Understanding approaches to innovation through the dynamic capabilities lens: A multi-country study of the wine industry

Abstract

By drawing from the dynamic capabilities approach, this study examines innovation from the perspective of winery owners and managers representing four different countries. Semi-structured, face-to-face interviews were conducted with 56 participants. As many as twelve common forms of innovation were revealed among the four groups, with intangible aspects conforming the large majority. For instance, sensing comprised efforts to increase export markets, new winery equipment and technologies, while seizing included more presence in social media and wine tourism, focusing on niche-batch production, or preserving and rescuing ancient varietals. Reconfiguring was manifested through consistency in product quality, more knowledge of foreign languages, networking, and by trying new ways, particularly in production processes. A resulting theoretical framework, which reveals a circular process between sensing, seizing and reconfiguring, is subsequently proposed. Similarly, a developed roadmap aligned with wineries' way of innovating suggests important implications for wineries and their industry.

Keywords: Innovation, dynamic capabilities approach, wineries, operators, multi-country focus.

Introduction

The importance of innovation and innovative pursuits for enterprises is well documented in the academic literature (e.g., Dedrick et al., 2010; Dervitsiotis, 2011; Jung and Park, 2013). Throughout the decades, various definitions of innovation have been proposed. For Kanter (1983), innovation underlines "the process of bringing any new, problem-solving idea into use" (p. 20), and also refers to accepting, implementing, generating such ideas, as well as new services, products or processes. Similarly, Van de Ven (1986) conceptualises innovation in terms of developing and implementing new ideas by individuals engaging in transactions with others over time. Decreasing costs, improvements in communication, and "assembling products in teams" (Kanter, 1983, p. 20) are some of the many forms of innovation. In its multi-faceted forms, innovation can therefore be vital in supporting efforts of management to address their continually changing business environment (Dervitsiotis, 2011), including increasing competition and overcome challenges.

Pontiskoski and Asakawa (2009) explain that, through research and development (R&D) projects, many companies have successfully reinvented themselves. Importantly, while innovation within the firm is pivotal, an increasing number of firms are recognising the difficulties of operating alone, and at the same time the need to integrate concepts, research projects, and ideas from outside, "acting on an open innovation fashion" (Pontiskoski and Asakawa, 2009, p. 370). Thus, to hold their ground and achieve long-term competitive advantage, firms' innovative capability must be reflected (Lundvall, 2009). Brunnermeier and Cohen (2003) identify associations between competition and innovation, with the first helping spur the latter, citing previous research that supports this notion (Hughes, 1986; Porter and van der Linde, 1995; Scott, 1997). For instance, in the field of R&D, Scott (1997) explains that government air emissions regulations (Clean Air Act) can contribute to the pressures of R&D competition, which in turn can lead to more R&D investments among firms.

Porter and van der Linde (1995) posit that numerous case studies conducted in a variety of industries underscore that achieving international competitiveness is related to a firm's capacity to innovate and improve constantly. More recently, Negassi and Hung (2014) examined the relationships between competition and innovation among firms financed by

both public and private sector R&D. Negassi and Hung (2014) found no relationship between product market competition and product innovation among firms operating in the public sector. However, they noticed a positive relationship between competition and innovation among firms involved in the private sector.

The present study is concerned with innovation in the context of businesses operating in the very competitive wine industry; according to the International Organisation of Vine and Wine (OIV, 2017), this industry contributed to worldwide exports of 28.9 billion Euros in 2016. Campbell and Guibert (2006) highlight the increasingly competitive environment that this industry operates in as a result of globalisation, which includes new entrants or already established firms from New and Old world wine producing nations. Furthermore, high levels of competition are caused by factors such as a larger supply than demand for wine, or changing consumers' perceptions and knowledge of wines (Flint and Golicic, 2009). Another related factor is the escalating consolidation of the different tiers of the supply chain, which creates difficulties for wineries to position their products onto the ever tightening shelve space of retail establishments (Flint and Golicic, 2009).

At the same time, innovation could be a practical and strategic response for wineries to respond to the current challenging environment. Indeed, the academic literature provides strong evidence of the significance of innovation for the wine industry. Table 1 illustrates several academic contributions suggesting various ways in which the wine industry innovates. Key predominating themes emerge, particularly product innovation, for instance, in the form of improved quality of wines. Marketing strategies and activities, R&D undertakings, procuring new technology (machinery, equipment), acquiring and/or disseminating knowledge, new product development, training methods and mechanisms, exports, and packaging innovations were additional ways of winery innovation.

Table 1 Here

The present research has several objectives that represent practical and theoretical contributions to the entrepreneurship literature. First, by investigating how wineries are innovating, and the reasons for doing so, the study adds to the existing body of knowledge concerning innovation among wineries. Second, and at the same time, as opposed to most existing research on innovation in the wine industry, the study takes an international and multi-country approach, examining innovation from the perspective of winery operators in four countries, two from the Old World and two from the New World of wines. In fact, to date, only one study (Leenders and Chandra, 2013), which examined green innovation among wineries, has adopted a multi-country approach. The study researched into New World wine producing nations only.

