sharing across gen-
10 erations impacts innovation outcomes and processes. At present, there is a paucity
11 of studies on knowledge sharing in family firms, and it is hoped this study
12 encourages empirical research in this potentially rich area of scholarship.

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References

- 17 Amighini, A and R Rabellotti (2006). How do Italian footwear industrial districts face
18 globalization? *European Planning Studies*, 14, 485–502.
- 19 Bazeley, P and K Jackson (2013). *Qualitative Data Analysis with NVivo*. Thousand Oaks,
20 CA: SAGE Publications.
- 21 Bigliardi, B and F Galati (2018). Family firms and collaborative innovation:
22 Present debates and future research. *European Journal of Innovation Management*,
23 21, 334–358.
- 24 Björnberg, Å and N Nicholson (2007). The family climate scales — Development
25 of a new measure for use in family business research. *Family Business Review*, 20,
26 229–246.
- 27 Cabrera-Suárez, MK, P De Saá-Pérez and D García-Almeida (2001). The succession
28 process from a resource- and knowledge-based view of the family firm. *Family
29 Business Review*, 14, 37–48.
- 30 Cabrera-Suárez, MK, DJ García-Almeida and P De Saá-Pérez (2018). A dynamic network
31 model of the successor's knowledge construction from the resource-and knowledge-
32 based view of the family firm. *Family Business Review*, 31, 178–197.
- 33 Calabrò, A, M Vecchiarini, J Gast, G Campopiano, A De Massis and S Kraus (2019).
34 Innovation in family firms: A systematic literature review and guidance for future
35 research. *International Journal of Management Reviews*, 21, 317–355.
- 36 Casprini, E, A De Massis, A Di Minin, F Frattini and A Piccaluga (2017). How family
37 firms execute open innovation strategies: The Loccioni case. *Journal of Knowledge
38 Management*, 21, 1459–1485.
- 39 Chiarvesio, M, E Dimaria and S Micelli (2010). Global value chains and open networks:
40 The case of Italian industrial districts. *European Planning Studies*, 18.
- Chirico, F and CA Salvato (2008). Knowledge integration and dynamic organizational
adaptation in family firms. *Family Business Review*, 21, 169–181.

How Does Knowledge Sharing Across Generations Impact Innovation?

- 1 Chua, JH, JJ Chrisman and P Sharma (1999). Defining the family business by behavior.
2 *Entrepreneurship: Theory and Practice*, 23, 19–39.
- 3 Classen, N, A Van Gils, Y Bammens and M Carree (2012). Accessing resources from
4 innovation partners: The search breadth of family SMEs. *Journal of Small Business*
5 *Management*, 50, 191–215.
- 6 Cohen, WM and DA Levinthal (1990). Absorptive capacity: A new perspective on
7 learning and innovation. *Administrative Science Quarterly*, 35, 128–152.
- 8 Daspit, JJ, RG Long and AW Pearson (2019). How familiness affects innovation outcomes
9 via absorptive capacity: A dynamic capability perspective of the family firm. *Journal*
10 *of Family Business Strategy*, 10, 133–143.
- 11 De Massis, A and J Kotlar (2014). The case study method in family business research:
12 Guidelines for qualitative scholarship. *Journal of Family Business Strategy*, 5, 15–29.
- 13 Distelberg, BJ and TV Schwarz (2015). Mentoring across family-owned businesses.
14 *Family Business Review*, 28, 193–210.
- 15 Eisenhardt, KM (1989). Building theories from case study research. *Academy of*
16 *Management Review*, 14, 532–550.
- 17 Evangelista, R and A Vezzani (2012). The impact of technological and organizational
18 innovations on employment in European firms. *Industrial and Corporate Change*,
19 21, 871–899.
- 20 Family Enterprise USA (2018). FEUSA Family Business Survey.
- 21 Feranita, F, J Kotlar and A De Massis (2017). Collaborative innovation in family firms:
22 Past research, current debates and agenda for future research. *Journal of Family*
23 *Business Strategy*, 8, 137–156.
- 24 Gassmann, O (2006). Opening up the innovation process: Towards an agenda. *R&D*
25 *Management*, 36, 223–228.
- 26 Georghiou, L, JS Metcalfe, M Gibbons, T Ray and J Evans (1986). *Post-Innovation*
27 *Performance: Technological Development and Competition*. Basingstoke, England:
28 Macmillan.
- 29 Gjergji, R, V Lazzarotti, F Visconti and T García-Marco (2019). Open innovation in
30 family firms: A systematic literature review. *Management Research*.
- 31 Glassop, L, YC Ho and D Waddell (2006). *KPMG and Family Business Australia Survey*
32 *of Family Business Needs 2005*. Melbourne, Vic., Australia: KPMG/FBA/Deakin
33 University.
- 34 Hall, BH, F Lotti and J Mairesse (2008). Employment, innovation, and productivity:
35 Evidence from Italian microdata. *Industrial and Corporate Change*, 17, 813–839.
- 36 Hirsch-Kreinsen, H (2008). “Low-tech” innovations. *Industry and Innovation*, 15, 19–43.
- 37 Hirsch-Kreinsen, H, K Hahn and D Jacobson (2008). The low-tech issue. In *Innovation*
38 *in Low-Tech Firms and Industries*, H Hirsch-Kreinsen and D Jacobson (Eds.).
39 Cheltenham, England: Edward Elgar.
- 40 Hirsch-Kreinsen, H, D Jacobson and PL Robertson (2006). “Low-tech” industries: Inno-
41 vativensness and development perspectives — A summary of a European research
42 project. *Prometheus*, 24, 3–21.

