Marianna Sigala
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Technology Advances and Innovation in Wine Tourism

New Managerial Approaches and Cases

Springer

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Part I
Introduction

Thriving in Wine Tourism Through Technology and Innovation: A Survival or a Competitiveness Need?

Marianna Sigala

Abstract As global competition between wine destinations and wine tourism operators intensifies and the wine tourism demand becomes more sophistication innovation and digital transformation have become an unavoidable necessity for survival and the COVID-19 crisis has accelerated change and the reset of the wine tourism industry as well as the need to make the industry more sustainable, resilient and adaptable. Technologies and innovation as necessity have been instrumental for enabling the wine tourism industry to go through the crisis, re-start but also resetting its practices. In discussing these trends, this chapter also advocates innovation and the creative use of technological advances as two major tools for making the wine tourism industry more competitive, flexible and resilient to address any future crises and contemporary challenges. The chapter identifies the major technological advances that currently drive and can lead future innovation in wine tourism. It also identifies synergies with the high-tech sector, government and/or industry led initiatives to create inter-industry collaborations as well as digital capabilities are the critical success factors for implementing digital transformation within the wine sector. The chapter also discusses the role and importance of innovation within the wine sector and it highlights the importance of nurturing and fostering innovation ecosystems amongst various sectors in order to boost the co-creation innovation within the wine tourism sector.

Keywords Wine tourism · Innovation · Technology · COVID-19 induced change · Survival · Competitiveness · Innovation ecosystems · Innovation co-creation

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Technology and Innovation: A Competitive Option or Survival Need?

Wine tourism has been booming and evolving during the last decades at a global scale (Sigala & Robinson, 2019a, b). The increasing number of global wine tourism destinations, the multiplication, diversification and appeal of wine tourism experiences and offerings, as well as the increasing differentiation of the wine tourism market (including numerous mass but also niche market segments) are a double edge sword: on the one hand, they increase opportunities of wine tourism entrepreneurship, destination development, branding and differentiation, but on the other hand, they also intensify global competition.

In such a highly competitive and evolving global market, the only way to survive is change, continuous innovation, improvement and/or transformation (Sigala, 2020). COVID-19 has affected wine tourism, as all types and forms of tourism and travel. During lock-downs technologies have proved to be the solutions to enable wine tourism companies to continue having some revenue streams, maintain customer relations, interest and loyalty. Wine tourism operators quickly adopted and started using technology applications such as online wine sales for virtual social drinks, virtual wine tasting and wine pairing courses, virtual tours in wine destinations and cellar doors. COVID-19 has accelerated technology adoption by wine tourism demand and supply alike, and it has fuelled a necessity driven wine tourism innovation fully supported by technologies. When restrictions started to be relieved, wine tourism was one of the few forms of tourism that enabled people to go out in a safe and mental healing way. Taking place in rural places and avoiding crowded destinations, many people have selected wine tourism as a way to compensate for the long periods staying in: wine tourism was seen as a 'COVID-19 safe' opportunity to start socialising with friends and relatives, enjoy the well-being restoring benefits by being and experiencing again the relaxing features of nature. After COVID-19 and since the early restart of the economy, the profound changes that have been happening in (wine) tourism demand and supply are not only here to stay, but they will accelerate as the world evolves. For example, the provision of phygical and touchless wine experience and wine events is not a 'luxury' but a standard expectation by contemporary wine tourists, who wish to stay connected, share and co-create with remote others their wine experiences as well as use technologies to enrich what they 'see', feel, lrean and understand in wine tourism settings. As it becomes evident in all policy documents of countries and regions (e.g. E.U. and Asia) and companies' strategic documents sustainability and digital transformations have become top priorities in the post COVID-19 period. Recent research shows that wine tourism operators are found to have started to embrace these mandates for sustainability and technology (Baird et al., 2022; Karagiannis & Metaxas, 2020).

Overall, it appears that technology and innovation are two necessary factors contributing to the resilience, adaptability, sustainability, continuous development and evolution of all stakeholders in the wine tourism industry. What we have all learnt

going through a global pandemic, is that technology and innovation are not an option but essential tools that need to be incorporated into our daily routines, operations, and strategic actions and plans.

Technological Advances Driving Transformation in Wine Tourism

Technologies are the lifeblood of tourism, and this is also true for wine tourism. Technologies have always been instruments in supporting, enriching as well as transforming wine experiences and offerings, the operations of wine tourism stakeholders and the wine tourists themselves. Professionals at industry exhibitions and conferences (e.g. http://winetech.com.au/ and https://awitc.com.au/program/) have identified wine tech as the major factor supporting and driving change in the wine (tourism) sector. Technological advances (such as blockchain, mobile apps, social media and internet advances, crowdfunding, virtual and augmented reality) were predicted to transform and innovate the wine tourism industry (Sigala & Robertson, 2019a). At the moment, wineries and wine tourism operators are experimenting with the metaverse, NFTs and blockchain applications creating digital twins of wineries and wine destinations, selling wine (tourism) offerings through NFTs and building wine communities to redefine and reset the way wine (tourism) organisations are formed and managed (e.g. through decentralised autonomous organisations, DAO).

Proximity of, links and building ecosystems between the wine (tourism) industry and technology sectors have seen to be very fruitful and instrumentals in building mutual synergies and collaborations between these two sectors. For example, the geographical proximity of wine regions to the Silicon Valley of California has shown to produce many technological advances and innovation in the local wine (tourism) industry. Wine operators in California have been for long regarded as technological advanced and innovative, while the first ever winery on the metaverse (Evinco) has just appeared from a joint venture between Mario Roam Sculatti, a fourth-generation Napa Valley winemaker, and web3 and cryptocurrency Silicon Valley veteran the WizardOfSoho. In this vein, to foster and nurture such collaborations and synergies, countries worldwide famous for their wine and tech sectors develop initiative to bring players from these two industries together and support wine tech innovation. For example, La Wine tech initiative is developed in France (http://www.lawinetech.com/en/) and the FOMENT initiative in South Australia (http://theleadsouthaustralia.com.au/industries/technology/australia-announces-first-wine-and-tourism-tech-accelerator/).

As technologies are not an option anymore for the wine tourism operators, it also becomes evident that lack of their use creates a huge digital divide between users and non-users, which ultimately will lead to an economic divide within the wine tourism sector. Consequently, the acquisition and continuous update of technology

skills and capabilities are a must within the wine tourism sector. Build technology capacity is the only way forward to embrace the digital transformation and thrive within the increasingly technology enabled and evolving economy.

Innovation Driving Transformation in Wine Tourism

As the economy and wine tourists continuously evolve and change, innovation within the wine tourism is a survival necessity (Sigala & Robertson, 2019b). The diversification and sophistication of the profile and expectations of the wine tourists as well as the intensified global competition, demand wine tourism operators to always innovate, upgrade and transform their practices according to contemporary trends and challenges. For wine tourism operators that do not simply wish to sense market trends, identify gaps and fulfil latent needs, then innovation for them is the way to experiment, take the risks but also the benefits of the first movers' advantage. Hence, innovation takes place by both innovation followers and innovation leaders and innovation can reflect market sensing but also market forming processes within the wine tourism sector. The one type of innovation does not preclude the other. In a such competitive world, following but also leading innovation can and should co-exist. In other words, contrary to the traditional mindset, contemporary trends demand that (wine tourism) organisations need to simultaneously follow others' innovations but also lead innovation in areas where they are stronger.

To innovate, wine tourism organisations should pay attention to three major issues: the types of innovations; the process of innovating starting from the ideation process, design, testing, launching and commercialisation (Sousa, 2019); and the factors influencing innovation. In relation to innovation types, research (Hall & Baird, 2014) reveals that wine tourism stakeholders engage in both product and process innovation, radical as well as incremental. There is an increasing number of new and diversified wine tourism experiences and offerings developed by wine destinations and wineries at a global scale. For example, the Musée du Vin in Bordeaux, the Cita de Vin in Rioja, the extravagant architecture at the Marques de Riscal winery (https://www.marquesderiscal.com/en), the themed wine tourism cellar doors in Napa Valley (e.g. the Persian, The Italian palaces, the donquixote cellar doors); the underwater cellar doors and wines.

As regards innovation processes, ideas and factors leading to innovation can derive internally as well as externally to an organisation. Traditionally, innovation is perceived and practice as a planned and/or emergent process. However, what the COVID-19 crisis was taught us is that innovation can also be driven and implemented as a necessity and in fact conducted within limited time. Wine tourism firms increasing adopt open innovation mindsets (e.g. crowdsourcing solutions) using networks with customers, partners and other stakeholders to participate in the ideation stage and generate ideas for innovation. This also highlights the need to develop and be part of innovation ecosystems. Innovation in wine tourism can be

driven and inspired by both sectors namely wine and tourism. For example, innovation in wine tourism can be fuelled by innovation happening in the vine and/or wine industry as well as innovation taking place in the tourism industry (e.g. new types and business models of wine tourism suppliers, intermediaries and other operators). Beyond the wine and tourism sectors, innovation in the wine tourism can also be fuelled by any other sector, including: creative industries (e.g. wine and art festivals, gamification and virtual wine experiences); high tech companies (e.g. metaverse, cryptocurrencies and NFTs); health industries (e.g. wine tourism offerings focusing on well-being such as wine spas and wine tourism detox programs); fintech sectors (e.g. book now pay later pricing options for wine tourism). Consequently, it becomes evident that innovation in wine tourism can and should be happening within a wider ecosystem. To fuel such innovation, it is important for policy makers and professionals to continuously aim to support and nurture the formation, activation and mobilisation of wine tourism ecosystems whereby actors from various economic sectors exchange resources and co-create value and innovation. Wine tourism ecosystems will not only result to faster, more efficient and productive wine innovation, but also to flexible, adaptable and resilient tourism operators.

Factors supporting or inhibiting innovation may derive from the macro, meso and/or micro environment of the wine tourism organisation:

- Macro level factors: e.g. legislation, inflation, alcohol taxes, religion and socio-cultural factors
- Meso level factors: e.g. within industry competition, industry networks and clusters, industry structure
- Micro level factors: e.g. talent management, creativity, intrapreneurship and entrepreneurship, financial resources

Overall, it becomes evident that innovation performance within the wine tourism sector is not under the responsibility of individual firms, but it should be perceived as a collective responsibility and role of industry bodies, associations and governmental agencies.

The Aims, Structure and Content of the Book

The book aimed to consolidate under one roof the latest research investigating the various technological advances and innovation happening within the wine tourism. Although technology is a major driver of innovation in wine tourism, and one cannot strictly separate technological advances from innovation advances, the book does attempt and categorises its chapters under two sections: (1) the first section clustering together chapters analysing the use, deployment processes, benefits and risks of emerging and critical technologies in wine tourism; and (2) the second section clustering together chapters discussing issues related to innovation and innovation processes in the wine tourism sector. As a whole, the book includes research

addressing the issue of technological advances and innovation in wine tourism from both a macro level (i.e. wine destination) and micro level (e.g. cellar door or other wine tourism operators). Book chapters represent research and industry trends happening in various wine regions globally including Portugal, Greece, Australia, Canada and France. This provides evidence that technology and innovation are unavoidable trends within the wine tourism sector at a global scale. Chapters are contributed by worldwide wine tourism experts with a great experience and understanding of industry trends.

Content of the Technology Section

The technology section includes eight chapters focusing on three critical technologies in the wine sector namely social media, smartphones and mobile apps, and virtual reality.

Two chapters look at social media providing evidence on the importance of social media for both established and emerging/developing wine regions. The first chapter contributed by Olga Rauhut Kompaniets and Henrietta Nilson focuses on how to develop compelling and effective content for social media marketing for wineries in Sweden, while the second chapter contributed by Kristina Georgiou, Jeremy Galbreath focuses on influencer marketing by showing how the wineries at the Swan Valley wine region (Perth, Australia) can exploit influencers and integrate them within their social media marketing strategies.

Three chapters analyse wine tourism exploitation of with smartphone and mobile apps. This is not surprising, because the mantra 'mobile first' also applies to wine tourism. Wine tourists are and wish to be mobile and so, they prefer to have information and services at their own hands. The first chapter contributed by Marianna Sigala, Darko Dimitrovski and Veronika Joukes develops a framework for designing mobile apps for wine tourism. The framework adopts a wine tourism journey approach for showing how to design content and functionality services to provide customer value before, during and after the wine trip/experience. The second chapter is written by Jeanne Bessouat and Coralie Haller discusses how the cooperation between a mobility-transport company and a wine destination resulted in a mobile app enabling mobility and so dispersal of wine tourists within a wine destination. The third chapter written by Elisabeth Kastenholz, Ana Maria Caldeira and Márcio Ribeiro Martins explains how a wine region in Portugal uses GIS data collected from tourists' mobile phones to track, monitor and manage the mobility patterns and movements of wine tourists within a destination.

Two chapter discuss the use and benefits of virtual reality for promoting and marketing wine tourism. Nathalie Maumon and Didier Bédé provided a chapter analysing how a winery in France uses virtual reality to particularly target the young generations, while in their chapter, Bora Qesja and Susan E.P. Bastian explain the process for developing, testing and commercialising a virtual reality application for

promoting a whole wine tourism destination (Riverland, South Australia) to a remote markets, i.e. China and USA.

The technology part of the book concludes with a chapter contributed by Donna Sears and Terrance G. Weatherbee who developed a framework showing how wine tourism destinations can become smart destinations. Their framework adopts a customer-journey proposition model to identify the various customer-touchpoints where technology can be employed to support or enhance customer experiences. To build this smart winescape, rather than being grounded solely in a competitive context, wineries will need to embrace a more collaborative approach, which in turns highlights that technology exploitation and innovation requires the development and mobilization of wine tourism actors within a wine tourism (smart) ecosystem.

Content of the Innovation Section

Six chapters clustered within the second book section discuss two major topics related to innovation in wine tourism: (1) the factors influencing innovation at macro, meso and micro level; and (2) types of innovations within the wine tourism sector.

The first chapter contributed by Carla Dias Wadewitz analyses the design and implementation of FOMENT, a government-industry-academia initiative aiming to accelerate technology innovation and adoption within the wine tourism sector in South Australia. FOMENT brings together stakeholders from various sectors including, wine, tourism, high tech, start-up, incubators etc. to provide an accelerator program to inspire, motive, support and mentor innovative ideas deploying technological advances to promote wine tourism.

The second chapter written by Michael V Conlin and Wesley Peterson explains the role of the federally funded British Columbia Beverage Technology Access Centre in assisting small to medium enterprises in the development of their wine tourism business specifically and their sustainability in general. The chapter also discusses the interaction between Okanagan College, the Centre's primary sponsor, its faculty and students with the wine industry including the ways in which this interaction has benefitted wine tourism in the region.

The third chapter contributed by Marianna Sigala and Dimitrios Stergiou provide first hand evidence on how the institutionalisation of business awards in the wine sector can inspire and support the innovation performance and innovation capabilities of the award winners. Findings are collected from past winners of the wine tourism awards provided by a global wine region network called, the Great Wine Capitals.

Although the first three chapters highlight the importance of macro, meso and micro level factors supporting innovation, the next three chapters provides various contemporary examples and types of innovations. The first chapter written by Emilie Ruiz and Romain Gandia explains how innovation can happen at a whole business model by using as an example a winery in France. The second chapter

written by Dimitris Karagiannis and Theodore Metaxas provide examples showing how a new wine making process can be exploited for developing a new wine tourism experience. Specifically, the chapter analyses various pioneering, mainly European cases of underwater wineries. Special attention is paid on Gaia Winery and its underwater cellar, which uses underwater wine making for producing "Assyrtiko", the indigenous grape variety from Santorini, Greece. The third chapter written by Thierry Lorey, Frédéric Dosquet, François Durrieu, and Michele Ambaye analyses the innovations adopted by the Jurançon Wine Cooperative (South West France) during the COVID-2019 pandemic in 2020–2021. Their findings provide evidence that many types of innovation can result as a result of necessity and not as a planned activity.

The book finishes with a concluding chapter written by Coralie Haller, who explains how « Improvisational » Wine tourism an alternative model of deploying technological changes.

Concluding Remarks

Although it is impossible to include within one book all technological advances and innovation issues relating to wine tourism, the book does include contributions from international experts discussing issues covering the most important technologies and innovation trends. As we live in a continuously changing and evolving wine tourism sector and economy, the technological tools and innovation types will always change. However, it is believed that the book has identified and discussed the basic principles and fundamentals that wine tourism researchers and professionals should know when engaging with technology and innovation. The book chapters discuss examples and cases coming from wine regions and organisations from all over the globe showing the global importance but also the local application and contextualization of these discussed issues (such as innovation ecosystems, open innovation, technologies providing customer value and supporting the customer journey).

I hope that you will enjoy reading this book and you will find its chapters valuable to improve and advance your research and business practices.

I would like to thank all authors and contributors for making this book a reality.

References

Baird, T., Hall, C. M., Castka, P., & Ramkissoon, H. (2022). Innovation, wine tourism, and sustainable winegrowing in cool climate regions: A longitudinal international comparative analysis. In *Handbook of innovation for sustainable tourism* (pp. 167–191). Edward Elgar Publishing.