Third, a theoretical framework developed following the study's inductive approach provides a deeper understanding of innovation practices and their implications in the context of the wine industry, thus, again, making a direct contribution to both the entrepreneurship and dynamic capabilities literature. To this end, the study's theoretical foundation will draw from the dynamic capabilities approach (e.g., Teece et al., 1997; Teece, 2018). The model provides opportunities to understand the different responses to changes in the business environment, and the need for firms to adapt and thrive, including by means of innovating.

Literature Review

Dynamic capabilities and innovation

Throughout the last decades, various authors have proposed the development of different theories of innovation. Suggestive titles have been put forward, including "Towards a theory of innovation in services" (Barras, 1986), "Towards a theory of innovation in services: a state

of the art" (Gallouj and Savona, 2010), "Toward an evolutionary theory of innovation and growth in the service economy" (Potts and Mandeville, 2007), or "Towards a grounded theory of innovation in online journalism" (Steensen, 2009). These efforts, however, do not seem to have materialised into fully-fledged, robust theoretical frameworks.

Consequently, numerous studies focusing on innovation (e.g., Camisón and Villar-López, 2014; Damanpour, Walker and Avellaneda, 2009; den Hertog et al., 2010; Zahra and Nielsen, 2002) draw significantly from more established frameworks. Chosen theories include, but are not limited to, the resource-based view (RBV) of the firm (Barney, 1991), or the dynamic capabilities approach, which is an extension of the RBV (Easterby-Smith and Prieto, 2008).

The RBV is based on the premise that, firm resources, as resources of sustained competitive advantage have to be heterogeneous and immobile, and additionally meet the following key criteria: be valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991), also referred to as VRIN criteria (Teece, 2014). Resources are manifested through efficient procedures, machinery, brand names, employing skilled staff, or knowledge of technology within firms (Wernerfelt, 1984).

Earlier research (e.g., Eisenhardt and Martin, 2000; Helfat and Peteraf, 2003; Teece, et al., 1997) proposed part of the foundation of the dynamic capabilities approach. Indeed, while dynamic capabilities are accentuated in the context of high-technology industry scenarios (Teece et al., 1997), their conceptual usefulness can be transferred to other industry scenarios, including the wine industry (e.g., Cherubini Alves et al., 2011; Chirico and Nordqvist, 2010). Teece et al. (1997) explain that, given the global competitive environment, key factors for firms to become winners include timely responsiveness, flexible and rapid product innovation, along with effective managerial capabilities to redeploy external or internal competences.

Thus, dynamic capabilities encompass firms' ability to build, integrate, and reconfigure those competences to respond to rapid change (Teece et al., 1997), and are strongly associated to innovation. Lawson and Samson's (2001) study suggests that link, when they propose that innovation management can be perceived as a type of organisational capability. Moreover, firms that excel nurture and invest in organisational capabilities, allowing them to implement effective innovation processes, notably, in new product, processes, and services, which all lead to superior business performance outcomes (Lawson and Samson, 2001).

The dynamic capabilities approach (DCA)

From originally emphasising the importance of dynamic capabilities as a framework to analyse methods and sources to capture and create wealth among firms performing in environments experiencing rapid technological changes, more recent literature associates dynamic capabilities to broader contexts. For example, Teece (2007) emphasises the significance of the micro-foundations (e.g., distinct processes, skills, and procedures) of dynamic capabilities, which are difficult to deploy or develop, and that firms need to maintain superior performance. In this case, Teece (2007) explicitly refers to firms operating in an open economy, where globally dispersed innovation, sources of invention, and manufacturing capability are common features. These micro-foundations form the basis of three fundamental capacities, also called clusters of adjustments and activities (Teece, 2012), or asset orchestration processes (Teece, 2007), namely *sensing, seizing and reconfiguring*.

Furthermore, Teece (2007) explains that the managerial/organisational processes proposed as key components of dynamic capabilities in previous research (e.g., Teece et al., 1997), notably, learning, coordination/integrating, and reconfiguring, represent a subset of processes supporting sensing, seizing, and managing threats (reconfiguring). In fact, Teece (2007) proposed a framework illustrating the foundations of dynamic capabilities and firm performance depicting the above processes:

1) Under *sensing*, the framework highlights individual capacities to sense and learn, shape, calibrate, or filter opportunities. Sensing entails assessing, identifying opportunities (Teece, 2012); it is essentially a monitoring, scanning, creating, interpretive, or learning activity, which is usually complemented by investing in research and similar undertakings (Teece, 2007). According to Helfat and Peteraf (2015), in sensing, acute cognitive capabilities are required, including alertness, which can enable the creation and detection of opportunities.

2) Enterprise procedures, incentives, designs, and structures underscore the *seizing* orchestration process (Teece, 2007). Additionally, seizing stresses the importance of tight planning (2007), mobilising resources to exploit opportunities, and to acquire value (Teece, 2012). Seizing is typically addressed through new services, products, or services, and demands investments in commercialisation or development actions (Teece, 2007). While perception and attention are associated with sensing, reasoning and problem-solving, which is directly aligned with innovation (Kanter, 1983), are related to seizing (Helfat and Peteraf, 2015).