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- 1 Holt, DT and JJ Daspit (2015). Diagnosing innovation readiness in family firms. *California Management Review*, 58, 82–96.
- 3 Hoy, F (2006). The complicating factor of life cycles in corporate venturing. *Entrepreneurship: Theory and Practice*, 30, 831–836.
- 5 Hubler, TM (2009). The soul of family business. *Family Business Review*, 22, 254–258.
- 7 Husted, K and S Michailova (2002). Diagnosing and fighting knowledge-sharing hostility. *Organizational Dynamics*, 31, 60–73.
- 9 Husted, K, S Michailova, DB Minbaeva and T Pedersen (2012). Knowledge-sharing hostility and governance mechanisms: An empirical test. *Journal of Knowledge Management*, 16, 754–773.
- 11 IFERA (2003). Family businesses dominate: International family enterprise research Academy (IFERA). *Family Business Review*, 16, 235–240.
- 13 Jaskiewicz, P, JG Combs and SB Rau (2015). Entrepreneurial legacy: Toward a theory of how some family firms nurture transgenerational entrepreneurship. *Journal of Business Venturing*, 30, 29–49.
- 15 Jaskiewicz, P, K Uhlenbruck, DB Balkin and T Reay (2013). Is nepotism good or bad? Types of nepotism and implications for knowledge management. *Family Business Review*, 26, 121–139.
- 17 Kuzel, AJ (1992). Sampling in qualitative inquiry. In *Doing Qualitative Research*. BF Crabtree and WL Miller (Eds.). Newbury Park, CA: Sage.
- 19 La Porta, R, F Lopez-De-Silanes and A Shleifer (1999). Corporate ownership around the world. *Journal of Finance*, 54, 471–517.
- 21 Laforet, S (2008). Size, strategic, and market orientation affects on innovation. *Journal of Business Research*, 61, 753–764.
- 23 Lumpkin, GT and KH Brigham (2011). Long-term orientation and intertemporal choice in family firms. *Entrepreneurship: Theory and Practice*, 35, 1149–1169.
- 25 Merriam, SB (1998). *Qualitative Research and Case Study Applications in Education*. San Francisco, CA: Jossey-Bass.
- 27 Miles, MB and AM Huberman (1994). *Qualitative Data Analysis*. Thousand Oaks, CA: Sage.
- 29 Patel, PC and JO Fiet (2011). Knowledge combination and the potential advantages of family firms in searching for opportunities. *Entrepreneurship: Theory and Practice*, 35, 1179–1197.
- 31 Patton, MQ (2015). *Qualitative Research and Evaluation Methods: Integrating Theory and Practice*. Thousand Oaks, CA: Sage.
- 33 Pavitt, K (2005). Innovation processes. In *The Oxford Handbook of Innovation*, J Fagerberg, DC Mowery and RR Nelson (Eds.). Oxford, England: Oxford University Press.
- 35 Röd, I (2016). Disentangling the family firm’s innovation process: A systematic review. *Journal of Family Business Strategy*, 7, 185–201.
- 37 Santamaría, L, MJ Nieto and A Barge-Gil (2009). Beyond formal R&D: Taking advantage of other sources of innovation in low- and medium-technology industries. *Research Policy*, 38, 507–517.
- 39

How Does Knowledge Sharing Across Generations Impact Innovation?

- 1 Scoop (2014). *Alex Corban — Wine Industry Visionary* [Online]. Available at: <http://www.scoop.co.nz/stories/CU1409/S00216/alex-corban-wine-industry-visionary.htm>
3 [Accessed 10 September 2014].
- 5 Spithoven, A, B Clarysse and M Knockaert (2011). Building absorptive capacity to or-
7 ganise inbound open innovation in traditional industries. *Technovation*, 30, 130–141.
- 9 Steiger, T, C Duller and MRW Hiebl (2015). No consensus in sight: An analysis of ten
11 years of family business definitions in empirical research studies. *Journal of Enter-
13 prising Culture*, 23, 25–62.
- 15 Sundaramurthy, C (2008). Sustaining trust within family businesses. *Family Business
17 Review*, 21, 89–102.
- 19 Tidd, J and J Bessant (2018). *Managing Innovation: Integrating Technological, Market
21 and Organizational Change*. Hoboken, NJ: Wiley.
- 23 Trevinyo-Rodriguez, RN and J Tàpies (2006). Effective knowledge transfer in family
25 firms. In *Handbook of Research on Family Business*, PZ Poutziouris, KX Smyrnios
27 and SB Klein (Eds.) Cheltenham, England: Edward Elgar.
- 29 Von Tunzelmann, N and V Acha (2005). Innovation in “low-tech” industries. In *The
31 Oxford Handbook of Innovation*, J Fagerberg, DC Mowery and RR Nelson. Oxford,
33 England: Oxford University Press.
- 35 Woodfield, PJ and K Husted (2017). Intergenerational knowledge sharing in family firms:
37 Case-based evidence from the New Zealand wine industry. *Journal of Family
39 Business Strategy*, 8, 57–69.
- Yin, RK (1994). *Case Study Research: Design and Methods*. Thousand Oaks, CA: Sage.

AQ: Please provide page range for Refs.
Chiarvesio, et al. 2010; Hirsch-Kreinsen
et al. 2008; Pavitt (2005); Trevinyo-Rodriguez
and Tàpies (2006).