Hall, C. M., & Baird, T. (2014). Types of innovation in tourism businesses: The case of New Zealand wine tourism. In *Handbook of research on innovation in tourism industries*. Edward Elgar Publishing.

Karagiannis, D., & Metaxas, T. (2020). Sustainable wine tourism development: Case studies from the Greek region of Peloponnese. *Sustainability, 12*(12), 5223.
Sigala, M. (2020). Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research. *Journal of Business Research, 117*, 312–321.
Sigala, M., & Robinson, R. (2019a). *Management and marketing of wine tourism businesses: Theory, practice and cases*. Palgrave.
Sigala, M., & Robinson, R. (2019b). *Management & marketing of wine destinations. Theory, practice and cases*. Palgrave.
Sousa, B. (2019). A theoretical contribution from the perspective of innovation process in wine tourism contexts. *Marketing & Tourism Review, 4*(2). https://doi.org/10.29149/mtr.v4i2.4744

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Part II
Technology and Wine Tourism

Social Media, Wine Tourism and an Emerging Destination: A Case Study of Southern Sweden

Olga Rauhut Kompaniets and Henrietta Nilson

Abstract The tourism sector, including wine tourism, heavily depends on technological advancements for its operations, survival but also competitiveness. Wine producers and representatives of wine destinations use social media to provide target audiences with updated and relevant information about their products and activities. Previous research on the use of social media in wine tourism mainly focuses on established wine producers, well-known wine regions and wine tourism destinations in major wine-producing countries. Hence, there is *lacunae* regarding the use of social media in emerging wine tourism destinations.

This chapter discusses the use of social media in the promotion of wine tourism in a new wine country. Southern Sweden, with its roughly 55 vineyards, is used as a case study. The chapter provides empirical findings about the social media use (Facebook, LinkedIn, Twitter, Instagram, and websites) of the vineyards in southern Sweden. In 1999, Sweden officially entered the EU wine sector with a quota of 250,000 litres p.a. Since then, the Swedish wine sector has grown and commercialised.

The findings indicate that vineyards in southern Sweden are in the start-up stage of their development with a profound interest in wine production and display a high competence from a technical standpoint; however, the vineyards' lack of knowledge about marketing, promotion and social media appears to be a problem. Moreover, the alcohol-retail monopoly in Sweden does not permit cellar door sales, which reduces the vineyards' motivation to use social media. The chapter concludes that it is still very important that the wine tourism sector in southern Sweden learn how to use social media to promote it as an emerging wine tourism destination.

Keywords Wine tourism · Social media · Emerging wine destination · Sweden · Technology know-how

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Introduction

The rise of social media (SM) has revolutionised both the tourism industry and tourism marketing (Mariani, 2020; Roque & Raposo, 2016), as well as the way in which tourists search for, collect and exchange tourism-related information and experiences (Kirova, 2020; Thanh & Kirova, 2018). SM provides opportunities for emerging tourism sectors and destinations whose resources are limited to reach a large group of consumers (Bello-Orgaz et al., 2020; Fuentes Fernández et al., 2017).

Wine tourism integrates gastronomic, cultural, agricultural and rural activities (Mitchell & Hall, 2006). It plays an important role in not only regional development but also the provision of strategic opportunities for vineyards to communicate with, inform and sell their wines directly to consumers (Kirova, 2020; Lalicic & Gindl, 2019).

SM usage differs between New World and Old World wine regions. The first focuses on consumer relations and marketing communication of wine tourism activities, while the latter focuses more on traditional marketing promotion (Szolnoki et al., 2018; Alonso et al., 2013). Knowledge about emerging wine tourism destinations is scarce because research about their use of SM is very fragmented (Rodriguez-Fernandez et al., 2017; Fountain & Cogan-Marie, 2019). Sweden, the youngest and northernmost wine destination, entered the EU wine market in 1999. Since then, the Swedish wine sector has grown and commercialised. Currently, Sweden's southernmost region, Scania, has about 55 vineyards. Several have been commercially successful in linking wine production with wine tourism and an emerging Scanian 'Wine Route' (Säfwenberg, 2019; Rauhut Kompaniets & Nilson, 2020).

This chapter aims to discuss the use of social media to promote wine tourism in a new wine country with a focus on Scanian vineyards. The empirical material is based upon an analysis of the vineyards' activities on Facebook, LinkedIn, Twitter, Instagram and websites, as well as an assessment of SM usage for wine tourism purposes. The assessment framework has five groups of factors identified from previous research in the field of SM usage in wine tourism: information on basic tourism content and active links; wine tourism activities and events; narratives and storytelling; visual content; and regional wine route information and cooperation. The qualitative analysis shows the SM presence and the website use of the 55 vineries, of which 34 are active in wine tourism; an additional six wine tourism actors (without any wine production) were also analysed.

Conceptual Approaches for Studying the Use of Social Media

Social Exchange Theory (SET) is based on patterns of social behaviour, including perceived rewards and punishments that may occur through social exchange. Social exchange can be defined as the "*voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others*"

(Blau, 1986, p. 91). SET and SM are linked to each other through rewards, altruism and anticipated reciprocity with others (Pan & Crotts, 2012). SM is used to build consumer relationships (Alonso et al., 2013). However, Alonso et al. (2013) target established wine countries, not emerging ones like Sweden. Scanian vineyards, as with any other vineyards in a new wine country, have neither wine production history nor related narratives on which to build relationships, i.e. social exchange with potential customers. In line with SET, SM needs to be more actively used to achieve the same effect in an emerging wine country as in an established wine country.

In SM, social exchange is based on written and visual communication between users. It offers opportunities to tell convincing stories to an audience, create emotional effects and communicate (Malita & Martin, 2010; Mládková, 2013). For online communication in the wine tourism sector, it is important to consider *how* stories are designed. Wineries should consider their existence, distinctiveness (from competitors) and uniqueness (Bonarou et al., 2019). Given this theoretical context, and in line with Sigala (2019b), we can expect wine producers to develop stories and content that both engage, and trigger emotions and actions.

In line with *Tourist Destination Life Cycle* (TDLC) (Butler, 1980), tourism destinations have life cycles with five stages of development: exploration, involvement, development, consolidation and stagnation. In addition, Beverland (2001) argues for a pre-birth and a start-up production-oriented stage of TDLC.

Literature Review: Social Media and Wine Tourism

It is important that a wine is good, but it is even more important to communicate and present it to consumers (Bello-Orgaz et al., 2020). To succeed in marketing campaigns, vineyards must adapt available tools, and SM is one of the most important. Wine brands worldwide use SM in marketing communications not only to describe their wines but also to provide narratives about family histories and event promotion (Dolan & Goodman, 2017).

Today, SM usage in the wine industry and wine marketing are well researched (Kolb & Thach, 2016; Capitello et al., 2014). The importance of SM to increase cellar door and online sales is well established (Thach et al., 2016; Kirova, 2020), as it is the usage of SM in marketing and promotion of wine tourism activities (Canovi & Pucciarelli, 2019; Christou & Nella, 2016).

As wine is considered to be an experience product, SM is essential in the wine tourism sector, and so a risk-reducing information search occurs before purchases and visits are made (Storchmann, 2011; Kolb & Thach, 2016). Emotional reactions and socialisation while consuming wine features in the consumer experience (Capitello et al., 2014; Szolnoki et al., 2018). Moreover, personal reviews, recommendations and feedback on wines on SM are crucial in the promotion of wines, vineyards and wine-producing regions (Lalicic & Gindl, 2019; Thach et al., 2016). Compared to other sectors, the wine sector has been slow to adapt to new technology and in particular SM (Forbes et al., 2015; Christou & Nella, 2016); vineyards

throughout the world prefer traditional marketing communication instead of SM (Fuentes Fernández et al., 2017; Christou & Nella, 2016).

SM is the key to communication and relationship building with wine tourists (Canovi & Pucciarelli, 2019). Vineyards can communicate via their websites, an individual SM platform (e.g. Facebook or Twitter) or several SM platforms simultaneously (Bello-Orgaz et al., 2020; Galati et al., 2017).

Previous research has mostly focused on consumer engagement and quantitative aspects of SM usage such as the number of posts on SM and followers of a vineyard's Facebook profile; the difference the day on which you post makes; and consumer feedback and reactions such as likes, comments and reposts (Lalicic & Gindl, 2019; Szolnoki et al., 2018). This works for established destinations. However, those that are emerging need to increase awareness of the new wine tourism destination and attract potential wine tourists, which increases the importance of the information they provide on websites and SM.

Researchers have identified various dimensions for analysing a vineyard's use of SM. *Basic informative content* covers information about opening hours, maps, road descriptions (Neilson & Madill, 2014) and active links between websites and SM (Alonso et al., 2013; Fait et al., 2015). Information about *wine tourism activities and events* (Szolnoki et al., 2018) is essential. *Narratives and storytelling* are important for wine tourism: for example, from stories about the vineyard's history and traditions to the cultivation of grapes, naming of wines and sustainability (Bonarou et al., 2019). *Visual content* is an inevitable part of wine tourism promotion (Lalicic & Gindl, 2019). Internal visual content focuses on images and films of a vineyard, the owners, family, grapes and wine tourism activities, whereas external visual content is mostly photos of a destination, surroundings and nearby sights. For wine tourism promotion, information about *regional wine routes* and *cooperation* between vineyards, local tourism actors and Destination Marketing Organisations (DMOs) is crucial (Brás et al., 2010; Sigala, 2019a).

However, the use of SM to promote wine tourism works only if internet use is widespread. Many consumers search pre-purchase information about a company and its products (Alonso et al., 2013), and expect companies and brands to actively communicate on SM (Thach et al., 2016). In 2019, 95% of the Swedish population used the internet and 83% used social media. Four main popular SM platforms became increasingly important as consumer communication tools: Facebook 74%, Instagram 61%, Twitter 24% and LinkedIn 31% (Internetstiftelsen, 2019).

The Study Context: Wine Tourism in Southern Sweden

Sweden has an annual EU wine quota of 250,000 litres, and its wine sector has undergone commercialisation, increased its level of professionalism and won awards for its products (Henley, 2020; Rauhut Kompaniets & Nilson, 2019). Scania is considered 'the Vineyard of Sweden' (Föreningen Svenskt Vin, 2019;

Säfwenberg, 2019) with its approximately 55 vineyards, of which 30 are commercial wineries. Approximately 200 hobby vineyards are ready to commercialise (Livsmedelsföretagen, 2019; Hultgren Karell, 2015).

Scania offers several wine tourism activities: vineyard visitations, guided tours, wine tasting, wine festivals, tourist events, biking gourmet tours and vineyard camping. Moreover, Scanian wine tourism combines historical, cultural and sport activities with wine (Säfwenberg, 2019). In April 2020, the first wine bar specialising in Swedish wine opened in Scania (Swedish Wine Center, 2020). Scania opened its Wine Route in 2017 with a list of 21 vineyards offering guided tours and wine tasting (Vinvägen, 2020).

Structural challenges exist that Scanian wine tourism must overcome. Despite its award-winning, high-quality wine, Sweden is a wine country *without* any *wine region* (Säfwenberg, 2019; Hultgren Karell, 2015), i.e. all wines classify as *table wine*. Moreover, the *government alcohol retail monopoly,* with its *bureaucratic restrictions* and *permits,* presents challenges (Rytkönen, 2012; Skjöldebrand, 2010; Malm et al., 2013). While internationally cellar door sales complement the tourist experience, they are not permitted in Sweden: permits are required to serve wine and to offer wine tasting. To increase sales, vineyards have to encourage wine tourists to visit the closest Systembolaget or to purchase their wine online. According to the Swedish alcohol law, local wine can be served at hotels and restaurants, and this collaboration with the local hospitality and tourism industry helps to promote local wine tourism (Livsmedelsföretagen, 2019; Näringsdepartementet, 2017).

Study Findings

Website Availability and Use of SM by Scanian Vineyards

Our analysis suggests that about half of the Scanian vineyards use at least one SM platform, which is in line with international research findings (Kolb & Thach, 2016; Szolnoki et al., 2018). Compared to the vineyards not focusing on wine tourism, the vineyards involved in wine tourism are more active on SM and have updated websites. However, 10 vineyards have neither a website nor an SM profile; four of these are commercial and active in wine tourism. Swedish is the most common language used in both websites and SM; eight vineyards have some information in English and two in German on their websites.

Every third Scanian vineyard does not use SM at all. Of the vineyards involved in wine tourism 24 have a Facebook account, but only eight promote wine tourism activities on this platform, while others focus on grapes and wine; 21 vineyards have an Instagram account of which ten post wine tourism information. Again, the information is predominantly in Swedish. Just 21 vineyards have both Facebook and Instagram accounts. Only two vineyards use Twitter, of which one is active in wine tourism communication. Nor is LinkedIn popular among Scanian vineyards:

four vineyards have pages with limited information about wine and wine tourism. The use of Twitter and LinkedIn by Scanian vineyards is just as marginal as in well-established wine regions (Christou & Nella, 2016; Alonso et al., 2013). However, vineyards using more than one SM channel attract more tourists and partners (Kolb & Thach, 2016; Szolnoki et al., 2018).

The analysis of website and SM presence of Scanian vineyards showed that 34 (out of 55) vineyards are involved in wine tourism. Furthermore, based on their level of use of SM and websites these vineyards were classified as basic and advanced vineyards; wine tourism actors built the third group as an important player in wine tourism promotion (Table 1).

Basic vineyards provide information both on the websites and on SM about the vineyard and grapes, as well as wine purchase and consumption information, e.g. restaurants and/or the addresses of Systembolaget shops. There are options for booking wine tasting and visitations on demand on the websites and limited photo content on SM.

Advanced vineyards are more active on SM, with more frequent posts and diversified content. It is common to provide additional information for wine tourists, such as accommodation and restaurants, often along with information about wine tasting, guided tours and gastronomy, and the collaboration they have with local food producers and other tourism businesses that offer different activities. They also provide information about special events (from weddings and conferences to garden yoga and art exhibitions) on their websites and SM. *Wine tourism actors*, firms without any wine production, have a professional website, are mostly active SM-users, providing and promoting wine tourism experiences despite not having a vineyard themselves; instead, they organise events, wine tours and wine tasting.

The Use of SM and Websites to Promote Scanian Wine Tourism

To assess the wine tourism information provided by Scanian vineyards on SM and websites the assessment framework was constructed based on the previous research in the field of SM usage in wine tourism. The assessment framework consists of the five groups of factors, such as information on basic tourism content and active links; wine tourism activities and events; narratives and storytelling; visual content; and regional wine route information and cooperation (Table 2).

Almost all vineyards provide *basic tourism information* on their website and/or SM (contact information, maps and road descriptions), while only one vineyard provides information about opening hours. Just 14 vineyards have active links to SM from the website and the website from SM. Moreover, five vineyards have wrong or non-active links; seven vineyards have an active link from Facebook to the website but no return link.