3) The third orchestration process, *reconfiguring*, is associated with permanent alignments and realignments of specific intangible and tangible assets; these contribute to transformation and to managing threats (Teece, 2007). Moreover, reconfiguration refers to the competence to recombine organisational structures and assets as the firm grows, and as technologies and markets continue to change (Teece, 2012). Furthermore, evolutionary fitness is at the core of reconfiguring (Teece, 2007), which is strongly associated with innovation (Teece, 2014). Moreover, success will trigger some form of routine, which is needed for operational efficiency, as routines can contribute to continuity until changes in the environment occur (Teece, 2007).

These three key orchestration processes also align with a more recent contribution by Teece (2018), who explains that dynamic capabilities not only recognises that firms can adapt to their business environment, but that they can also and often shape it.

Dynamic capabilities and the wine industry

Past wine entrepreneurship research has considered dynamic capabilities as a lens through which critical aspects, including innovation, can be examined. Chirico and Nordqvist (2010) studied two family wineries operating in Italy and two in Switzerland, and found varying levels of dynamic capabilities. For instance, one of the firms displayed strong orientation to enter new markets. Furthermore, dynamic capabilities were demonstrated as resources were exchanged within the firm, and acquired outside; these resources were transformed and used for further growth. At the same time, Chirico and Nordqvist (2010) noticed that organisational culture within the family firms was a significant factor affecting the extent to which dynamic capabilities were created, with family inertia significantly preventing such development.

A second study based on data from three family firms also based in Italy and Switzerland, two of them being wineries (Chirico, 2007), found that dynamic capabilities were manifested through the creation of new, as well as already existing, knowledge within the family firm. Importantly, knowledge emerged from sharing and acquiring efforts, from accumulated experience and transfer, or from collective learning (Chirico, 2007).

A third study focusing on Hungary's wine industry (Dries et al., 2014) confirmed the manifestation of dynamic capabilities. Fundamentally, knowledge-related elements were present throughout to include the availability of high-skilled staff, staff who spoke English or

were familiar with information communication technology. Similarly, dynamic capabilities were also exhibited by the firm through specific know-how or having intensive information exchanges with suppliers or buyers, as well as reciprocating in sharing know-how with competitors (Dries et al., 2014). Finally, Cherubini Alves et al.'s (2011) research, which focused on two Brazilian wineries revealed that dynamic capabilities were illustrated through the development of innovation, changing routines and capabilities, in this case, the wineries' production (winemaking, viticulture), R&D and marketing capabilities.

Overall, however, the discussion of dynamic capabilities in these contributions has been limited to basic illustrations, lacking more empirical depth and falling short from proposing theoretical underpinnings based on the findings and the DCA. By extending from these investigations, the study will address these empirical and theoretical gaps. Moreover, by adopting the DCA as a theoretical foundation, the study examines innovation among wineries from a multi-country perspective. The study address the following research questions (RQs):

RQ1: How is innovation manifested in the participating wineries?

In accord with earlier conceptualisations of innovation (e.g., Kanter, 1983; Van de Ven, 1986), this question seeks to ascertain how the participating winery owners/managers are developing new problem-solving ideas or processes and implementing these in the context of their businesses, for instance, to create new products or services. Furthermore, the contemporary wine entrepreneurship literature identifies some links between conceptualisation of innovation and ways of innovating, such as product development and differentiation (Aylward, 2007), acquiring new equipment and technology (Doloreux and Lord-Tarte, 2013), or idea generation (Dries et al., 2014).

RQ2: Why are they innovating?

Following from RQ1, this question emphasises the rationale for innovation among wineries. In agreement with Dervitsiotis (2011), such rationale revolves around the need to design supporting efforts to follow or adapt to the constantly changing business environment. Based on previous research (e.g., (Campbell and Guibert, 2006; Flint and Golicic, 2009), one key rationale for innovating could be the need to counteract or protect the winery against competitive forces.

RQ1 and RQ2 not only seek to understand the associations between ways of innovating, reasons for doing so, and those concerning the three orchestration processes (Teece, 2007). Moreover, and partly aligned with contemporary wine business research (e.g., Chirico and Nordqvist, 2010; Dries et al., 2014) the study evaluates the usefulness of the DCA to investigate innovation in the wine industry, which, together with the findings, will develop into a proposed theoretical model. Therefore, the following additional question will be addressed:

RQ3: How does the DCA contribute to an in-depth understanding of innovation in the context of the wine industry, including the relationships between innovation and the DCA's orchestration processes?

This question is in line with Reay and Whetten (2011), who posit that when theory enhancement is the objective of scholarship, "the motivating research question should (a) suggest the author's perceived limitation in the current theoretical argument and (b) foreshadow the proposed contribution" (p. 108).

Methodology

This study has several key objectives, with each illustrating a contribution made to the entrepreneurship and dynamic capabilities literature. One objective is to examine approaches to innovation, formulated in the how (RQ1) and why (RQ2) of innovation, focusing on the wine industry, and from the perspectives of winery entrepreneurs operating in four different countries. Thus, the unit of analysis, conceptualised as "the idea of a bounded set of elements comprising the entity which is the focus of the research" (Gronn, 2002, p. 444) is represented by winery owners and managers, and their perceptions of how and why to innovate. An additional fundamental objective of this study is to consider and determine the value of the DCA in helping explain these dimensions (RQ3) in the context of the wine industry.

In agreement with previous research examining firm innovation (e.g., Bunduchi, 2017), a case study method was employed. Denscombe (2010) explains that cases studies concentrate upon one or several instances of a specific phenomenon with the objective to provide in-depth accounts of processes, events, experiences or relationships taking place in such a particular instance. Case studies are concerned with 'how' and 'why' questions (Yin, 2009), can contribute to theory development (Eisenhardt, 1989), and foster the usage of various forms of data (Denscombe, 2010), including interviews, archival data, and observations (Eisenhardt, 1989), ultimately facilitating validation through data triangulation (Denscombe, 2010).

As is the case with most qualitative research (Barczak, 2017), the study utilises inductive analysis, which relates to approaches mainly employing specific readings of raw data by researchers, and subsequently developing themes, concepts, and models (Thomas, 2006). Not surprisingly, an inductive approach advances and helps build theory (Barczak, 2017). In the present study, such theory is developed in conjunction with the DCA and innovation, resulting in a theoretical framework that has its viability and insightfulness assessed in the context of wine production.

In line with Patton (2015), a purposive method of data collection was chosen, whereby information-rich cases that help illuminate the main questions under examination are appropriately selected. Selecting individuals who are knowledgeable and experienced in winery entrepreneurship, and in matters related to innovation justified initial contact with winery owners and managers operating in four different countries. This broad selection was also perceived to elicit information to learn from and contrast different forms or approaches to innovation, especially as the regions under examination are seeking to develop in various ways (brand/destination image).

Alongside the purposive method, the study adopted a constructivist paradigm, which advocates the relevance of interactions between the subject under investigation and the researcher (Ponterotto, 2005). This interaction is therefore fundamental, as it helps uncover deeper meanings, and enables findings to be developed or co-constructed through joint interactive dialogues and interpretations by both participants and the researcher (Ponterotto, 2005).

Conducting searches in various websites of wine associations in two New and two Old World wine countries allowed identification of 122 email addresses from as many wineries (Table 2). The wine associations retain data on their member wineries. Consequently, while over the years new players may enter the industry while others exit, overall it could be argued that winery associations' data often reflect the population of officially registered wine producers. This membership information was therefore utilised to compile a list of existing New and Old World wineries, where the purposive sampling criteria was then applied in their selection.

These businesses were contacted in September of 2016. The message explained the objectives of the study and formally invited the owners/managers to take part through a face-

to-face interview. In all, 54 wineries agreed to participate in the study, and 56 individuals were interviewed.

Between December of 2016 and January of 2017, and subsequently between June and July of 2017, one of the authors, who is fluent in Spanish and Italian, travelled to Argentina-Peru, and Spain-Italy, respectively. The interviews, which were audio-recorded with the agreement of respondents, were on average 70 minutes long. The visits also allowed for observations of the businesses for data collection purposes. These additional sources of information gathering are in accord with the principles of case study research (Yin, 2009), and with those of data triangulation (Baxter and Jack, 2008).

The interview protocol first entailed preliminary questions seeking to learn about demographic aspects of the participant and the winery (Table 2). Subsequently, two open-ended questions were asked:

Question 1: How is your winery innovating? For instance, in what ways is your winery innovating?

Question 2: Why is your winery innovating? In other words, what are the main reasons for you to innovate?

These open-ended questions allowed for extended comments, which were vital in clarifying the associations between innovation and the dynamic capabilities of the firms, providing opportunities to examine their potential to achieve competitive and sustained competitive advantage. The questions were developed in conjunction with a review of literature on innovation in the wine industry (Table 1). The audio recordings were translated and transcribed, with all members of the research team participating in the latter process to ensure consistency and cross-checking of the content.

The literature remains divided and no consensus exists as to when data saturation occurs; data saturation refers to the stage when no new information or themes are obtained or identified in the data (Guest et al., 2006). Data saturation can be achieved by having rich, good data, though these are not sufficient indicators (Morse, 2015). Because qualitative samples are somewhat small, Morse (2015) posits that they must exhibit appropriateness, for instance, conducting interviews with "experts in the phenomenon of interest" (p. 588), and adequacy, in that samples should be "large enough for replication to occur and be noted" (p. 588). This study fulfils these aspects. Furthermore, the study follows O'Reilly and Parker's (2013) suggestion that, "when applying the notion of saturation to sampling adequacy…the appropriateness of the data" (p. 195) should be the main marker.

To analyse the data, qualitative content analysis was chosen. This method is based upon subjective interpretations of text data content, by following a process of systematic classification, whereby patterns and themes are identified and coded (Hsieh and Shannon, 2005). To complement the qualitative content analysis process, the data management software NVivo, version 11, was utilised. In addition, computer-assisted qualitative data analysis software (CAQDAS) (Fielding and Cisneros-Puebla, 2009) provided further support, particularly in the identification and visual display of nodes (e.g., Figures 1, 2, and 3).