Table 1 Websites and SM presence of Scanian vineyards involved in wine tourism

	Website	Facebook	Instagram	Twitter	LinkedIn
Basic vineyards					
Aplagårdens Vinhus	✓	✓	✓		
Broddarp					
Cehlin Vingård	✓	✓			
Chateau Vaddeau					
Flintevång Vingård	✓				
Gård Gripen	✓	✓	✓		
Kornheddinge kvarn	✓	✓	✓		✓
Kullabygdens Vingård					
Köpingsberg Vingård	✓	✓	✓		
Ljungbyholms Vingård	✓	✓			
Lyngby vin	✓	✓	✓		
Mellby nr 5 Vingård					
Nordanviks Vingård	✓				
SandskogensVingård	✓				✓
Strandåkra Vingård	✓				
Södåkra Vingård	✓	✓			
Vingården i Bertilstorp		✓			
Vingårdspark Tygeå	✓				
Advanced vineyards					
Arilds Vingård & Villa Mathilda	✓	✓	✓		✓
Flyinge Vingård	✓	✓	✓		
Fredholms Vingård	✓	✓	✓		
Frillestads Vingård	✓	✓	✓		
Hällåkra Vingård	✓	✓	✓		
Ivögården	✓	✓	✓		
Kullabergs Vingård	✓	✓	✓	✓	✓
Lottenlund Estate AB	✓	✓	✓		
Skepparps Vingård	✓	✓	✓		
Skillinge Vingård	✓	✓	✓		
Snårestad Vingård	✓	✓	✓		
Vejby Vingård	✓	✓	✓		
Vinbacken	✓	✓	✓	✓	
Vingården i Klagshamn	✓	✓	✓		
Åhus Vingård	✓	✓	✓		
Österlenvin	✓		✓		
TOTAL	**29 (85%)**	**24 (70%)**	**21 (62%)**	**2 (6%)**	**4 (12%)**

(continued)

Table 1 (continued)

	Website	Facebook	Instagram	Twitter	LinkedIn
Wine tourism actors					
Kronovalls Vinslott	✓	✓	✓		✓
Nordic Sea Winery	✓	✓	✓		✓
Skivarps Gästgivaregård	✓	✓	✓	✓	✓
Swedish Wine Center	✓	✓	✓		
Vinvägen	✓	✓			
Visit Skåne	✓	✓	✓		

Table 2 Assessing the information provided by Scanian vineyards on SM and websites

		Basic tourist info	Active links to SM/from SM	Link to wine route/ DMOs	Story-telling	Visual content: internal (I)/ external (E)	Wine tourism activities information
	Basic vineyards						
1.	Aplagårdens Vinhus	✓	✓/✓	–	–	I	WT, B & B
2.	Broddarp						
3.	Cehlin Vingård	✓	✓/✓	✓	–	I/E	WT, E
4.	Chateau Vaddeau						
5.	Flintevång Vingård	✓	–	–	✓	I/E	WT
6.	Gård Gripen	✓	✓/✓	–	–	I	GT, harvest
7.	Kornheddinge kvarn	✓	✓/✓	–	–	I	E
8.	Kullabygdens Vingård						
9.	Köpingsberg Vingård	✓	✓	–	–	I	WT
10.	Ljungbyholms Vingård	–	✓	–	✓	I	GT
11.	Lyngby Vin	–	✓	–	–	I	GT
12.	Mellby nr 5 Vingård						
13.	Nordanviks Vingård	–	–	–	✓	–	GT
14.	SandskogensVingård	✓	✓/–	✓	–	E	GT
15.	Strandåkra Vingård	✓	–	–	–	I/E	WT, GT
16.	Södåkra Vingård	✓	✓/✓	✓	✓	I/E	WT, GT
17.	Vingården i Bertilstorp						
18.	Vingårdspark Tygeå	–	–	–	✓	–	GT
	Advanced vineyards						
19.	Arilds Vingård & Villa Mathilda	✓	✓/✓	–	✓	I	WT, GT, harvest
20.	Flyinge Vingård	✓	✓/✓	–	✓	I/E	WT, GT, E
21.	Fredholms Vingård	✓	✓/✓	–	–	I/E	WT, GT

(continued)

Table 2 (continued)

		Basic tourist info	Active links to SM/from SM	Link to wine route/ DMOs	Story-telling	Visual content: internal (I)/ external (E)	Wine tourism activities information
22.	Frillestads Vingård	✓	✓/✓	✓	–	E	WT, GT
23.	Hällåkra Vingård	✓	✓/✓	–	–	I/E	WT, E
24.	Ivögården	✓	✓/–	–	–	I/E	WT, GT, E, B & B
25.	Kullabergs Vingård	✓	✓/✓	–	–	I	WT, GT
26.	Lottenlund Estate AB	✓	✓/✓	–	✓	I	WT, GT
27.	Skepparps Vingård	✓	✓/✓	–	–	I	WT, GT festival
28.	Skillinge Vingård	✓	✓/–	✓	✓	I/E	WT, GT
29.	Snårestad Vingård	✓	✓/✓	–	✓	I	WT, GT
30.	Vejby Vingård	✓	✓/✓	–	–	I/E	WT, GT
31.	Vinbacken	✓	✓/✓	–	–	I	GT
32.	Vingården i Klagshamn	–	✓/–	✓	–	I	WT, GT
33.	Åhus Vingård	✓	✓/✓	–	✓	I	WT, GT
34.	Österlenvin	✓	–/✓	–	✓	I	WT, GT
	Wine tourism actors						
35.	Kronovalls Vinslott	✓	–	–	–	I/E	E
36.	Nordic Sea Winery	✓	✓	–	–	I	WT, GT, E
37.	Skivarps Gästgivaregård	✓	–	–	✓	I	E, B & B
38.	Swedish Wine Center	✓	✓	–	–	I	WT, E
39.	Vinvägen	✓	–	✓	–	I	n/a
40.	Visit Skåne	✓	✓	✓	–	I	n/a

Abbreviations: *B & B* bed & breakfast, *E* events, *GT* guided tours, *WT* wine tasting, *n/a* information is not available

Information about wine tourism *activities and events* appears more often on SM than on websites. All vineyards using SM provide updated information about wine tasting and/or guided tours as well as harvesting, which is when tourists are invited to help at the vineyard and experience how it is to be a winegrower.

Storytelling is not commonplace on Scanian vineyard homepages and SM accounts. Only one in three vineyards shares stories on its website while just three vineyards show any interest in using narratives on SM. Common themes are the history of the estate or land; comparisons between Scania and well-established wine regions; and adventurous people running a vineyard: *"a vineyard in Sweden? How did you come up with that crazy idea? The same question comes up every time we have guided tours on our vineyard"* (Arilds Vingård). Similar themes in all stories

are sustainability, respect for nature and thoughts about future generations: *"we treat the soil with respect for coming generations and always have sustainability in mind"* (Flädie Vingård).

Vineyards are more active in the creation of *visual content* predominantly with photos of grapes. Furthermore, ten vineyards combine internal images (e.g. photos inside the vineyard of the winemaking process and wine tourism activities) and external images (information about the destination). Focus is on internal images, wine tasting and events. Only three vineyards have a wine tourism-oriented description on their Instagram profiles, but it is only in Swedish. Advanced vineyards use visual content as a form of storytelling, with pictures alone explaining what tourists can expect from a visit.

The information about the *Scanian Wine Route* (Vinvägen) is both limited and contradictory. While the analysis showed that 34 Scanian vineyards are active in wine tourism, Vinvägen lists 21 on its website (Vinvägen, 2020); however, just six vineyards state on their websites and on SM that they are part of the wine route and have a link to Vinvägen. Furthermore, the regional DMO Visit Skåne describes and gives active links to six vineyards with wine tourism activities (Visit Skåne, 2020), while no vineyard has links to the regional DMO.

The information on the Vinvägen website is amateurish and only in Swedish. The map indicating vineyards is difficult to navigate, and there are no active links to vineyard websites. Worse still, the overall information about events and grapes is poor, while the link to where to buy Swedish wine leads to the Systembolaget homepage with its international beer assortment. Vinvägen uses Facebook merely to repost vineyards' posts without comment or explanation.

Other wine tourism actors (see Table 2) show active SM usage for wine tourism and the promotion of their own facilities and services, but there is no coordination with vineyards. Information about *collaboration and cooperation* between vineyards that is available on SM is mostly concentrated on the annual wine festival organised by Skepparps vineyard, where nine advanced vineyards are represented.

Discussion and Implications of the Findings

Scanian vineyards use SM to provide everything from basic information about cultivating grapes to full activity schedules for wine tourists on holiday in Scania. As most information is in Swedish, these vineyards fail to target international wine tourists. Half of all wine tourism actors have a profile on at least Facebook or Instagram. Generally, information is useful, but there is no interaction with tourists or visitors. Some homepages are very professional in terms of information and design, but many are home-designed, unclear and difficult to navigate. Twitter and LinkedIn are not used for any wine tourism communication.

In line with the Tourism Destination Life Cycle (TDLC) (Butler, 1980), the emerging wine tourism destination Scania is in the *exploration stage*. This is when tourists are starting to explore vineyards and wine tourism activities, but vineyards

remain unknown and a wine destination is unexplored from both a domestic and international-tourist perspective. At this stage, marketing efforts concentrated on information about tourism actors and activities for tourist destination promotion emerge. According to the classification by Beverland (2001), several Scanian vineyards are also at a *start-up stage* with emerging production-oriented strategies. By focusing on the quality of wine, vineyards may underestimate the importance of promotion, which, in combination with lacking infrastructural coordination, leads to limited information about vineyards, wine production and wine tourism activities of the destination (Bittar Rodrigues, 2017).

In line with SET, SM can communicate 'convincing stories' and narratives that build relationships and social exchange with wine customers. Research demonstrates how SM can be utilised to influence tourist behaviour and make a certain destination attractive (Gretzel, 2018). Active SM interaction with potential customers is a key to success.

Our findings lead us to the following conclusions: first, *presence on SM is vital for vineyards* (Sigala & Haller, 2019). The online conversation is both a forum by which to understand customer needs (Canovi & Puccialelli, 2019) and a way to engage in an otherwise uncontrollable conversation (Tomazic, 2017). Using more than one SM channel has proven to be more successful in attracting tourists and partners (Kolb & Thach, 2016; Szolnoki et al., 2018).

The use of SM in wine tourism promotion is crucial for an emerging destination (Rodriguez-Fernandez et al., 2017; Fountain & Cogan-Marie, 2019). Potential tourists actively search SM for information about wine destinations when planning trips. This demonstrates the *importance of the informative content* (Neilson & Madill, 2014; Fait et al., 2015). Active links to SM and websites as well as cooperation and joint promotion with wine tourism actors and other vineyards help to disseminate information, which is needed if wine tourism is to develop. They could even facilitate relationship building and lead to strategic networking, competitiveness and operational effectiveness for the related businesses (Bittar Rodrigues, 2017). However, obstacles such as planning, financial obligations and misunderstanding can be critical for the parties involved (Karagiannis & Metaxas, 2020).

We determined that the majority of vineyards active in wine tourism do not link their websites and SM to each other. While basic information, such as road directions and maps, is presented for most vineyards, only one vineyard provides online information about its opening hours. Consequently, tourists have to pre-book their visit to each vineyard, which makes a trip along this wine route a rather time-consuming planning activity for visitors/tourists.

The use of online narratives is extensive for wine tourism promotion (Bonarou et al., 2019). Well-formulated narratives can stimulate action and enrich visitor experience (Creed & McIlveen, 2019; Cassar et al., 2018). Storytelling is a way to build customer relationships (Alonso et al., 2013), and for established wine countries and vineyards, there is always the history of a family vineyard to fall back on. However, in a country like Sweden that has no wine history, storytelling can trigger emotions in several other ways: like pre-birth stage stories (Beverland, 2001) about the idea behind owning a vineyard, the way in which land has been handed down

through generations or family history. Local fairy tales can be inspiring for storytelling and logos; furthermore, success stories can be used in the stories of wineries (Bonarou et al., 2019) to draw interest from others. While websites generally focus on family traditions and vineyard histories, the text-based content on SM is brief and describes current events.

Nowadays, *visual content* and photo narratives are important. The use of photos as a story itself can increase the competitiveness of and interest from tourists in the wine destination (Lalicic & Gindl, 2019). However, Scanian vineyards usually use the same pictures of their vineyard for all kinds of events without considering the impact that visual content can have.

It is important to *link SM and website information to more complex experiences* (cultural, heritage and gastronomic) and to *an established wine route*. Scania is famous for its culinary treasures (Abend, 2016; Wergeland, 2017), and this fact along with the wine it produces offers unexploited potential for wine tourism for both domestic and international visitors. The active use of SM can attract tourists to explore new experiences in emerging tourist destinations. However, while research shows that SM can attract new visitors by providing them with information online, SM and the websites of Swedish wine tourism actors are confusing. There is no *cooperation or coordination* between Scanian vineyards and wine tourism actors in the case of wine tourism promotion and development. Vinvägen (2020) and Visit Skåne (2020) appear reluctant to promote wine tourism, and their information is both contradictory and confusing. Visit Skåne represents just six vineyards on its webpage about wine tourism in Scania (Visit Skåne, 2020). Two problems become apparent: (1) this strategy does not promote the Scanian wine tourism, and (2) the reason these six vineyards were selected is unclear.

The wine route is a collective promotional concept that has resulted from joint efforts and cooperation between vineyards and wine tourism actors, its aim being to promote the wine region (Brás et al., 2010; Platania et al., 2016). The idea behind wine routes is that tourists can visit a number of vineyards along a well-defined route. Unfortunately, this is not the case with the Scanian wine route, which presents difficulties for and discourages wine tourists in Scania.

Our findings have several *managerial and practical implications*:

- Cellar door is not a panacea for wine tourism unless if the vineyards use their website and SM to promote and provide information about their properties and their wine tourism activities.
- The advantage with new wine countries and emerging wine tourism destinations is that people are curious and open to new experiences; what is needed is the provision of information about those destinations that not many people know and / or have pre-experienced about. Säfwenberg (2019) notes that it does not matter how good your wine is if nobody knows about it.
- Vineyards need to develop their know-how and skills on wine marketing and on how to use the SM for conducting wine tourism marketing.

- Cooperation and coordination between vineyards and other wine tourism actors is crucial (Sigala, 2019a). Local DMOs, wine route officials and other local actors must coordinate with vineyards to build a complex tourist experience together.

Conclusions and Future Research

This chapter aims at discussing the use of SM to promote wine tourism in a new wine country with a focus on Scanian vineyards. Out of the 55 Scanian vineyards identified, only 34 vineyards are involved in wine tourism, while the official information of 'Vinvägen', the main wine tourism actor in Scania coordinating the wine route, mentions just 21 vineyards. The assessment framework identified five key factors in previous research regarding the SM usage in wine tourism: (1) information on basic tourism content and active links; (2) wine tourism activities and events; (3) narratives and storytelling; (4) visual content; and (5) regional wine route information and cooperation.

The findings of the study indicate that vineyards in southern Sweden are in the start-up stage of their development with a profound interest in wine production and display a high competence from a technical standpoint; however, lacking knowledge about marketing, promotion and SM appears to be a problem. Moreover, the alcohol-retail monopoly in Sweden does not permit cellar door sales, which reduces the incentive to use SM. The conclusion is that it is very important that the wine tourism sector in southern Sweden learn how to use SM to promote it as an emerging wine tourism destination.

Two suggestions for future research can be identified from this study. The first deals with the *knowledge gap* regarding completely new, emerging wine tourism destinations outside established wine countries. The number of studies on emerging wine tourism destinations is growing in, for example, France and Argentina (Rodriguez-Fernandez et al., 2017; Fountain & Cogan-Marie, 2019), but for new wine countries like Sweden and other cool-climate wine countries, there is a huge knowledge gap. A second potential topic for future research is the exploration of how SM can be used to *establish cool-climate wine countries as wine tourism destinations*.

Some vineyards are very active on SM, while the majority remain quite passive. This finding is interesting considering the high level of IT literacy and SM usage in Sweden. Also interesting is the fact that New World wine countries are more active in their use of SM compared with traditional Old World wine countries (Szolnoki et al., 2018; Neilson & Madill, 2014; Alonso et al., 2013). However, this does not appear valid for Sweden.

References

Abend, L. (2016, January 7). No.9: Skane. Sweden. Nordic cuisine's next big thing. 52 places to go 2016. *The New York Times*. Viewed 15 May 2020. https://www.nytimes.com/interactive/2016/01/07/travel/places-to-visit.html

Alonso, A. D., Bressan, A., O'Shea, M., & Krajsic, V. (2013). Website and social media usage: Implications for the further development of wine tourism, hospitality, and the wine sector. *Tourism Planning & Development, 10*(3), 229–248.

Bello-Orgaz, G., Mesas, R. M., Zarco, C., Rodriguez, V., Cordón, O., & Camacho, D. (2020). Marketing analysis of wineries using social collective behaviour from users' temporal activity on Twitter. *Information Processing and Management, 57*(5), 102220.

Beverland, M. (2001). An emergent life-cycle model in small New Zealand wineries. *The International Journal of Entrepreneurship and Innovation, 2*(3), 183–194.

Bittar Rodrigues, C. (2017). Butler's model (tourism destination life cycle). In G. Lohmann & A. P. Netto (Eds.), *Tourism theory: Concepts, models and systems* (pp. 217–219). CABI.

Blau, P. M. (1986). *Exchange and power in social life*. Transaction Books.

Bonarou, C., Tsartas, P., & Sarantakou, E. (2019). E-storytelling and wine tourism branding: Insights from the "wine roads of Northern Greece". In M. Sigala & R. Robinson (Eds.), *Wine tourism destination management and marketing* (pp. 77–98). Palgrave Macmillan.

Brás, J. M., Costa, C., & Buhalis, D. (2010). Network analysis and wine routes: The case of the Bairrada wine route. *The Service Industries Journal, 30*(10), 1621–1641.

Butler, R. W. (1980). The concept of a tourist area cycle of evolution: Implications for management of resources. *The Canadian Geographer, 24*(1), 5–12.

Canovi, M., & Pucciarelli, F. (2019). Social media marketing in wine tourism: Winery owners' perceptions. *Journal of Travel & Tourism Marketing, 36*(6), 653–664.

Capitello, R., Agnoli, L., Begalli, D., & Codurri, S. (2014). Social media strategies and corporate brand visibility in the wine industry. Lessons from an Italian case study. *EuroMed Journal of Business, 9*(2), 129–148.

Cassar, M. L., Caruana, A., & Konietzny, J. (2018). Positioning narratives of wine tourism websites: A lexical analysis across two different regions. *Journal of Wine Research, 29*(1), 49–63.

Christou, E., & Nella, A. (2016). Web 2.0 and networks in wine tourism: The case studies of greatwinecapitals.com and wineandhospitalitynetwork.com. In E. Christou & U. Gretzel (Eds.), *Social media in travel, tourism and hospitality: Theory, practice and cases* (pp. 11–24). Routledge.

Creed, A., & McIlveen, P. (2019). Uncorking the potential of wine language for young wine tourists. In M. Sigala & R. N. S. Robinson (Eds.), *Management and marketing for wine tourism business. Theory, practice and cases* (pp. 25–41). Palgrave Macmillan.

Dolan, R., & Goodman, S. (2017). Succeeding on social media: Exploring communication strategies for wine marketing. *Journal of Hospitality and Tourism Management, 33*, 23–30.