Data collected from the case studies were examined for prevalent issues through classical content analysis (Leech and Onwuegbuzie, 2007; 2011), whereby emergent themes were identified. Coding was undertaken *a posteriori* in NVivo through the use of nodes. The number of sources and mentions across the dataset were utilised to identify the prevalent themes across the different wineries. These counts and the associations between the data drawn from the different wineries aided in the conceptualisation of the theoretical framework. Coding in NVivo was also reviewed by the research team to ensure consistency in

terminology and understanding, thereby enhancing reliability and validity of the issues identified.

Demographic characteristics of participants and their firms
As illustrated in Table 2, the majority of the participants (32, 57.1%) were owners or co-owners, and had worked for 15.6 years on average in the wine industry. Also, most wineries (50, 92.6%) were open to the public, and three of the four that were not had made plans to open in the future. In addition, 26 wineries (48.1%) employed at least 10 staff, 23 (52.6%) between one and nine, and only five wineries (7.4%) did not employ any staff. Furthermore, 42 (77.8%) wineries were exporting, and 46 (85.2%) were family-owned.

Table 2 Here

Results

How wineries are innovating (RQ1)
The undertaken content analysis revealed numerous ways in which wineries were innovating. These forms of innovation were present at an individual country level, or common to several countries (Figure 1), and aligns with the dynamic capabilities literature (Rothaermel and Hess, 2007), which suggest that antecedents to innovation are found at firm, network, or individual levels.

The fourteen triangulated nodes identified in comments from participants representing the four countries comments underlined tangible (hard) and intangible (soft) approaches to innovation. These findings provide vital understanding and signposting into how wineries value the process of innovation. For example, there was strong emphasis on investing in new technology and production machinery, enhancing the overall quality of wine production, or trying new ways, particularly in developing products or growing and production processes. As the following selected comments accentuate:

> I9: *The latest investments we made were in technology, for example, installation of solar panels to generate photovoltaic energy, which currently produces 25-30% of our energy needs.*
> P1: *we also send our employees to- and often pay for- workshops so that they learn latest developments, techniques and processes, including new pruning techniques, fermentation processes, or fertilisation...*
> SP1: *...I have automatized all mechanic production processes, for instance, handling the grapes, maximisation, riddling or disgorgement, everything is automatized, which enables significant improvements in the production process, including the overall quality of both product and labour.*

Figure 1 Here

These more tangible approaches to innovation have also been highlighted in previous wine entrepreneurship research (e.g., Aylward, 2007; Doloreux and Lord-Tarte, 2013, 2014; Sánchez-Hernández et al., 2010; Vrontis et al., 2016, Wood and Kaplan, 2005).

In contrast, in eleven out of the fourteen approaches identified by participants from the four countries, innovation was highlighted or referred to in intangible forms. Arguably, these are strongly associated with process innovation, which refers to the introduction of significantly enhanced- or new- production, administration, or supply chain processes (Piening and Salge, 2015). Again, some of these approaches, such as increasing exports, brand promotion, and to some extent networking with different stakeholders, which enhanced knowledge, were also found in earlier studies (e.g., Aylward, 2007; Aylward et al., 2006;

Gilinsky et al., 2008; Giuliani and Bell, 2005; Sánchez-Hernández et al., 2010). However, in other cases, the findings revealed approaches that have vaguely, or not emerged at all in previous studies. First, an association between innovation and knowledge of foreign languages was noticed. Among other comments, I7 acknowledged that recently the winery had hired a Canadian citizen who was fluent in both English and French to cater for trade and international visitors.

Direct observations further highlighted the importance of such knowledge. I2, for instance, had worked for nearly a decade in Germany, and taken over the winery through the generational process. During the interview, the participant, who undertook a one-hour presentation to foreign visitors, not only intensively used his skills in the German language, but also his tacit knowledge through the tasting and expertise, thoroughly explaining processes and sensorial aspects. The concept of tacit knowledge denotes knowledge tied to the senses, implicit rules of thumb, physical experiences, and movement skills; in essence, it is unarticulated knowledge, including that of wine tasting (Nonaka and von Krogh, 2009). Thus, I2 was simultaneously engaged in various key innovative approaches, notably, networking, educating and learning from visitors, promoting the brand, and extending presence in wine tourism.

Indeed, involvement in wine tourism is suggested in the literature as a way for wineries to innovate, for instance, through diversification and value added activities that include packaging tourism services and attractions with wine products (Martin and Williams, 2003). While implicitly new product development (Aylward, 2007; Aylward et al., 2006) has links with the packaging of the winery visitation experience, wine tourism has not been explicitly associated with innovation in empirical studies focusing on this dimension. However, in this study, such involvement was clearly acknowledged as a vital second innovative approach that sets apart the findings of this study with those of other authors.

A third approach, rescuing and/or maintain the region's ancient varietals, was arguably partly associated with a fourth, notably, focusing on niche, batch wine production. Moreover, rescuing ancient varietals demanded time to grow the vineyards, and in some cases, production per vine was modest, which inevitably led to small, limited edition production (I10):

> *We have 16 vineyards, 5 different typologies grapes… [We] rescue some grape varieties that are almost extinct and give dignity to centuries of history and hard work that often are trivialised... Typically, these varieties produce a limited amount of grapes, but for us they are very important, because they too have a story to tell.*

Together with foreign language skills, these three approaches represent key strategies that at the same time presented the winery with a combination of unique, value-added, rare, and difficult to imitate resources in the short or medium term. Therefore, there are clear linkages between some of the innovative approaches that emerged and the VRIN criteria (Teece, 2014). A fifth approach consisted of blending traditional with more modern ways of operating; this approach was encapsulated in the case of A5, whose family had been in the local wine industry since 1880:

> *This winery rests on three fundamental pillars: a) tradition, which comes with being family-owned, b) caring for the environment, reflected in our organic certification, and c) constant innovation. While wine has been produced for thousands of years, it is an industry which constantly evolves. Thus, we try to*

amalgamate the wine-making tradition with new elaboration techniques, and the constant change in wine tastes.