Fait, M., Cavallo, F., Scorrano, P., & Iaia, L. (2015). Wine web 2.0: Digital communication and tourist netnography. Opportunities for new entrepreneurship. *Sinergie Italian Journal of Management, 33*(97), 83–103.

Forbes, S. L., Goodman, S., & Dolan, R. (2015). Adoption of social media in the Australian and New Zealand wine industries. *Journal of New Business Ideas & Trends, 13*(2), 1–14.

Föreningen Svenskt vin. (2019). *Svenska Viner. Sverige – ett "Vinland" som andra*? Viewed 25 May 2020. http://svensktvin.se/svenska-viner/

Fountain, J., & Cogan-Marie, L. (2019). Wine tourism in an emerging destination: The Côte Chalonnaise, Burgundy. In M. Sigala & R. Robinson (Eds.), *Wine tourism destination management and marketing* (pp. 483–496). Palgrave Macmillan.

Fuentes Fernández, R., Vriesekoop, F., & Urbano, B. (2017). Social media as a means to access millennial wine consumers. *International Journal of Wine Business Research, 29*(3), 269–284.

Galati, A., Crescimanno, M., Tinervia, S., & Fagnani, F. (2017). Social media as a strategic marketing tool in the Sicilian wine industry: Evidence from Facebook. *Wine Economics and Policy, 6*(1), 40–47.

Gretzel, U. (2018). From smart destinations to smart tourism regions. *Journal of Regional Research, 42*, 171–184.

Henley, J. (2020, March 20). Wine cooler: Global heating helps Sweden's vineyards to success. *The Guardian*. Viewed 25 March 2020. https://www.theguardian.com/world/2020/mar/20/wine-cooler-global-heating-helps-swedens-vineyards-to-success

Hultgren Karell, G. (2015, March 17). Scandinavian vineyards. *Scandinavian Traveler*. Viewed 20 May 2020. https://scandinaviantraveler.com/en/lifestyle/scandinavian-vineyards

Internetstiftelsen. (2019). *Svenskarna och internet 2019*. Viewed 15 July 2020. https://svenskarnaochinternet.se/app/uploads/2019/10/svenskarna-och-internet-2019-a4.pdf

Karagiannis, D., & Metaxas, T. (2020). Sustainable wine tourism development: Case studies from the Greek region of Peloponnese. *Sustainability, 12*, 1–15.

Kirova, V. (2020). Value co-creation and value co-destruction through interactive technology in tourism: The case of 'La Cité du Vin' wine museum, Bordeaux, France. *Current Issues in Tourism.*

Kolb, D., & Thach, L. (2016). Analysing German winery adoption of Web 2.0 and social media. *Journal of Wine Research, 27*(3), 226–241.

Lalicic, L., & Gindl, S. (2019). Viennese wineries on Facebook: Status quo and lessons learned. In M. Sigala & R. N. S. Robinson (Eds.), *Management and marketing of wine tourism business. Theory, practice and cases* (pp. 155–176). Palgrave Macmillan.

Livsmedelsföretagen. (2019). *Dryckesbranschrapporten 2019*. Viewed 15 February 2020. https://www.livsmedelsforetagen.se/app/uploads/2019/04/dryckesbranschrapporten-2019.pdf

Malita, L., & Martin, C. (2010). Digital storytelling as web passport to success in the 21st century. *Social and Behavioral Sciences, 2*, 3060–3064.

Malm, K., Gössling, S., & Hall, C. M. (2013). Regulatory and institutional barriers to new business development: The case of Swedish wine tourism. In C. M. Hall & S. Gössling (Eds.), *Sustainable culinary systems. Local foods, innovation, tourism & hospitality* (pp. 241–255). Routledge.

Mariani, M. (2020). Web 2.0 and destination marketing: Current trends and future directions. *Sustainability, 12*(9), 3771.

Mitchell, R., & Hall, C. M. (2006). Wine tourism research: The state of play. *Tourism Review International, 9*, 307–332.

Mládková, M. (2013). Leadership and storytelling. *Procedia-Social and Behavioral Sciences, 75*(3), 83–90.

Näringsdepartementet. (2017). *Ett land att besöka. En samlad politik för hållbar turism och växande besöksnäring*. SOU 2017:95, Wolters Kluwers, Stockholm.

Neilson, L., & Madill, J. (2014). Using winery web sites to attract wine tourists: An international comparison. *International Journal of Wine Business Research, 26*(1), 2–26.

Pan, B., & Crotts, J. C. (2012). Theoretical models of social media, marketing implications, and future research directions. In E. Christou, M. Sigala, & U. Gretzel (Eds.), *Social media in travel, tourism and hospitality: Theory, practice and cases* (pp. 73–86). Routledge.

Platania, M., Rapisarda, P., & Rizzo, M. (2016). Wine tourism: Website quality of wine roads in Italy. *Calitatea, Supplement to Quality – Access to Success, 17*, 242–250.

Rauhut Kompaniets, O., & Nilson, H. (2019). Wine tourism and family enterprises in southern Sweden: Problems, challenges and potentials. In *4th Annual Conference of the International Place Branding Association (IPBA)*, Volos, Greece (pp. 243–262).

Rauhut Kompaniets, O., & Nilson, H. (2020). Wine tourism in Southern Sweden: Opportunities and challenges. In *2nd international research workshop on wine tourism: Challenges, innovation and futures, online conference* (pp. 67–77).

Rodriguez-Fernandez, M.-M., Sanchez-Amboage, E., & Martinez-Fernandez, V. A. (2017). The emergent nature of wine tourism in Ecuador and the role of the social medium Facebook in optimising its positioning. *Revista Espacios, 38*(14), 23.

Roque, V., & Raposo, R. (2016). Social media as a communication and marketing tool in tourism: An analysis of online activities from international key player DMO. *Anatolia, 27*(1), 58–70.

Rytkönen, P. (2012). *Sweden – An emerging wine country – Valorising marginal lands for new types of production*. Paper presented at 10th European IFSA Symposium, Aarhus, Denmark. Viewed 15 May 2020. http://ifsa.boku.ac.at/cms/index.php?id=131&L=0.#c368

Säfwenberg, M. (2019). *Svenskt vin: En vinvärld som växer.* Idus förlag, Sweden.

Sigala, M. (2019a). Building a wine tourism destination through coopetition: The business model of ultimate winery experiences Australia. In M. Sigala & R. Robinson (Eds.), *Wine tourism destination management and marketing* (pp. 99–112). Palgrave Macmillan.

Sigala, M. (2019b). The synergy of wine and culture: The case of Ariousios wine, Greece. In M. Sigala & R. Robinson (Eds.), *Management and marketing of wine tourism business* (pp. 295–312). Palgrave Macmillan.

Sigala, M., & Haller, C. (2019). The impact of social media on the behavior of wine tourists: A typology of power sources. In M. Sigala & R. Robinson (Eds.), *Management and marketing of wine tourism business* (pp. 139–154). Palgrave Macmillan.

Skjöldebrand, C. (2010). *Svensk vinakademi – innovativ metod att utveckla Matlandet*. Dnr 19-12802/09, Rapport 20101130.

Storchmann, K. (2011). Wine economics: Emergence, developments, topics. *Agrekon, 50*(3), 1–28.

Swedish Wine Center. (2020). *Swedish Wine Center*. Viewed 18 June 2020. https://swedishwine-center.se/

Szolnoki, G., Dolan, R., Forbes, S., Thach, L., & Goodman, S. (2018). Using social media for consumer interaction: An international comparison of winery adoption and activity. *Wine Economics and Policy, 7*(2), 109–119.

Thach, L., Lease, T., & Barton, M. (2016). Exploring the impact of social media practices on wine sales in US wineries. *Journal of Direct, Data and Digital Marketing Practice, 17*(4), 272–283.

Thanh, T. V., & Kirova, V. (2018). Wine tourism experience: A netnography study. *Journal of Business Research, 83*, 30–37.

Tomažič, T. (2017). The importance of social media from the wine marketing perspective. *Lex Localis – Journal of Local Self-Government, 15*(4), 827–844.

Vinvägen. (2020). *Upplev vinvägen i Skåne*. Viewed 11 November 2020. http://www.vinvagen.se/

Visit Skåne. (2020). *Wine tastings and winery tours*. Viewed 11 November 2020. https://visitskane.com/food-drinks/wine-tastings-and-winery-tours-skane

Wergeland, M. (2017, August 4). A guide to Sweden's charming, relaxed southern-most county: Skåne'. *Vogue*. Viewed 11 may 2020. https://www.vogue.com/article/skane-county-scania-sweden-travel-guide?mbid=social_facebook

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Social Media Influencers, Content and Tourism: A Study for the Swan Valley Wine Region

Kristina Georgiou and Jeremy Galbreath

Abstract Grounded in uses and gratifications theory (UGT), this exploratory study examines how social media influencers (SMIs) relate to content in tourism campaigns. Conducted on behalf of the Swan Valley wine region in Western Australia and using in-depth interviews with 13 SMIs based in Singapore, three themes emerged from the data. First, to satisfy their own personal psychological and intrinsic needs, SMIs engage in a variety of content. Second, when a brand requires or expects user action and engagement, SMIs will more carefully or selectively use content. Lastly, SMIs demonstrate that they tailor certain types of content to the specific social media platform used. Theoretical as well as practical contributions are offered. We end the chapter with a conclusion.

Keywords Marketing · Social media · Social media influencers · Tourism · Uses and gratifications · Wine

Introduction

The means of attracting tourists to wine regions is changing. For example, Millennials and Generation Z are increasing their awareness of where social media travel influencers—such as professional Australian Instagrammer Lauren Bath—are holidaying in order to determine their next travel destination. They are relying more on social media influencers (SMIs) rather than relying on other forms of advertising to influence their decision (Luxury Travel Advisor, 2014). In fact, SMIs are now generally perceived as more trustworthy than traditional forms of advertising and marketing (Yellow, 2018). Given that 23% of social media users will research products and services that they are considering to purchase and of these users, 65% of the research will be related to travel/holiday options, SMI campaigns are highly relevant for promoting tourism (including wine tourism) (Yellow, 2018).

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Reports even suggest that companies are believed to earn $6.50 for every dollar invested in SMI marketing (Axon, 2018). Further, research from communication specialists suggests that the return on investment (ROI) of SMI engagement is 11 times greater than traditional marketing methods (Axon, 2018). Another study iterates the point: Australian hospitality and tourism brands that engage SMIs through Instagram suggests that they could potentially grow their target audience by 10 times (Bandt, 2017).

As digital communications and social media technology increasingly gain traction, wine regions and wine businesses must keep pace. As the wine industry becomes more brand driven, having a digital marketing strategy—including the use of SMIs—is critical (Pellechia, 2019). Following other place-based destinations (de Garis, 2018), wineries can leverage SMIs to increase brand awareness, tourist visitations and purchases. However, little research has explored SMIs in the context of wine and wine tourism. More specifically, while technology-based social media is promising (e.g., Dolan et al., 2017), there is a lack of empirically-grounded insight into how SMIs can be better leveraged for the benefit of wine tourism. This chapter seeks to fill this gap.

To proceed, we provide a background on SMIs, theoretical foundations and our research question. Next, the context of our study is outlined. We then describe the methods used and results. Discussion and contributions of the findings are then presented. A conclusion finishes our chapter.

Theoretical Background and Research Question

Effective use of advertising is a challenge. In fact, glumly, 70% of consumers believe that advertising is merely an attempt to persuade them to buy things that they neither desire nor need (Fransen et al., 2015). Hence, there is widespread scepticism. To be more effective, social validation or social proof can be a more persuasive means to engage consumers and increase their purchase intention (Flynn et al., 1996; Fransen et al., 2015). One extensively studied means of social validation or social proof is word-of-mouth (WOM). Going as far back as Dichter (1966), WOM is a consumer-to-consumer form of brand communication (Kozinets et al., 2010). In fact, Dichter (1966) argued that WOM influences the vast majority of purchase decisions, while WOM is considered one of the most influential channels of marketplace communication (Allsop et al., 2007).

More recently, with the rise of digital technology and social media communications platforms such as Facebook, Instagram and Twitter, scholars have turned their attention to electronic WOM (eWOM) (King et al., 2014; Kozinets et al., 2010). Rather than a one-to-one relationship, a distinctive feature of eWOM is that communication is one-to-many, thus increasing reach—if not influence (King et al., 2014). Here, *opinion leaders* take on significance. Opinion leaders are those individuals who may be of celebrity status or who otherwise are able to exert influence through a social following (Flynn et al., 1996; Litvin et al., 2008; van der Veen &

Song, 2014). In our case, we are interested in SMIs. SMIs are individuals who are able to build a relatively sizeable network of followers (De Veirman et al., 2017). However, 'size' is debatable and can range from less than 10,000 followers to millions (Ismail, 2018).

From a theoretical perspective, a point of focus is on the means and mechanisms that enable SMIs to impact follower behaviour. One of the most important areas is *content* use (Dolan et al., 2016). Content refers to messages that SMIs craft and post through various social media channels (e.g., Facebook, Instagram, Twitter). Although content can contain pictures, video, copy and storytelling, Dolan et al. (2016) rely on a conceptualisation that includes: (1) informational content; (2) entertainment content; (3) remunerative content; and (4) relational content. Informational content includes general information, basic descriptions of brands, contact details, URLs, websites and hashtags. Entertainment content includes images, videos, use of humour, use of banter and use of small talk. Remunerative content includes descriptions of any deals, purchase instructions for followers, promotion codes, giveaways, contests to enter and incentives to engage. Relational content includes personal stories, giving thanks, calls to action by followers, inspirational or motivational quotes and emotional connections.

A point of debate in the literature exists in relation to which type of content is best to stimulate a following and follower actions (Dolan et al., 2016). Underpinning this debate is uses and gratification theory (UGT). UGT examines why and how individuals use specific media to satisfy specific needs (Katz & Foulkes, 1962; Ruggiero, 2000). In the last few decades, attention has turned to the Internet. Studies have found that Internet use provides gratifications such as escapism, entertainment, information control, socialisation, 'good' feelings and keeping informed (Charney & Greenberg, 2001; Gan, 2018; Korgaonkar & Wolin, 1999; Leung, 2009; Lin, 1999). Such research has provided insight into gratifications of online and social media use.

In addition to a focus on UGT, Dolan et al. (2016) go a step further and theorize that consumers engage both positively and negatively with brands through social media. More specifically, social media has transformed consumers from passive observers to active participants. However, Dolan et al. (2016) argue that the extent to which brands stimulate positively valenced engagement behaviour from consumers (e.g. positive brand comments, 'likes'), while dissuading negatively valenced engagement behaviour (e.g. negative brand comments, public complaints), is determined by the use of specific types of content. According to the theory of Dolan et al. (2016): (1) informational content facilitates passive, positively-valenced engagement; (2) entertaining content facilitates active, positively-valenced engagement; (3) remunerative content facilitates passive, positively-valenced engagement; and (4) relational content facilitates active, positively-valenced engagement.

More directly related to our project, some studies explore the issue of social media content within the wine industry by relying on UGT. Dolan et al. (2017), studying 12 Australian wine brands, find that wineries who use Facebook rely on a variety of content in their posts—although not in equal measure. They find that out of 2236 Facebook posts by the wineries, 82.6% contained informational content,

69% contained relational content, 50.7% contained entertaining content and 13.9% contained remunerative content. Their study is important because of the insight into content use (if not effectiveness). However, in our context, a larger question revolves around the type of content that SMIs use in campaigns to best stimulate follower response—which is the focus of the Dolan et al. (2016) study. Much work remains regarding the perspective of SMIs and wine tourism.

Research Questions

SMIs who engage with brands generally work within the parameters of a *campaign*. Here, we mean an overall marketing campaign by a respective brand. This includes an approach to meet the brand's marketing goals and objectives (e.g., new paying customers, increase in brand mentions, increased reach, etc.). Within a campaign, a plot or concept is typically developed that has a specific theme (e.g., a tourism destination wanting to promote its eco-friendly credentials or wine regions). Campaigns ultimately are based on *content*. Our research is specifically interested in how SMIs who engage in tourism campaigns view and work with content. In this sense, unlike much previous research, we take the SMI perspective *rather* than the follower perspective. Hence, given the focus of our research around SMIs and social media platforms, our overarching question is:

RQ: How do SMIs relate to content in tourism campaigns?

We extend our overarching research question to include:

RQa: Do SMIs use a variety of content for tourism campaign development?
RQb: Are certain types of content used to motivate follower response in SMI tourism campaign?
RQc: Is the content used by SMIs in tourism campaigns specific to social media platforms?

The Study Context

Our study was conducted on behalf of the Singapore Visitors to Swan Valley (SV2SV) research project. SV2SV is a consortium-based project established in 2018 and funded by industry, Wine Australia and Curtin University. The Swan Valley is a tourist destination and wine region located within 30 min of Perth, the capital city of Western Australia. The overarching objective of the project (of which our research was one component) was to determine ways to increase international wine tourism to the Swan Valley. More specifically, as Perth is one of the most isolated capital cities in the world, the focus was on Singapore. Singapore was attractive because of the relatively close international proximity to the Swan Valley (5 h

flight) plus their growing wine culture. In fact, at the time of the research project, Singapore was the third largest source market, by visitors, to Western Australia. Furthermore, by visitor spend in Western Australia, Singaporean tourists ranked number two. Our task was to explore Singaporean SMIs in order to provide a knowledge base for the SV2SV project, and uncover insights about their characteristics such that wine producers could ultimately engage them in an attempt to increase wine tourists to the Swan Valley.

Study Methods

Sample

The methodology was driven by both practical considerations and empirical rigour. Our research project sought to understand better SMIs from Singapore as a means to help support the development of tourism campaigns to the Swan Valley. Hence, in order to align with this goal, we focused on identifying a cohort of SMIs based in Singapore who not only could serve as potential candidates for future tourism campaigns related to the Swan Valley, but who could also offer rich insight into the research questions underlying our theoretical requirements. To these ends, we relied on qualitative research methods as qualitative research allows for the exploration of ideas and experiences in depth, which was well suited to our requirements.

Following the guidelines of Lincoln and Guba (1985), purposeful sampling was used. Specifically, to select the sample, influence.co was consulted, which is a leading global SMI portal. Singaporean SMIs were examined and a target list created by filtering on categories (e.g., wine and travel) that were most relevant to the study. We also wanted to ensure that we had a range of SMIs based on the number of Instagram followers (a common benchmark for the magnitude of influence). Out of 350 SMIs surfaced, the list was narrowed to 91 that best fit the requirements, including a mix of larger and micro SMIs (based on number of Instagram followers). A number of means were used to contact the targeted participants including email, direct messaging on social media platforms, phone contact and snowball techniques. In all, 13 Singaporean SMIs agreed to be interviewed. Table 1 provides a few key descriptive statistics of our sample.

Data Collection

To assess the research question, semi-structured interviews with open-ended questions were used. Semi-structured interviews involve gathering rich and multi-layered information, allowing a few prepared open-ended questions to form the skeleton of the interview (to address our research questions), with additional ques-

Table 1 Profile of the research sample

SMI participant	Gender	Coding designation	Location	# of Instagram followers
1	F	P1	Singapore	126,100
2	F	P2	Singapore	30,000
3	F	P3	Singapore	399
4	M	P4	Singapore	20,800
5	F	P5	Singapore	11,000
6	M	P6	Singapore	2774
7	M	P7	Singapore	5139
8	M	P8	Singapore	34,300
9	F	P9	Singapore	351,000
10	F	P10	Singapore	12,300
11	F	P11	Singapore	10,000
12	F	P12	Singapore	24,500
13	M	P13	Singapore	14,500

tions emerging during the interview process at the discretion of the researcher (Reja et al., 2003). By pre-determining some questions, the comparability of responses is increased and the interviewer's effects and biases reduced (Kitchin & Tate, 2000) A few interviews were conducted face-to-face in Singapore (October 2018) by the authors as part of a work-related trip and the remaining were conducted over the phone, during the months of November 2018 to May 2019. All interviews were digitally recorded (with permission) and transcribed verbatim.

Analysis

Following the inductive coding process (Bryman & Burgess, 1994) and thematic analysis (Braun & Clark, 2006), a close reading of the transcripts was undertaken to become familiar with the content and to gain an understanding of the details in the text. After the initial reading, each participant's transcript was entered into a software package to assist with coding. Initial codes were generated across the corpus of interview data, based on the actual words or terms used by the participants, using a system of *in vivo* coding, or coding taken directly from the participants' discourse. In this step, first-order codes were derived and the authors reflected on the coded files by re-reading the interview transcripts, coding for more *in vivo* words.

In the second step of the process, first-order codes were examined for relationships between and within the passages, which facilitated the creation of first-order categories (Braun & Clark, 2006). Several first-order categories emerged. In the third step, analysis was undertaken to look for links and relationships among first-order categories so that they could be collapsed into distinct clusters (axial coding), or second-order themes (Braun & Clark, 2006). Here, a recursive approach rather

than a linear one was employed, namely iteration between first-order categories and emerging patterns in the data until conceptual themes emerged (Braun & Clark, 2006). Lastly, by reading and rereading transcripts and referring to the extant literature, second-order themes were organised into final themes that reflected the overarching or aggregated dimensions that emerged from the data (selective coding).

Findings

The objective of this study was to explore how SMIs relate to content in tourism campaigns. The data structure of our findings is presented in Fig. 1. Based on our analysis and the data structure, three overarching themes emerged. In the first theme, we found that our SMIs like to rely on a variety of content when engaging in tourism campaigns. There was a sense that each SMI had learned through experience and tended to have content preferences when engaging in campaigns. The second theme, selective content can motivate response, suggests that SMIs tend to more explicitly consider brand considerations and leverage specific types of content to elicit or motivate their followers to respond. The third theme, content tailored to social media platforms, suggests that SMIs rely on specific types of content depending on the platform used. Below, we describe our findings in greater detail.

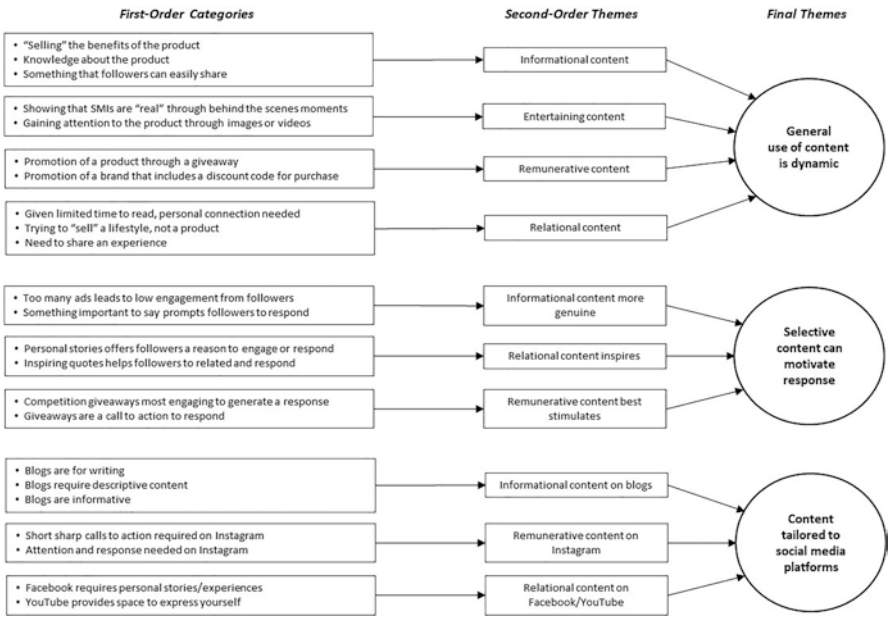

Fig. 1 Data structure

Final Theme 1: General Use of Content Is Dynamic

SMIs play an important role in promoting brands and have been noted as becoming more trustworthy than traditional forms of advertising and marketing (Yellow, 2018). Hence, there is an imperative to understand how they relate to content, as content is believed to be an underlying mechanism to engage followers. Regarding RQa, our results suggest that the Singaporean SMIs in our sample appear, in general, to rely on a variety of content in their tourism campaigns. Informational content was a popular choice. The data suggest that informational content is important because "benefits" of the brand need to be clearly *described*. For example:

> I like to [use] informational content [for] selling the benefits of the [brand]. (P1)

Similarly, another participant (P13) suggested that they like to use informational content because their followers like to know details about the brand. Others noted that the use of informational content is used because such content can be easily shared by followers (P12), suggesting that brand promotion can be more easily accelerated.

Entertaining content was also surfaced as a content type. One of the more interesting perspectives of this content type was the fact that SMIs perceived that they needed to project an image of being "real" or "normal". Such a perspective was perhaps best exemplified by:

> Entertaining, yes, I do put bloopers in my content. Something that happened behind the scenes, because it's real for me. And people who follow me know that it's totally me. I just want to be as real as I can to show the behind the scenes moments with my followers. (P1)

Others suggested that they needed to present something a little less "static" than just informational content, and therefore used images or videos because they are "considered entertaining" (P11).

Remunerative content use proved popular because SMIs felt that, on behalf of the brands they represent, that they can use mechanisms for their followers to actually receive something in return for their loyalty (e.g., discount travel voucher, free night hotel stay). As one SMI noted:

> But I do love giveaways. And that really makes the page a bit more exicting for them, for myself and for the client, of course. (P1)

Along a similar line, other SMIs noted that, particularly with bigger brands, they "ask for remunerative content for giveaway or promotion" (P11).

Lastly, there was a sense that SMIs, although they may use informational content, recognise the time pressures that their followers are under and the limited time they have to read content. Given this understanding, many also engage in relational content because they believe that relational content is more inspirational and motivational. One SMI noted:

> Because I feel that informational content for people nowadays is a little too much for them to read, because they don't have much time to really read properly so also giving them some inspirational or motivational things, so they would feel good. And once they actually feel good they will actually try to engage in all your activity. (P3)

Similarly, another noted, "For me it's more, yeah for me more relational because it's more inspirational" (P2). Others were very specific:

> Travel is more inspirational/relational. Right? So it's really, it's really [more about] aesthetic features, sharing experience. "Like this is the first time that I'm actually in a strawberry field plantation". (P8)

In sum, the data suggest that SMIs tend to engage in a variety of content types for different reasons. In fact, they may use more than one type of content to fit the needs of a campaign or their own personal styles and tastes. There was a real sense of enagement with followers, and attempting to adapt content to the follower base where possible.

Final Theme 2: Selective Content Can Motivate Response

As SMIs promote brands, there is a need not to just provide information to followers, but also to stimulate or elicit a response, such as commenting, making a purchase, clicking through a link, sharing content with others or word of mouth promotion. Hence, with respect to RQb, while the use of content varied, it was selective. Although rarely mentioned, one SMI did refer to informational content for follower engagement and response:

> Informational content because I will have to be very direct. Nobody really likes to see ads on pages. "Oh, I'm following you and all I'm getting is an ad for a certain [brand]". Then the engagement is usually really low. (P1)

On the hand, relational content proved fairly popular. One SMI commented:

> On my own page I normally will post motivational or inspirational quotes. So I realised that a lot of non-Instagrammers, they will actually relate to it and they will actually comment. So they actually prefer [to respond] with this kind of personal story or inspirational or motivational stories. (P3).

Similarly, another SMI noted that: "Relational content…will get higher quality comments and engagement from followers" (P8), while, with respect to follower engagement and response, "Yeah, I think relational for me always wins out, most definitely" (P9).

Finally, and perhaps not unexpectedly, remunerative content is used to generate follower engagement and response. One SMI liked using competitions because they seemed to generate engagement and response:

> I think a competition is the most engaging because if you just use a formal quote then it's just, "Okay I've seen a formal quote, I don't need to react or engage" and that's it. (P7)

Others were more direct: "Remunerative content gets them to respond" (P11). Similarly, "Yes, a call to action. So, in fact, a giveaway. Followers like to join a giveaway" (P13).

In sum, while there was somewhat of a variety of content used for follower engagement and response, use was perhaps more specific or tailored than that used

in final theme 1. For example, we found very few who seemed to seriously consider informational content as means to elicit action and response from their followers in terms of the brands/campaigns they were promoting. This may be due to informational content's more "static" or descriptive nature whereas other content emotes more powerful connection and taps into followers' self-interests and gratifications more readily.

Final Theme 3: Content Tailored to Social Media Platforms

Our final theme concerns content in the context of social media platforms. Most of our participants rely on several social media platforms, including personal blogs, Facebook, Instagram, Twitter, LinkedIn and YouTube. However, regarding RQc, what emerged from the data suggests that content use tends to be very specific depending on the platform. For example, many participants told us that with respect to blogs, informational content is the best medium:

> More writing [informational] on blogs. (P2)
>
> So on my blog, it's mostly informational. (P3)
>
> Yeah, for my blog it's more informational. It's more informative in a way that I would tend to write more about things that are going on. (P4)
>
> For my blog I will have more on information…So it's informational content. (P5)
>
> Blog is informational. (P8)

With respect to the use of Instagram, perhaps one of the most popular social media platforms for SMIs, the findings suggest that remunerative content seems to be most preferred. For example:

> For Instagram, it would be more remunerative content. (P3)
>
> On Instagram, remunerative content is preferred. (P5)

In general, the sense was that Instagram requires short, sharp calls to action that grab attention, and hence remunerative content allows the SMI to do that in their campaigns.

Lastly, as for other social media platforms, there was some indication that relational content was particularly important. On participant noted that, "Facebook and YouTube are more relational type posts" (P6). We noted in some of the general discussion (not reported here), that the participants tended to view Facebook and YouTube as more relational platforms. In other words, our SMIs felt that Facebook and YouTube allowed them to engage more fully in personal stories and experiences, as well as they felt freer to express themselves in a deeper way than other mediums. Such perspectives could be related to the fact that some platforms, like Instagram or Twitter, require very short and sharp posts to be effective.

In sum, there was evidence to suggest that our participants use a range of content in their tourism campaigns. Yet, as the data emerged, *how* the content is used and

where the content is used certainly varied. Such findings may indicate that as SMIs build their profiles and follower base, and as they engage with different brands, they more readily tailor content use for "fit to purpose".

Discussion and Contribution of the Findings

The aim of this study was to better understand how SMIs relate to content use in tourism campaigns. For SMIs, their use of social media platforms is constructed to enable follower interaction and engagement—and to promote the brands they represent. Therefore, it is imperative that we understand the application of UGT to determine how they relate to different types of social media content. We make a few contributions.

Contributions to Theory

Rather than explore followers, we flipped the equation and studied those who actually *have the following* and have the responsibility of creating content on behalf of brands they represent. In other words, SMIs. Hence, while our study is exploratory and modest, we build on UGT. First, we noticed that SMIs readily engage in a variety of content in order to proffer their messages. More generally, SMIs relied on informational, entertaining, remunerative and relational content. We posit that as with other studies in the stream (e.g., Gan, 2018), as *producers* of content (rather than those who are followers and read the content), SMIs have their own personal motivations as they are working with brands and on campaigns, and there was a sense that where possible they will engage in a variety of content to gratify their own informational, entertaining, remunerative or relational needs. In this sense, as with users (or followers), SMIs appear to uphold UGT in that they have different motivations for the content they choose to use and will exercise that to gratify their personal needs and self-expression. However, when we delved deeper into content use, a few interesting patterns emerged.

For one, when we explored content use with respect to what actually *motivates* their followers to respond, we found that SMIs tend to be more definite with respect to content. While there was more than one preferred content type, the language used and insight provided by the SMIs demonstrated a more 'refined' way of thinking about the constructing of posts and messages such that follower action and response is maximised. In this way, we posit that there was a level of detachment from purely personal psychological or intrinsic preference to a more 'brand' centric approach that was aimed much more at brand self-interest. That is, use of content that would stimulate action and response from SMIs' followers on behalf of the brand. The other theme that emerged related to content and social media platforms. Here, we discovered that SMIs seem to become even 'narrower' in the content types used.

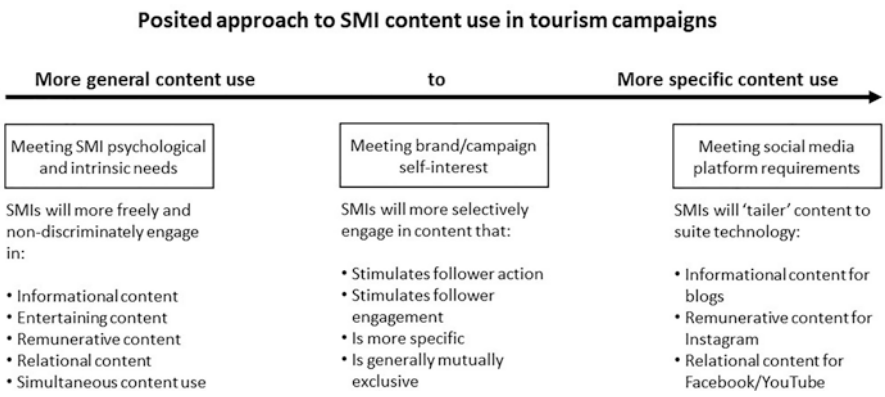

Fig. 2 Proposed theoretical model

More specifically, while the first theme revealed personal gratifications for the use of a variety of content, the final theme revealed that SMIs appear to relate specific types of content to specific types of social media platforms. In other words, SMIs were driven to tailor content used by platform. This finding suggests that SMIs were very rationale and savvy with respect to engaging with campaigns, the brand's self-interest and which type of content works best with which social medium platform.

In sum, with respect to SMIs, content use and tourism campaigns, we build a theoretical model that represents our findings (Fig. 2). The theoretical model suggests that there is a posited spectrum of content use. First, SMIs have their own personal motivations and need for self-expression in content use. This frees them to engage is variety of content to gratify their psychological and intrinsic needs. All things being equal, they will engage in a broad variety of content use. Second, as brands and campaigns begin to more definitively frame their self-interested motives, SMIs will selectively rely on content that best motivates and stimulates follower action and engagement. Lastly, different social media platforms are more conducive to certain types of content than others. SMIs will select specific types of content based on the appropriateness of the content to the social media platform used.