A last approach, more presence in social media, also illustrated the intention for wineries to blend both traditional methods, such as networking with importers or having face-to-face contact with visitors, with more modern ones; as I13 acknowledged: *"We are actively involved in social media (e.g., TripAdvisor), and many of our visitors find out about us through this means. Still today, many Italian firms lack this involvement; they find it difficult to embrace a more dynamic marketing strategy..."*

Main reasons for innovating (RQ2)

When considering the rationale for innovation, the results revealed a number of triangulated nodes that were consistent across all four countries (Figure 2). Changes in the marketplace, such as growing competition, and to some extent the need to diversify denote a reactive approach. For instance, in the context of Spanish wineries, the growing market power of larger Cava wineries was perceived as a threat to micro and small wineries, particularly through price competition (S12): *"The sector has evolved, and the price-based competition has been very abrupt, that if you are unable to give something extra… it becomes very difficult to compete."*

As a result, these and other participants sought diversification to maintain or increase margins, particularly through wine tourism, which allowed them so sell their products directly to visitors without any extra costs, or incrementally building their exports, in part also through visits, where new contacts or repeat purchases could be achieved. As A4 explained: *"Tourism helps a lot, especially in those countries where we export our wines, in that the visitors can search our wines in their country of origin once they return."* These results are partly in agreement with Gilinsky et al. (2008), who found that, apart from competition, innovation among wineries was driven by changing market demographics, and the pressure to internationalise. Leenders and Chandra's (2013) findings concerning wineries' involvement in green innovation also denote reactiveness to a certain degree, notably, in that competitive pressures, consumer demands, or cost management were some reasons for them to innovate.

In addition, innovating due to increases in visitor numbers or more consumer demand for the products (Figure 2), while arguably related to reactive responses, also falls under the wineries' internal domain, where, as opposed to global competition, they retain a stronger position to control or manage uncertainty. Moreover, these forms of innovation suggest a conscious choice to innovate, and therefore a forward-planning approach, as a means to drive the business forward successfully. P6's comment was an illustration of foreseeing opportunities at a local scale: *"The hospitality industry does demand our products, and in a way is helping our industry."*

Figure 2 Here

This perceived increased future demand also implies a commitment and responsibility to deliver high quality products. This form of reciprocation was highlighted more explicitly by A9, whose comment underscored the importance of continuous innovation as a means for building a strong regional brand image based on a high-quality, unique wine product: *This area will continue to strengthen the quality of its vineyards and products: there is no way around this, and as a result, it will become more known in the future for its wines...*

Finally, the node denoting the preservation of the family business suggests a focus upon sustainability of the business. As would be expected given that all firms were family-owned,

this node was much more prominent among Italian and Spanish wineries. Indeed, numerous comments revealed the significance of family business succession, as well as the desire by owners to develop, strengthen or consolidate a sustainable business for new family generations. In fact, in five cases (I8, I12, I13, I14, I16), participants from Italian wineries already represented the new generations of the family firm. At the same time, although less prominent, the importance of family business sustainability was also strongly emphasised among Southern Hemisphere respondents (A2, A5, P1- P5).

Discussion

Dynamic capabilities at work: The proposed theoretical framework (RQ3)

Figure 3 illustrates the results of content analysis, in which the originally emerging 14 common nodes concerning how (Figure 1), and the six nodes that referred to why wineries are innovating (Figure 2) were examined in the context of the three orchestration processes. This illustration represents a preamble to the proposed theoretical framework (Figure 4), which follows the principles of the inductive approach, as suggested by Thomas (2006).

According to Gioia and Pitre (1990), theory building is a process whereby theoretical representations can be created, refined or tested. Nelson and Winter (1977) conceptualise a theory as "a reasonably coherent intellectual framework, which integrates existing knowledge, and enables predictions to go beyond the particulars of what actually has been observed" (p. 37). Siggelkow (2007) identifies two challenges in the process of developing theory. First, models and theories always represent simplifications: "if they were as complex as reality, they would not be useful" (Siggelkow, 2007, p. 21). Thus, their value is to reveal likenesses across cases, cutting through idiosyncrasies. The second caveat is to develop a new conceptual framework "that does not overdetermine the phenomenon" (p. 21). Moreover, as a researcher is immersed in case study research, numerous variables may seem to be crucial. However, theories are only useful if they "can rise above the idiosyncratic case" (p. 21). Therefore, to build useful theories, the research will have to make both simplifications and choices (Siggelkow, 2007).