Contributions to Practice

Wine regions tend to be in regional locations and rely heavily on tourism to be successful. Given that social media users are relying more on SMIs for tourist destination recommendations (Yellow, 2018), and that the use SMIs demonstrate a relative impressive return on investment (Axon, 2018), wine brands and regions would be advised to consider SMIs as part of their marketing mix. Recent research iterates the point: tourism brands that engage SMIs through Instagram suggests that they could potentially grow their target audience by 10 times (Brandt, 2017).

For those wine brands and wine regions who are seeking to increase tourist traffic through the use of SMIs, more specific practical insights are offered. For instance, wine brands should work in close consultation with the SMIs that they have selected to develop a clear contract which outlines influencer campaign requirements including: (1) overall objectives; (2) number and content of posts; (3) social media platforms; and (4) specific time frames. Rather than wine brands providing this information to SMIs to follow, the recommendation is that this is a consultative process between the brand and the SMI's to obtain desired results. SMIs have a deep understanding of their followers and what content best engages and motivates them, which platforms are best to use and what specific content is best used on each platform. Such an approach serves as best practice to wine brands to obtain optimum results from SMI campaigns.

Regarding incentives and payment, wine brands should consider the level of influence (number of followers, engagement levels) of the SMI and the time required to create different types of content. Micro SMIs with less than 5000 followers generally consider working on social media campaigns with minimal incentives such as discounts on products from the winery or free giveaways. SMIs with followers of over 10,000 usually require higher financial incentives and not only would likely expect free sample products, but payment for their time to create and post online content. The payment required to incentivise the SMI is also dependant on the amount of time and skill that is required to create the content (e.g. a simple image and caption would require less time for the SMI to create compared to a high-quality production video). The more influential the SMI, the higher value they place on their time and as such financial compensation needs to reflect their profile and status.

Conclusions and Ideas for Future Research

This study examined how SMIs engage with content in tourism campaigns. Based in the context of the Swan Valley wine region and Singaporean SMIs, we found that content use is both broad and narrow, depending on the personal psychological and intrinsic needs of the SMIs, the requirements of follower action and engagement and the type of social media platform used. The findings have implications both for theory and practice.

Future research directions are threefold. First, there is little research examining the impact of SMIs on wine tourism. Future research could seek to quantify the extent to which SMI engagement increases cellar door visits or sales of wine. Second, our study did not account for 'celebrity' SMIs. Celebrity SMIs can have millions of followers and wide-spread appeal. Future research could seek to explore the extent to which engagement with a celebrity SMI is worth the cost to wine tourism relative to other SMIs who may have less followers, but who may be more targeted. Lastly, our study demonstrates the value of content use in SMI campaigns for

wine tourism. However, future research needs to explore specific content types in campaign use, and the extent to which various content types increase the engagement of wine tourists.

References

Allsop, D. T., Bassett, B. R., & Hoskins, J. A. (2007). Word-of-mouth research: Principles and applications. *Journal of Advertising Research, 47*, 398–411.

Axon. (2018). *Meet the five influencer trends marketing trends in the tourism sector for 2018*. Available at https://www.axonlatam.com/en/update-with-our-contents/meet-the-five-influencer-marketing-trends-in-the-tourism-sector-for-2018/. Accessed 27 Feb 2020.

Bandt. (2017). *Social influencers grow hospitality & tourism audiences tenfold*. Available at https://www.bandt.com.au/social-influencers-grow-hospitality-tourism-audiences-tenfold-hootsuite-research/. Accessed 12 Dec 2019.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77–101.

Bryman, A., & Burgess, R. G. (1994). *Analysing qualitative data*. Routledge.

Charney, T., & Greenberg, B. (2001). Uses and gratifications of the internet. In C. Lin & D. Atkin (Eds.), *Communication, technology and society: New media adoption and uses* (pp. 383–406). Hampton.

de Garis, C. (2018). *Instagram discovers Esperance: Social media delivers a tourism boom to remote WA town*. Available at https://www.abc.net.au/news/2018-01-20/esperance-instagram-tourism-boom/9345614. Accessed 15 Dec 2019.

De Veirman, M., Cauberghe, V., & Hudders, L. (2017). Marketing through Instagram influencers: The impact of number of followers and product divergence on brand attitude. *International Journal of Advertising, 36*, 798–828.

Dichter, E. (1966). How word-of-mouth advertising works. *Harvard Business Review, 44*, 147–166.

Dolan, R., Conduit, J., Fahy, J., & Goodman, S. (2016). Social media engagement behaviour: A uses and gratifications perspective. *Journal of Strategic Marketing, 24*, 261–277.

Dolan, R., Conduit, J., Fahy, J., & Goodman, S. (2017). Social media: Communication strategies, engagement and future research directions. *International Journal of Wine Business Research, 29*, 2–19.

Flynn, L. R., Goldsmith, R. E., & Eastman, J. K. (1996). Opinion leaders and opinion seekers: Two new measurement scales. *Journal of the Academy of Marketing Science, 24*, 137–147.

Fransen, M. L., Verlegh, P. W. J., Kirmani, A., & Smit, E. G. (2015). A typology of consumer strategies for resisting advertising, and a review of mechanisms for countering them. *International Journal of Advertising, 34*, 6–16.

Gan, C. (2018). Gratifications for using social media: A comparative analysis of Sina Weibo and WeChat in China. *Information Development, 34*, 139–147.

Ismail, K. (2018). *Social media influencers: Mega, macro, micro or nano?* Available at https://www.cmswire.com/digital-marketing/social-media-influencers-mega-macro-micro-or-nano/. Accessed 27 Feb 2020.

Katz, E., & Foulkes, D. (1962). On the use of the mass media as 'escape': Clarification of a concept. *The Public Opinion Quarterly, 26*, 277–388.

King, R. A., Racherla, P., & Bush, V. D. (2014). What we know and don't know about online word-of-mouth: A review and synthesis of the literature. *Journal of Interactive Marketing, 28*, 167–183.

Kitchin, R., & Tate, N. J. (2000). *Conducting research in human geography: Theory, methodology and practice*. Paul Chapman.

Korgaonkar, P., & Wolin, L. (1999). A multivariate analysis of web usage. *Journal of Advertising Research, 39*, 53–68.
Kozinets, R. V., de Valck, K., Wojnicki, A. C., & Wilner, S. J. (2010). Networked narratives: Understanding word-of-mouth marketing in online communities. *Journal of Marketing, 74*, 71–89.
Leung, L. (2009). User-generated content on the internet: An examination of gratifications, civic engagement and psychological empowerment. *New Media & Society, 11*, 1327–1347.
Lin, C. (1999). Online-service adoption likelihood. *Journal of Advertising Research, 39*, 79–89.
Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Sage.
Litvin, S. W., Goldsmith, R. E., & Pan, B. (2008). Electronic word-of-mouth in hospitality and tourism management. *Tourism Management, 29*, 458–468.
Luxury Travel Advisor. (2014). *Survey: Millennials want value-add perks in their hotels*. Available at https://www.luxurytraveladvisor.com/survey-millennials-want-value-add-perks-their-hotels. Accessed 2 Feb 2020.
Pellechia, T. (2019). *At 2019 close, wine marketing—Past and future—Is tied to social media*. Available at https://www.forbes.com/sites/thomaspellechia/2019/12/16/at-2019-close-wine-marketing-past-and-future-is-tied-to-social-media/#4f9259bc79dc. Accessed 3 Mar 2020.
Reja, U., Manfreda, K. L., & Hlebec, V. (2003). Open-ended vs. close-ended questions in web questionnaires. *Developments in Applied Statistics, 19*, 159–177.
Ruggiero, T. E. (2000). Uses and gratifications theory in the 21st century. *Mass Communication and Society, 3*, 3–37.
van der Veen, R., & Song, H. (2014). Impact of the perceived image of celebrity endorsers on tourists intentions to visit. *Journal of Travel Research, 53*, 211–224.
Yellow. (2018). *Yellow social media report 2018*. Yellow.

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Design Factors of Mobile App in Wine Tourism: Creating Customer Value Through the Whole Wine Tourism Journey

Marianna Sigala, Darko Dimitrovski, and Veronika Joukes

Abstract Smartphones and mobile apps have penetrated all aspects of our lives, and wine tourism is not an exception. As we still know little about the effective design of mobile wine apps, this chapter reviews the previous literature in order to identify critical success design factors. The chapter proposes a framework that identifies two major dimensions of wine tourism mobile apps namely, content and functionality. The chapter explain the features of each dimension and it provides several examples showing how the former need to be designed so that they can provide customer value during the whole wine tourism journey, i.e. before, during and after the wine trip/experience. As the customer value is conceptualised to have various dimensions (including functional/utilitarian, hedonic/emotional, and social value), it is proposed that future research can look at how mobile app design can be customised to satisfy the needs and preferences of various wine tourism segments seeking different types of customer value at different consumption contexts.

Keywords Mobile apps · Content · Functionality · Features · Customer value · Wine tourism · Users · Wine tourism journey

Introduction

Smartphones have become a survival necessity as they have penetrated our daily professional and personal life. Mobile applications (apps) have also changed the way we live, communicate, work, socialise and have fun, since mobile apps enable

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us to do many of our daily activities more quickly, conveniently and more flexibly (Rashid et al., 2020). In fact, consumers spend more time on mobile apps (88%) than on the mobile web (12%) (ComScore, 2017). The tourism industry and activity are not an exception. Travel apps have been for long been amongst the most fast-growing segments of mobile apps (Statista, 2021): in terms of popularity, mobile apps within the travel category rank fifth in Play Store (95.7%) and seventh in Apple Store (3.8%). The recent COVID-19 crisis has accelerated and intensified the usage of travel mobile apps by both tourism industry and demand (Sigala, 2020), as health risks made everyone to prefer touchless tourism services.

Mobile apps have been developed by all tourism related sectors and stakeholders including hotels, airlines, destinations, event organisers, cruiselines, rent-a-car, cultural tourism operators and more recently wine tourism operators (e.g. Wang et al., 2012; Kennedy-Eden & Gretzel, 2012; Boiano et al., 2012; Alonso et al., 2013). The use of smartphones and mobile apps in the context of travel has transformed the way tourism is produced and managed as a business practice as well as how tourism is understood and experienced as a social practice. In this vein, mobile apps play a major role as they do not only change all aspects of tourist behaviour (e.g. where tourists travel, what and when they consume and how they book and pay), but they also influence tourism experiences, tourist satisfaction and post-purchase behavior.

However, despite the continuous high rates of mobile app downloads within travel and hospitality for the last 10 years (Castañeda et al., 2009), tourists' usage and engagement with mobile apps are still at low levels. Users tend to download and use mobile apps once, but then they may even forget what mobile apps exist in their phones. Moreover, although research about the use of modern technologies in the wine tourism has started to boom (Sigala & Robertson, 2019), studies related to the design, the use and impact of mobile apps in wine tourism and tourists are still scarce (Dimitrovski et al., 2019). For example, the number of wine tourism mobile apps continues to expand steadily enabling wine tourists to perform many tasks: search, discover and learn about new wine destinations and wines; plan, book and pay for wine tourism trips and experiences; buy wines directly from producers; join and develop relations with wine clubs and wine communities. But we still know little about: how to effectively design a mobile app that can add value for the wine tourists; and how to make a mobile app appealing and engaging so it attracts the wine tourists and lovers' interest and passion to engage with it even after their wine trip and experience.

In this vein, this chapter aims to review the related literature in order to identify the design factors of wine tourism mobile apps that can provide customer value and so, influence the wine tourists to adopt, use and engage with them. To that end, the chapter first discusses how mobile apps can provide customer value in general and within the wine tourism context. The creation of customer value through mobile apps is discussed by adopting the concept of the wine tourism journey. Then, a literature review is presented summarising the design factors of mobile apps that are found to affect user adoption and usage. These design factors are then contextualised within wine tourism by providing various examples showing their applicability and affordance to provide customer value to wine tourists. The chapter concludes by identifying ideas for future research.

Mobile Apps and Customer Value in (Wine) Tourism

Most mobile apps are branded apps, which are defined as (Bellman et al., 2011: 191): *software downloadable to a mobile device which prominently displays a brand identity, often via the name of the app and the appearance of a brand logo or icon, throughout the user experience*". Branded apps include tools, games, and social, m-commerce, and design-centric apps (Xu et al., 2016; Zhao & Balagué, 2015). Mobile apps offer new ways for firms to create customer value during and after the product/service purchase. Indeed, mobile apps can be used to create and maintain connections between brands, consumers and brand communities so, they are very useful for supporting and enriching customer relationship marketing practices and building brand equity.

In tourism, mobile apps are an integral part of the tourism experience, as tourists use them for various reasons including: as online travel agents; as mobile guides for interpretation; as mobile wallet for payments; as translators; as destination guides; for searching, booking all tourism products such as transport, accommodation, restaurants, attractions and leisure activities; for maps and geolocation; for planning and following an itinerary/trip; for recording and sharing tourism experiences. By carrying smartphones always with them, tourists have access to 24 h 365 days real-time tourism services enabling them to constantly adjust, re-arrange and co-ordinate their tourism activities and plans (Lamsfus et al., 2015). In other words, the tourism apps enhance the value of travel as they enable tourists to plan, change, and share activities with others before and during the trip. The latter is particular useful and valuable as tourism is continuously affected by various (minor and/or major) 'crises' such as pandemics, physical phenomena and weather conditions, traffic and delays, strikes, and personal health issues and injuries. Hence, apart from convenience and flexibility, mobile apps are also extremely useful to tourists (specifically in cases of emergency and crises) by providing them security and safety values by making them feel safer (e.g. access to mobile apps eliminate our fears of getting lost) and/or being safer and secure that they have the tools to manage the 'crisis'.

In sum, smartphones and mobile apps can assist tourists and enrich their tourism experiences before, during and after their trip (i.e. during the whole tourist journey). Overall, tourism apps can make travel more extensive, simpler and easier and the tourism activities more flexible and personalized. Travel apps also provide tourists' value by reducing their stress involved in planning, (re)-adjusting and consuming tourism as well as by increasing the tourists' feelings of safety and confidence in exploring places and/or traveling alone.

In a similar vein, mobile apps in wine tourism should be designed so that they provide tourists' value by enabling them to plan, (re)adjust and enrich their wine trip and experiences before, during and after their visit to the wine destination and/or winery. In addition, wine tourism apps should also aim to address needs, expectations and preferences of contemporary wine tourists, for example the desire to experience authentic situations, surprises and memorable moments. In this vein, wine tourism apps should be designed so that they enable users to learn, appreciate and

connect with the wine region and its people, immerse themselves into the local culture, interact with local people, explore wine destination by going off track and distance themselves from typical clichés and hotspots. Overall, mobile apps should generate multi-dimensional value to wine tourists such as, functional, convenience, economical, socio-cultural, hedonic and safety value.

Design Factors of Mobile Apps

Research investigating the factors influencing the users to adopt, use and engage with mobile apps provide useful insights into the factors and dimensions that one should consider when designing a mobile app. Most of the studies examining the factors influencing the users' adoption of mobile apps mainly adopt the technology acceptance model (TAM) (Davis, 1989) (van Noort & van Reijmersdal, 2019). In particular, research has found that perceived usefulness, ease of use, and enjoyment of engaging with mobile services (Huang & Ren, 2020; Ko et al., 2009) as well as design solutions, and information quality can critically influence behavioral intentions to use mobile apps (Newman et al., 2017; Tarute et al., 2017). Indeed, the concept of value significantly predict intentions to use mobile services (Kleijnen et al., 2007; Pihlström & Brush, 2008), such as monetary, convenience, emotional, and social value (prestige, social-self), hedonism (entertaining, fun). Because of this, research has also used motivation theories to predict adoption and use of mobile apps (Cyr et al., 2009; Fang et al., 2017). Results show that users adopt and use mobile apps in order to obtain utilitarian and/or hedonic value (Kim et al., 2013): users driven by utilitarian motivation seek to gain rational, goal oriented, functional, practical or extrinsic benefits by using mobile apps; while users driven by hedonic motivation seek to obtain emotional aspects of the individual, such as happiness, sensuality, escapism, and enjoyment. Similar factors are also found to influence the users' intentions to continue using mobile apps.

Hence, to ensure the adoption and use of mobile apps, their design should provide: (1) utilitarian value (i.e. informative and task oriented value such as efficiency of exchanges, provision of information, customer service and support); and (2) hedonic value (i.e. aesthetics including visual attractiveness, entertainment, playfulness, gamification, enjoyment and social status/recognition). Research also shows that there is an interplay between utilitarian and hedonic value provided by mobile apps, which in turn reinforces user adoption and engagement with the mobile apps. For example, Li et al. (2012) found that mobile app utilitarian factors (such as richness information, timely feedbacks, and active communications) are positively related to mobile app users' emotions and affections (hedonic value). By adopting a visual aesthetic perspective, Kumar et al. (2018) found that aesthetics factors, namely complexity, coherence, and legibility which are associated with the TAM variables (i.e., perceived ease of use, usefulness, and enjoyment) significantly affect the adoption of retail mobile apps.

Tourism research further confirms the applicability and importance of the above-mentioned factors in influencing the tourists' adoption of mobile apps as well as it provides industry specific information on how to design the application service environment (i.e. the so called "application servicescape" or "appscape") in order to influence the tourists' behaviors (Chang et al., 2016; Gupta et al., 2018). Research into the design of the appscape is mainly focused on identifying the mobile app functions and attribute quality perceived by travelers, due to their close relation with travel satisfaction and behavioral reaction (Kumar & Shah, 2021). However, past studies classify and aggregate appscape dimensions into broad perspectives, which also differ between studies and tourism sectors. Table 1 summarises the results of a number of such studies.

A Framework for Designing a Mobile Wine Tourism App

It is evident from the above analysis that there is not a commonly agreed framework for identifying and categorizing functionality and features of mobile apps in tourism. In addition, past studies provide divergent results depending on the specific tourism sector whereby mobile app functionality is being examined, e.g. hotel, transport, food and cultural tourism. Despite the increasing growth of wine tourism at a global scale as well as the increasing development and accelerated use due to the COVID-19 pandemic of mobile app applications by both wine destination and wine tourism operators, there is no research investigating and providing a unified and holistic framework on how to design effective mobile apps in the wine tourism context. The following discussion consolidates the past literature to develop such a framework and contextualise it in the wine tourism context.

Although past tourism research in this field is fragmented and inconclusive, it does identify critical success factors to be considered when designing mobile apps. Specifically, based on the previous analysis, it appears that there are two major dimensions of mobile app attributes that need to be considered namely, content/information and functionality. From a customer value perspective, the design of these two dimensions also needs to consider two issues: (1) the provision of hedonic and utilitarian value; and (2) the provision of customer value during the whole wine tourism journey (i.e. before, during and after the wine tourism experience/trip).

Content

Content refers to information presented in the form of text, pictures, audio, or video (Lizzi et al., 2013). The type of information and its features as well as the way it is provided and is accessible should be designed in order to provide both utilitarian and hedonic value. For example, information about the attractions of a wine destination should: (1) help tourists in identifying, booking and paying for wine

Table 1 Functionality and attributes of tourism mobile apps identified by past studies

Study	Tourism sector of mobile app	Functionality and attributes
Lee (2018)	Hotel mobile appscape	Aesthetics, functionality, and symbolism
Kumar and Shah (2021)	Food service apps	Two underlying dimensions, namely aesthetic appeal and aesthetic formality, which in turn significantly influence the hedonic values obtained by users i.e. enjoyment and arousal
Fang et al. (2017)	Travel apps	Dimensionalities of mobile app design and performance driving user engagement with travel apps: Compatibility, relative advantage, portability, privacy, and attractiveness
Wang and Xiang (2012)	Travel-related iPhone apps	Eleven categories, noting that consumers have preferred information services and design features: Single city destination guide, online travel agency, language assistant, flight manager, theme park and resort guide, facilitators, multiple city destination guide, food finder, entertainment, live camera, and currency converter
Wang et al. (2011, 2012)	Travel apps found in the app store for iPhone, iPad, and iPod	a taxonomy of smartphone apps based on the type of information service, dividing travel apps into the following twelve categories: Flights information manager, destination guides, online travel agency, facilitator, attractions guides, entertainment, food finder, language assistant, local transportation, augmented reality, currency converter and tips calculator
Kennedy-Eden and Gretzel (2012)	Tourism mobile apps in iTunes and android	Functionality and attributes were categorised under the following two broad perspectives, and a taxonomy of mobile tourism apps was created based on this classification: value chain/service provided perspective. Seven categories of mobile apps based on the following functionality and attributes: Navigation, social, mobile marketing, security/emergency, transactional, entertainment, and information Level of user interactivity perspective measured by seven functionality and attribute features: Personal preferences, location, security, through the web, content addition, aesthetic changes, and those mobile apps that remain the same for everyone (as they offer no interaction).
Verma et al. (2012)	Hotel mobile apps	Functionality and attribute features are clustered under three categories: Location-based functions provide hotel-related information, destination directions, and information about local restaurants and local attraction reservations. Communication-based functions offer text-messages or any notice from hotels, voice-mail, email and wake-up calls Service-based functions include mobile check in/out, ordering or scheduling housekeeping, room service, valet or other hotel related services through hotel apps

experiences (i.e. provision of utilitarian benefits in trip planning and economic exchanges); and (2) it should also create arousal, interest, nostalgia and enjoyment (i.e. hedonic value) by using aesthetic and appealing information design that can stimulate interest, curiosity and fun/entertainment. Overall, the following attributes of content should be considered when designing mobile apps:

- Multimedia content. Multimedia information can include: photo gallery/slide show; 3D photos; audio material in the forms of wine tourism guides of wine regions, wine experiences, wines and viticulture; video content; real time web cameras; virtual tours; augmented reality. Multimedia information can: better help wine tourists in their decision-making process and trip planning (e.g. by making an intangible experience more tangible); increase the appeal and attractiveness of wine tourism offerings and destinations; and make the usage of a wine tourism app a fun and entertaining experience.
- Quality content. Wine tourism information should also possess good quality features including accurate, reliable, timely and unbiased content (Kennedy-Eden & Gretzel, 2012; Tan et al., 2017).
- Accessibility, searchability and visualisation of content. The visualisation of the content must be engaging, valuable and suitable for mobile use. It is also important that information is easily accessible and searchable by all users (even by users with disabilities) and so, visualisation, navigation, user interface and search tools play a major importance in the provision and accessibility of information in mobile apps.
- Content Personalisation. Tourists are frequently lost by the huge amount of available information, they might have limited time to decide and plan a trip, while sometimes they might also need to decide at a last minute. Content personalisation enable users to better filter and read relevant content, to better satisfy their needs and preferences as well as derive hedonic value by feeling important and receiving personal care. Content personalisation is possible by the tools such as user profiles and recommendation systems.
- Content inclusivity to embrace the holistic nature of wine tourism. Content should also cover the totality and variety of the services required by tourists including transportation, accommodations, and food (Goh et al., 2010). In wine tourism, content should cover the following major categories of services: wine destination (general and tourism specific information); wineries; wine related attractions and other wine related experiences; wine festivals and events; accommodation; transportation; food/gastronomy; wine tours; wine routes and itineraries; wine labels, wine varieties and viticulture.
- User-generated-content (UGC). Research shows that UGC content (such as tourists' reviews, ratings and feedback, photos and videos) can provide both utilitarian and hedonic customer value in terms of: better assisting tourists to select tourism offerings (as UGC is considered as more reliable and timely information than provider generated information); and providing tourists fun, entertainment and prestige/social status by sharing wine tourism experiences with others. The mobile app should be able to allow users to access, search, share and engage (e.g. share, comment, like) with UGC.

Functionality

Functionality refers to an action that can be performed by the mobile app user (e.g. searching or sharing information) and it significantly relates with user engagement (Lizzi et al., 2013). In a mobile app context, the following types of functionalities are found to generate user engagement (Kim et al., 2013): vividness, novelty, motivation, control, customization, feedback, and multi-platforming. Functionality also significantly influence tourists' trust and usage of the mobile app. For example, Zimmerman (2013) found that 35% of travellers are unlikely to complete a mobile booking if the functionality of the mobile app seems questionable. For a wine tourism app, the following functionality is suggested as appropriate for providing customer value:

- Social media interfunctionality: e.g. ability of users to link the mobile app with their social media profiles and networks for searching, sharing and commenting information related to the wine destination and/or wineries
- Entertainment tools: e.g. gamification applications (e.g. treasure hunt in a wine destination, wine and food pairing game, a customer loyalty game whereby users gain points by checking in in wine experiences); music player; virtual tours; live web cams
- User interface and navigation tools: e.g. "Home", Back", "Next" or "Cancel" buttons; pinch-and-zoom feature; keyword search feature; search on a map; push notification (message that pops up)
- Personalisation tools: e.g. user accounts; possibility to create a 'wish list', a 'visited list', keep a personal diary, add wine tasting notes; recommendation tools
- Trip planning tools: e.g. create and share a wine trip by using an interactive multi-layer map visualising different types of attractions, experiences and other wine tourism offerings of the wine destination; a wine itinerary creation tool based on various criteria, e.g. number of days/times, interest in types of wine and other experiences, age and accompanying persons of the tourists; location identification and navigation/directional tool;
- Booking and payment tool: tools enabling users to check and book availability of wine experiences and tours; payment tools with various digital payment options;
- Community tools: a wine club tool enabling networking and subscription to wine and wine experiences sales programs; a wine tourism community tool e.g. forum,
- Communication and interaction tools: e.g. online chat, messaging, online forums
- Additional features and functions: e.g. QR code scanner of wines, wine attractions; World clock; wine and tourism related literature (e.g. newspapers, magazines etc.); currency converter tool; wine search tool; a calendar of wine tourism events/festivals and other experiences; weather forecasting tool; multilingual or translation tools

Finally, from a wine tourism journey perspective, mobile app content and functionality should be designed so that it provides customer value before, during and after the wine trip/experience. Table 2 provides some examples showing how content and functionality can be designed to achieve the latter.

Table 2 Mobile app content and functionality providing customer value during the whole wine tourism journey

	Before the wine trip/ experience	During the wine trip/ experience	After the wine trip/ experience
	Dream, plan, book, pay	*Experience*	*Share*
Trip planning tool	Identification and search of wine tourism experiences and suppliers Multimedia and UGC content presenting wine tourism experiences Calculation of distances and travel times between wine experiences	Real time information of traffic Tool for readjusting bookings Real time crowding information Virtual Reality and augmented reality tools as mobile guides for interpreting wine experiences Rate and share feedback on wine experiences	Create a personal record and/or personal diary of the wine experiences Share personal wine experiences and feedback internally (within the wine community at the mobile app) and/or externally through links to social media
Booking tool	Search and multimedia information of wine experiences Check of real time availability Comparison tool benchmarking wine experiences based on various criteria such as price, duration, types of wines, type of experience	Possibility to cancel and/or change booking A tool informing and pushing alerts of last minute cancelations and availability Last minute special offers	Customer loyalty program for collecting and exchanging points with wine offerings

Conclusions and Ideas for Future Research

Smartphones have penetrated all aspects of our daily life and (wine) tourism is not an exception. As we still know little about how to effectively design wine tourism apps, this chapter aimed to review past related literature in order to provide a holistic framework for designing mobile wine apps. The framework identifies two major dimensions namely content and functionality and it debates how their features need to be developed in order to provide customer value during the whole wine tourism journey. The provision of customer value should be multi-dimensional including functional/utilitarian, hedonic/emotional, and social value.

As the number of wine tourism apps increase, future research could investigate the role and impact of mobile apps on: creating and maintaining connections and communication with wine tourists and lovers; boosting brand equity; and competitive advantage. It seems that mobile wine apps might soon become a standard

expected operational standard, which might not be able to help wine tourism operators and destinations to outperform but simply to survive. Future research should also further investigate the usage of mobile wine apps by various types of wine tourists (depending on their culture, wine involvement, experience context etc.) in order to be able to design mobile apps that better address the preferences and needs of different type of wine tourism segments.

References

Alonso, A. D., Bressan, A., O'Shea, M., & Krajsic, V. (2013). Website and social media usage: implications for the further development of wine tourism, hospitality, and the wine sector. *Tourism Planning and Development, 10*(3), 229–248.

Bellman, S., Potter, R. F., Treleaven-Hassard, S., Robinson, J. A., & Varan, D. (2011). The effectiveness of branded Mobile phone apps. *Journal of Interactive Marketing, 25*(4), 191–200.

Boiano, S., Bowen, J. P., & Gaia, G. (2012). Usability, design and content issues of mobile apps for cultural heritage promotion: The Malta culture guide experience. *arXiv preprint arXiv:1207.3422*.

Castañeda, J. A., Frias, D. M., & Rodriguez, M. A. (2009). Antecedents of internet acceptance and use as an information source by tourists. *Online Information Review, 33*(3), 548–567.

Chang, I.-C., Chou, P.-C., Yeh, K.-J., & Tseng, H.-T. (2016). Factors influencing Chinese tourists' intentions to use the Taiwan medical travel app. *Telematics and Informatics, 33*, 401–409.

ComScore. (2017). *The 2017 U.S. Mobile App Report*. https://www.comscore.com/Insights/Presentations-and-Whitepapers/2017/The-2017US-Mobile-App-Report. Accessed 12 Dec 2021.

Cyr, D., Head, M., & Ivanov, A. (2009). Perceived interactivity leading to e-loyalty: Development of a model for cognitive–affective user responses. *International Journal of Human Computer Studies, 67*(10), 850–869.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340.

Dimitrovski, D., Joukes, V., Rachão, S., & Tibério, M. L. (2019). Wine tourism apps as wine destination branding instruments: Content and functionality analysis. *Journal of Hospitality and Tourism Technology, 10*(2), 136–152.

Fang, J., Zhao, Z., Wen, C., & Wang, R. (2017). Design and performance attributes driving mobile travel application engagement. *International Journal of Information Management, 37*, 269–283.

Goh, D. H., Ang, R. P., Lee, C. S., & Lee, C. K. (2010). Determining services for the mobile tourist. *Journal of Computer Information Systems, 51*(1), 31–40.

Gupta, A., Dogra, N., & George, B. (2018). What determines tourist adoption of smartphone apps? An analysis based on the UTAUT-2 framework. *Journal of Hospitality and Tourism Technology, 49*(1), 50–64.

Huang, G., & Ren, Y. (2020). Linking technological functions of fitness mobile apps with continuance usage among Chinese users: Moderating role of exercise self-efficacy. *Computers in Human Behavior, 103*, 151–160.

Kennedy-Eden, H., & Gretzel, U. (2012). A taxonomy of mobile applications in tourism. *E-Review of Tourism Research, 10*(2), 47–50.

Kim, E., Lin, J., & Sung, Y. (2013). To app or not to app: Engaging consumers via branded mobile apps. *Journal of Interactive Advertising, 13*(1), 53–65.

Kleijnen, M., de Ruyter, K., & Wetzels, M. (2007). An assessment of value creation in mobile service delivery and the moderating role of time consciousness. *Journal of Retailing, 83*(1), 33–46.

Ko, E., Kim, E. Y., & Lee, E. K. (2009). Modeling consumer adoption of mobile shopping for fashion products in Korea. *Psychology & Marketing, 26*(7), 669–687.

Kumar, S., & Shah, A. (2021). Revisiting food delivery apps during COVID-19 pandemic? Investigating the role of emotions. *Journal of Retailing and Consumer Services, 62*, 102595.

Kumar, D., Purani, K., & Viswanathan, S. (2018). Influences of 'appscape' on mobile app adoption and m-loyalty. *Journal of Retailing and Consumer Services, 45*, 132–141.

Lamsfus, C., Wang, D., Alzua-Sorzabal, A., & Xiang, Z. (2015). Going mobile: Defining context for on-the-go travelers. *Journal of Travel Research, 54*(6), 691–701.

Lee, S. A. (2018). m-servicescape: Effects of the hotel mobile app servicescape preferences on customer response. *Journal of Hospitality and Tourism Technology, 9*(2), 172–187.

Li, M., Dong, Z. Y., & Chen, X. (2012). Factors influencing consumption experience of mobile commerce: A study from experiential view. *Internet Research, 22*(2), 120–141.

Lizzi, G., Prosino, S., & Cantoni, L. (2013). Online motor magazines: An opportunity for eTourism? In L. Cantoni & Z. Xiang (Eds.), *Information and communication technologies in tourism 2013: Proceedings of the international conference in Innsbruck, Austria, 22–25 January* (pp. 363–374). Springer.

Newman, C. L., Wachter, K., & White, A. (2017). Bricks or clicks? Understanding consumer usage of retail mobile apps. *Journal of Services Marketing, 32*(2), 211–222.

Pihlström, M., & Brush, G. J. (2008). Comparing the perceived value of information and entertainment mobile services. *Psychology & Marketing, 25*(8), 732–755.

Rashid, R. A., Ismail, R., Ahmad, M., Abdullah, N. A. C., Zakaria, R., & Mamat, R. (2020). Mobile apps in tourism communication: The strengths and weaknesses on tourism trips. *Journal of Physics: Conference Series, 1529*, 042056.

Sigala, M. (2020). Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research. *Journal of Business Research, 117*, 312–321.

Sigala, M., & Robertson, R. (2019). *Management & Marketing of wine destinations. Theory, practice and cases*. Palgrave.

Statista. (2021). *Mobile app usage - Statistics & Facts.* https://www.statista.com/topics/1002/mobile-app-usage/#dossierSummary. Accessed 23 June 2022.

Tan, G. W. H., Lee, V. H., Lin, B., & Ooi, K. B. (2017). Mobile applications in tourism: The future of the tourism industry? *Industrial Management & Data Systems, 117*(3), 560–581.

Tarute, A., Nikou, S., & Gatautis, R. (2017). Mobile application driven consumer engagement. *Telematics and Informatics, 34*(4), 145–156.

van Noort, G., & van Reijmersdal, E. A. (2019). Branded apps: Explaining effects of brands' mobile phone applications on brand responses. *Journal of Interactive Marketing, 45*, 16–26.

Verma, R., Stock, D., & McCarthy, L. (2012). Customer preferences for online, social media, and mobile innovations in the hospitality industry. *Cornell Hospitality Quarterly, 53*(3), 183–186.

Wang, D., & Xiang, Z. (2012). The new landscape of travel: A comprehensive analysis of smartphone apps. In M. Fuchs, F. Ricci, & L. Cantoni (Eds.), *Information and communication Technologies in Tourism 2012* (pp. 308–319). Springer.