Figure 3 Here

Furthermore, in referring to earlier research (Dubin, 1978; Whetten, 1989), Reay and Whetten (2011) reflect on several building blocks that constitute a theoretical contribution. Essentially, they posit that strong theory should explain phenomena of interest in a reliable fashion, and therefore provide answers to four fundamental questions. The following paragraphs will present these questions, and answer them in the context of the present research, and thus demonstrate the study's theoretical contribution:

1) What are the critical factors that help explain the phenomenon of interest?

In the present research, the phenomenon of interest revolved around innovation, and more specifically, around the critical factors explaining its approach, notably, the ways and reasons as to why wineries are innovating. In addition, critical factors were represented by the DCA's orchestration processes (sensing, seizing, and reconfiguring), with clear associations and links to the findings (how, why wineries innovate). These factors all contribute to understanding the importance of innovation for firms as a phenomenon of interest, and allows them to address their changing and competitive business environment.

2) How are these critical factors related to one another?

The findings shown in Figures 1 and 2, and subsequently integrated with the orchestration processes (Figure 3) depict relationships between all four participating countries. More

specifically, from the original 14 nodes directly related to approaches to innovation and the six nodes reflecting the reasons to innovate that emerged as common across all countries, Figure 3 shows a second process, whereby relationships between ways and reasons for innovating and the DCA's orchestration processes emerged. Whereas various relevant elements of innovation were uncovered in previous studies, such as improvements in product quality, acquiring new technologies/equipment, or increasing exports (Table 1), this study has identified additional insightful relationships. For instance, rescuing and/or maintaining ancient local varietals, focusing on niche/batch production (e.g., limited editions), blending traditional with more modern practices, or knowledge of foreign languages can potentially provide a strong competitive foundation to wineries.

At the same time, the relationship between ways of innovating and sensing, seizing, and reconfiguring mirrors VRIN attributes, and therefore have important implications for wineries, in addressing their competitive environment as well as their sustained competitive advantage. In agreement with Whetten (1989), who posits that "Relationships, not lists [of variables], are the domain of theory" (p. 492-493), these relationships provide a strong theoretical contribution to the present study, and are further depicted in the proposed theoretical framework (Figure 4). The framework represents a roadmap, which guides the understanding of the above relationships, and signposts important implications, particularly in terms of future competitive and sustained competitive advantage for both the individual winery and the region's wine industry.

Figure 4 Here

3) Why does the represented phenomenon merit to be considered believable? The research conducted among the four countries identified common triangulated themes with regard to innovation and alignments with the DCA that render the research, and the emerging themes, credible. This consistent occurrence in the emerging themes provides a credible basis for the research. Moreover, the association between ways of innovation and sensing, seizing and reconfiguring provides support for the following proposition posited by Figure 4: *Wineries that exhibit the nine key ways of innovating, which are associated with VRIN attributes and with the DCA's orchestration processes, are equipped to achieve competitive and sustained competitive advantage.*

Combined, these methods allow wineries to identify opportunities as well as threats (sensing), mobilise resources to tap into opportunities (seizing), and to develop routines (reconfiguring), which are conducive to continuity until further changes take place in their business environment (Teece, 2007). Furthermore, the four reasons why wineries innovate (Figure 3) were associated with sensing, seizing, and reconfiguring, and reinforce the above concerns that contribute to competitiveness. The results in Figure 3 can also be conceptualised into the following proposition: *Wineries that exhibit the nine different approaches to innovate, which are related to the DCA's orchestration processes, are able to spot business opportunities, in a position to diversify, enhance firm survival, and respond to competition, with implications for their future competitive advantage.*

4) Under what conditions do the predictions of the theory reflect truthfulness?
Dynamic capabilities, which represent a set of identifiable and specific processes, including strategic decision making, alliancing, and product development, exhibit commonalities across enterprises, and are often referred to as 'best practice' (Eisenhardt and Martin, 2000). The findings of the present study illustrate that such best practice takes tangible and intangible approaches to innovation, such as product quality improvements, rescuing ancient varietals,

or foreign language skills. In turn, it became apparent that these and other approaches (Figure 3) were strongly related to the DCA (Teece, 2007, 2012, 2014).

In essence, this theory postulates the importance of skills, processes, and other forms of micro-foundations as the basis for the three orchestrating processes (sensing, seizing, and reconfiguring) (Teece, 2007). Moreover, these micro-foundations, which undergird the orchestration processes, are difficult to deploy and develop (Teece, 2007). In reference to Reay and Whetten's (2011) question, the findings of this study illustrate the conditions under which the DCA holds true. Moreover, the findings reflect Teece's (2007) proposition, in that firms that are aligned in terms of both the micro-foundations and orchestration processes can not only adapt to their business ecosystems, but also shape these ecosystems, including through their innovative practices.

Conclusions

This study makes several contributions to the entrepreneurship and wine business literature. First, while numerous efforts have been made in investigating innovation in the wine industry, there is a paucity in studies focusing on multiple geographic settings. This study illustrated approaches among Northern and Southern Hemisphere wineries and their activities and reasons to innovate. Second, by focusing on the study's unit of analysis, represented by the 'how' and 'why' of innovation from an international winery ownership/management perspective, the study provides unique, in-depth and useful insights, with potentially beneficial outcomes for the wine and other industries. Third, while various contributions have partly reflected on dynamic capabilities as a theoretical foundation, these studies have fallen short from providing an in-depth analysis, particularly in capturing the orchestration processes (sensing, seizing, and reconfiguring) more holistically. By proposing a roadmap evidenced by robust, emergent and triangulated data across all cases and countries- particularly through the signposting in Figures 3 and 4- the present study satisfies this need.

The findings reveal 14 common ways in which wineries are innovating, including by focusing on niche/batch production, blending traditional and modern approaches, or more presence in social media. In addition, the need to diversify, responding to more domestic and/or international demand, or foreseeing opportunities were several among six key reasons to innovate.

Furthermore, the results posit that wineries and the wine industry should place value on innovation, but not solely in investing in tangible assets such as machinery and technology. Instead, there needs to be an equal focus upon the less tangible and softer aspects of innovation to include brand promotion and the vital need to utilise foreign languages. Moreover, and importantly, in pinpointing these approaches that emerged from the findings, and how many of which are intrinsically related to process innovation, the study has also made a contribution to this line of research, which, despite its value, is still a neglected area (Piening and Salge, 2015).

The proposed theoretical framework not only extends academic understanding but also creates a foundation where practical outcomes can be gained. The framework provides the opportunity to reflect upon generic (for example new equipment and technology, product quality) yet crucial approaches to innovation. At the same time, the framework captures industry/sector and firm-specific approaches (niche/batch production, ancient varietals and foreign language usage) that reflect VRIN attributes and therefore represent sources of competitive and sustained competitive advantage (Barney, 1991).

Implications

From a managerial perspective, as indicated by the four countries examined, there is strength and value in utilising a balanced approach, embedding both hard (e.g., consistency of product

quality) and soft forms of innovation (e.g., more present on social media, foreign language skills). Furthermore, where much previous research has identified innovative practices across the entire spectrum (Figure 1), there are a number of key aspects that are specific to wine production that have been identified by this research. These newly identified aspects provide a useful roadmap in identifying the key innovative developments that could enable wineries to attain a competitive advantage. For instance, creating niche demand through batch production could facilitate uniqueness and lead to a specialised product range. Similarly, rescuing or preserving ancient varietals could provide elements of uniqueness and niche production, and potentially a strategic edge by offering 'off-the-beaten path' products and experiences. Interestingly, there is also a need to expand social media presence along with widening the range of foreign languages utilised. These provide unique milestones and insights into triggering appropriate resourcing of innovation.

The theoretical framework (Figure 4) identifies strong linkages when considered against innovation. Sensing provides a vital pre-cursor, where new opportunities or challenges that provide the organisation with a competitive advantage are identified. These are then 'seized' where wineries essentially mobilise resources to build upon the identified opportunities. These needs are reflected in the development of new products, services or avenues to fill these needs via innovation. The process of innovation is not complete until that need is fulfilled, which mirrors the reconfiguration notion within the DCA, where seizing becomes reconfiguration to enable success. The framework suggests a circular motion in which each element feeds into each other, to deliver outcomes that affect the organisation, in this case, the wineries.

Innovation could be viewed as an iterative process here, where the framework has implications for not only the winery itself but the industry as a whole. These complexities are reflected in the simplicity of the framework and DCA, where the origins of innovation commence during sensing but is effectively undertaken, transformed, and then delivered during seizing and reconfiguration. Thus, while specifically focused on the wine industry, the resulting framework (Figure 4) could illuminate research in other industries, particularly rural-based industries, facing similar concerns, and operating in an environment where orchestration processes could be considered as a way to become resilient and adapt to rapid changes.

Finally, the findings also signpost some vital areas for policy and government consideration. Indeed, much of the rationale driving innovation is proactive. As such, there could be avenues for funding and policy implementation that reduces bureaucratic barriers, enabling wineries to diversify and grow their international markets. These changes and perhaps new measures to try to alleviate such restrictions would provide opportunities and develop stronger competitive advantage.

Limitations and Future Research

While this research provides theoretical and practical insights, as with most research, it is not free of limitations (Ioannidis, 2007) For example, while the study focuses upon New and Old World wine regions, other emerging players in the wine industry including newcomers from Europe as well as Oceania and North America also merit attention. This is therefore a limitation of this study, which could be addressed in future research, through undertaking interviews or observations in these emerging wine regions. This new knowledge would enable substantiation or extension of the findings made in this investigation, including the operationalisation of the DCA to study innovation as a source of wineries' competitive advantage. In addition, by expanding the scope to other wine regions, there is potential to undertake comparative analysis. Furthermore, while the study was specifically focused on the wine industry, future research could employ a similar methodological and theoretical

approach to investigate other industries, which, as is the case of the wine industry, are operating in a competitive and rapidly changing environment.

This study provides a strong theoretical foundation proposing the DCA as a tool to understand innovation and its related approaches. Future research could employ the methods undertaken by this study, for instance, in relation to the development of a theoretical contribution (Reay and Whetten, 2011). Moreover, other theoretical approaches could be incorporated, including institutional or knowledge based theories to understand innovation. Importantly, the emergent theory of this paper may provide signposting or reflection against other theory development, leading to greater understanding of dynamic capabilities and its association with innovation.

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