Wang, D., Park, S., & Fesenmaier, D.R. (2011). *An examination of information services and smartphone applications*. https://www.researchgate.net/profile/Daniel_Fesenmaier/publication/268200092_An_Examination_of_Information_Services_and_Smartphone_Applications/links/57891b6308ae5c86c99ad30c/An-Examination-of-Information-Services-and-Smartphone-Applications.pdf. Accessed 21 Jan 2021.

Wang, D., Park, S., & Fesenmaier, D. R. (2012). The role of smartphones in mediating the touristic experience. *Journal of Travel Research, 51*(4), 371–387.

Xu, R., Frey, R. M., Fleisch, E., & Ilic, A. (2016). Understanding the impact of personality traits on mobile app adoption – Insights from a large-scale field study. *Computers in Human Behavior, 62*, 244–256.

Zhao, Z., & Balagué, C. (2015). Designing branded mobile apps: Fundamentals and recommendations. *Business Horizons, 58*(3), 305–315.

Zimmerman, A. (2013). Mobile app localization for the hotel industry in Asia. *MultiLingual, 24*(5), 38–40.

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Wine Tourists' Mobility Through Mobile Apps: A Lost Bet?

Jeanne Bessouat and Coralie Haller

Abstract The accessibility of wineries and transportation to and within vineyards may have a negative impact on the wine tourist experience and a wine destination if they are not developed appropriately. Moreover, mobile applications tend to promote a wine destination without providing information concerning the mobility at that wine destination. There is still no research investigating the impact of mobile applications on wine tourist mobility within a specific wine destination. To address this gap, this chapter aims to provide a better understanding of the role of mobile applications in supporting wine tourism mobility within a specific destination. To achieve this, this chapter analyzes the specific case of the KUT'Zig initiative, which is created by a passenger transport company to support the Alsace wine route. The initiative refers to a hop-on hop-off bus offering a tourist mobility solution among various wine tourism attractions within the Alsace wine route, which is also supported by a mobile application. The findings from this case study show how a transport intermediary can integrate with and contribute to a wine tourism ecosystem through the development of a mobility offer supported by a mobile application.

Keywords Wine tourism · Wine tourist mobility · Mobile apps · Alsace wine route

Introduction

The tourism industry constantly explores new opportunities afforded by information and communication technologies (ICTs) regarding accommodations, transportation, entertainment, and attractions for tourists. Mobile technologies play a key role among digital technologies because of their simplicity, widespread availability, ease of use, and usefulness (Liang et al., 2017). These mobile applications have been widely developed and adopted by the tourism industry, as evidenced by the flourishing of academic studies on this subject (Kim et al., 2008; Rasinger et al.,

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2009; Tussyadiah & Zach, 2012; Roswati et al., 2020). Smartphones and other mobile devices are becoming the most promising area for promoting technological innovation in the tourism sector (Buhalis & Law, 2008; Ricci, 2010; Palumbo, 2015; Choi et al., 2018; Kuo et al., 2019), and they are recognized as necessary devices for the tourism industry (Tan et al., 2017).

Although tourism research investigating the impact of mobile technology on the tourist experience has boomed, wine tourism research is lagging behind (Sigala & Robinson, 2019). This can be explained by the fact that wineries and wine destinations have always been reluctant to fully embrace this disruptive technology. Now, it is widely recognized that online wine tourism is boosting the level of competition among wineries and wine regions (Simeon & Sayeed, 2011; Pelet et al., 2019). This is especially true because thousands of wineries around the world are using their websites and social media tools to not only attract tourists to their destination but also, in some cases, sell wine online (Szolnoki et al., 2016). Moreover, there is an increased use of smart devices, applications, social networks, and communities, as well as online opinion leaders (wine gurus, bloggers, instagramers, and tiktokers) to help customers identify, select, evaluate, and decide what wine tourism experience to seek out (Pelet & Lecat, 2014; Sigala & Haller, 2019). Thus, the growth of virtual wine tourism is predicted to increase radically, with a specific emphasis on digital platforms to attract wine tourists (Haller et al., 2020a).

However, even with the increasing use of digital platforms, attracting tourists to a specific wine destination remains difficult. Indeed, tourists tend to visit wineries located nearby scenic spots or close to important transportation hubs (Gu et al., 2021). Thus, the winery's location can represent a drawback (Cho et al., 2017), and transportation is clearly a barrier, having a negative impact on the wine experience (Gu et al., 2019). The mobility of tourists has been studied in the literature (Chantre-Astaiza et al., 2019; Zheng et al., 2019). More specifically, the following mobility patterns in wine destinations are known (Sigala, 2019a): (1) single destination, (2) the *en route* pattern, (3) the hub-and-spoke pattern, (4) the region tour pattern, and (5) the trip-chaining pattern. However, few studies have analyzed the mobility of wine tourists in a given wine destination (Sears & Weatherbee, 2019; Sigala, 2019a). One example of a wine destination is the Alsace wine route in France, which offers several attractions under the banner "Where wine becomes a trip of discovery". Although the Alsace Wine route attracted 3 million tourists in 2018 (Haller, 2020), the initiatives of the wine tourism actors remain isolated, each attempting to attract the tourists to a single winery. As a consequence, tourists then organize their own itineraries for various vineyards, preferring the use of private or rented vehicles, which is characteristic of rural places (Connell & Page, 2008; Sigala, 2019a). Thus, as long as each wine tourism actor develops digital solutions for its own promotion, not for the wine destination, the bet on tourist mobility will be lost. From this perspective, ICT can be of value in promoting wine tourism initiatives. As such, research has already studied the rise of online intermediaries in the wine tourism industry (Sigala, 2019b). However, despite the current investigation of digital entrepreneurship in the wine tourism sector and its impact on wine tourism demand (Sigala & Haller, 2019), there has been no research so far concerning the impact of

mobile applications on wine tourist mobility within a specific wine destination. There are national initiatives such as the one in France around digital entrepreneurship in the wine sector (WineTech, 2021), but these do not follow the logic of promoting a destination through the networking of actors in the same territory. Thus, the question is as follows: **How can mobile applications enhance wine tourists' mobility within a wine destination?**

To address this gap, this chapter aims to provide a better understanding of mobile applications' role in developing wine tourism mobility in a specific destination. To achieve this, the theoretical background of this study covers wine tourism mobility, which requires a business ecosystem (BE) to thrive, with intermediaries developing mobile applications to promote the destination. The specific case of the KUT'Zig initiative, created by a passenger transport company, on the Alsace wine route was explored. This hop-on hop-off bus offers a solution to tourist mobility related to a mobile application, centralizing various wine tourism attractions within the Alsace wine route. However, even if the region is known for its individual digital initiatives that promote wine tourism, it is still lacking collective initiatives to attract tourists. In this context, the KUT'Zig model can be seen as the best practice for providing a mobility solution coupled with a mobile application. The findings show that this collective initiative of wine tourism mobility using mobile applications has structured the Alsace wine tourism attractions through an innovative BE. This ecosystem not only benefits the wine tourists, for whom it is easier to discover a destination without bothering about transport logistics and finding places of attractions, but also makes it easier for them to access the vineyards, the wine villages, and their attractions. In addition, the stakeholders involved in the regional wine tourism industry are more visible and can generate more sales.

Theoretical Background

Wine Tourism Mobility

Rural wine tourism regions present challenges because wineries sometimes lack the mobility services and infrastructure that make connectivity possible. This has a direct influence on customers' multisensory experiences, which could result in lost opportunities for wine tourism destinations (Pelet et al., 2019). More specifically, wine tourism is dependent on transportation because wineries and wine attractions are usually located away from major cities and dispersed within a geographically wide rural region (Sigala & Robinson, 2019). Very often, customers use private cars or other transport solutions to go to the wineries (Sigala, 2019a). Global trends such as urbanization, digitalization, climate change, and peak oil demand have decreased the importance of private automobile ownership, especially for the younger generation (Bardhi & Eckhardt, 2012). In the urban sector, several solutions have emerged recently to answer this new call from users, including carsharing, e-hailing,

ridesharing, and bikesharing (Willing et al., 2017). Mixing the services of both existing public transport and newly emerging app-based sharing mobility has a huge potential to transform urban mobility (Ma et al., 2018). However, providing transport services in a rural context remains a clear problem (Flipo et al., 2021) because the mere transposition of urban solutions into a rural context is not necessarily a good fit (Mounce et al., 2020). Moreover, the potential of innovative transport solutions based on rural needs and developed to fit the rural context is clearly underestimated (Bosworth et al., 2020). For regions not covered by traditional public transport, an integrated view of mobility services is required (Beutel et al., 2014) because most of the new mobility services are of a systemic nature, requiring a BE to thrive (Kamargianni & Matyas, 2017).

The Wine Business Ecosystem (BE)

The concept of the BE was originally adapted from biology to the business context by Moore (1993). The BE concept has since evolved, notably through the work of Teece (2007) and Pierce (2009). Koening (2012) highlighted the diversity of the BE and defined it as a modular arrangement of positions and links based on two criteria: the control of key resources and the mode of interdependence. According to Moore (2013), the adoption of an ecosystem approach enables the investigation of "a new form of organization … [one] that shows promise in achieving shared purposes, sharing value among many contributors, and in bringing the benefits of technology to a range of people, cultures and problems far beyond what earlier systems have achieved" (p. 3). From this perspective, we understand that a BE is a community of heterogeneous actors united to share the same strategic destiny based on a principle of coevolution. They are organized, over the long term, around a collective interest rather than around the short-term personal benefits for the various actors. Further, BEs are conventionally assessed based on their ability to create value from a given activity. The specificity of wine tourism is that it covers two distinct and yet complementary economic sectors: wine and tourism. Thus, developing successful wine tourism offerings implies the involvement and interaction of various stakeholders, including public or private actors, institutions, local authorities, winegrowing structures, tourist structures, local authorities, local authorities, and local inhabitants (Goncalves et al., 2020). It is a matter of structuring the offer through institutional involvement, cooperation among actors, and the management of a pool of resources and skills (Hojman & Hunter-Jones, 2012). This cooperation could even go beyond simple interaction, exchange, and coordination among actors because it involves the same strategic perspective. From this perspective, wine tourism can be assimilated into a BE in which heterogeneous actors share the same strategic objective based on a principle of coevolution (Pierce, 2009).

Role of Wine Ecosystem Intermediaries in Promoting the Destination Through Mobile Applications

A recurring question appears in the academic literature regarding the boundaries of the BE because the trend is toward open and shared innovation (Chesbrough, 2006, 2011). Companies increasingly call for ideas or expertise from outside their walls (Oruezabala, 2017). Relying on an open, transversal, and sustainable ecosystem that involves various stakeholders connected to the wine industry contributes to collectively enhancing the value of the industry and leveraging innovation and performance (Haller, 2021). Partnerships of excellence appear both upstream and downstream in the wine tourism industry, and they are not limited to the market economy. Indeed, the wine tourism industry can be related to some exchanges of skills, the construction of a relational network, the creation of a university chair, or even specific training (Haller, 2021). The emergence of an ecosystem is strengthened by the geographical proximity of the players, which constitutes fertile ground for creativity for wine tourism (Haller et al., 2019).

Creativity can be expressed through the creation of mobile applications to promote wine destinations. The literature offers an overview of the diverse initiatives intended to promote several wine destinations through mobile applications. For example, VoThan and Kirov (2019) studied perceived value as a way to explain the adoption of a wine tourism mobile app developed by Geovina, a start-up in France. Dimitrovski et al. (2019) evaluated competitiveness through brand enhancement on Douro wine tourism apps in Portugal. UberVINO was implemented in Adelaïde in 2017 as a pilot test before implementation in other destinations (Sigala, 2019b). UberVivo enables tourists to obtain an affordable transportation service and thus enjoy their own wine itineraries. UberVino also selects and offers several experiences to tourists by promoting diverse destinations, events, and businesses. Moreover, several enterprises offer digital solutions, including mobile applications, to wine tourists. Winalist provides a multitude of wine experiences in several wine regions in France (Champagne, Bordeaux, or Burgundy) and around the world. Winalist enables tourists to discover, compare, and even book wine experiences, from classic wine tasting to a hot air balloon ride over the vineyards. Another example is Wine&Trip, which allows customers to both discover wines and meet winemakers. Wine&Trip is a mobile application that is 100% free for consumers. The mobile application offers many features, such as the creation of a consumer profile and the organization of a personalized journey.

The Research Gap and Questions to Address

In terms of both the academic literature and the business world itself, all these previous examples highlight two relevant elements. First, the objective of all these mobile applications remains the same: introducing tourists to a wine destination and

attracting them by offering the most diversified possible attractions. However, interestingly, these applications do not necessarily provide information concerning the mobility at the wine destination. In their study, Dimitrovski et al. (2019) found that, of a total of 82 mobile wine applications around the world, less than 25% provide information about the transport available within the wine destination. We can thus conclude that mobile applications tend to promote a wine destination without taking into consideration the mobility of tourists. Second, those mobile applications are offered by enterprises considered intermediaries within the wine ecosystem (Robinson & Sigala, 2019). These companies manage to bring together the actors of a wine destination by grouping the available offers. Sometimes, intermediaries can even be enterprises that re not originally related to the wine tourism industry but are willing to look for new business opportunities by offering innovative digital solutions to wine tourists. These new actors can be major contributors to the design and identity of wine tourism offerings (Robinson & Sigala, 2019). Taking an interest in these new intermediaries within the wine ecosystem is essential (Sigala & Haller, 2019). From this perspective, the aim of this chapter is to understand how mobile applications enhance wine tourists' mobility within a wine destination. More specifically, it addresses how intermediaries can contribute to a wine tourism ecosystem by developing a mobile application to improve the mobility of tourists within a wine destination.

The Context of the Study: The Alsace Wine Region and Digital Initiatives for Wine Tourism

The Alsace wine industry, one of the major industries in the region, represents 40% of the region's agricultural product, with 15,500 hectares of Appellation d'Origine Contrôlée (AOP) wine (70% AOC Alsace, 25% AOC Crémant d'Alsace, and 5% Alsace Grands Crus) and 150 million bottles, with a turnover of 530 million euros, 25% of which is exported (Conseil Interprofesionnel des vins d'Alsace, CIVA, 2019). Alsace is a complex and fragmented region with 4200 winegrowers, of which 1790 own more than 2 hectares and account for 91% of the total vineyard area. At the bottling stage, there are 860 operators, of which 200 sell 89% of the volume (CIVA, 2019). They are organized around various professional entities called professional wine organizations (OPVs), including the appellation unions, trade federations (independent winemakers and cooperative wineries), and a regional organization, the Conseil Interprofessionnel des Vins d'Alsace (CIVA), which is in charge of promoting the regional brand of Vins d'Alsace, considering the specificities of each Alsatian terroir.

The Alsace wine region is located in the eastern part of France, close to the German border. It is known for having the oldest wine route in France, created in 1953, which stretches 170 km from the north of Strasbourg south close to Mulhouse. It is one of the most picturesque and most renowned in France and was awarded the

Vignobles et Découvertes label in 2019. It has nearly 120 wine villages and about 100 tourist sites (Organisation Régionale du Tourisme en Alsace, ORTA, 2018, 2019). The tradition of tasting tours, wine festivals, and innovative wine events represents the DNA of Alsace (Haller, 2020), making it the third most popular wine tourism destination in France, after the Bordeaux region and Champagne (Atout France, 2017), with more than 3 million visitors each year. In addition to the visits and tastings, many tourist activities are offered; some of them, such as the wine festivals (Slow-up d'Alsace, Colmar Wine Fair, and others), bring together tens of thousands of participants each year. There are also "wine tours" carried out by the tourist offices and wine tourism agencies. Not only the wine but also the authenticity of the villages and the beauty of the landscapes are determining factors in visitors' choices of the Alsace wine destination (Haller et al., 2020b). As such, the Alsace wine region has developed an alternative wine tourism model that gives priority to the beauty of the landscapes, the authenticity of the villages, and personal encounters with the winemakers (Haller et al., 2020b). The region is also active in innovation because it developed digital initiatives at the winery level. The COVID-19 pandemic has accelerated the willingness of winery owners and managers to rethink their business model and integrate digital technology into their physical offerings. For example, Domaine Hubert Metz has created personalized virtual tasting tours that are free of charge, provided that a minimum of three bottles of wine are purchased (Haller et al., 2020c). Domaine Zeyssolff has developed an immersive visit to their cellar using virtual reality to describe the family history. More recently, Bestheim Cooperative cellar visitors can experience a virtual visit to the cooperative production site using virtual reality casks. Without leaving the wine boutique, visitors can have an individual experience and take the visit whenever they want, leaving more time for tasting and buying wines. It is also of value for the cooperative because it does not require the recruitment of a dedicated person to run the tour.

All of these innovative wine tourism activities are concentrated outside of the main cities of Strasbourg, Mulhouse, and Colmar, so there is a major concern about how wine tourists will access the vineyard and reach the wineries. Even if it is easy to travel by train from one city to another, with each being 30 min away from the other, the central issue concerns people's mobility from the cities' train stations to the vineyards. One possibility is for them to rent their own cars and drive to the vineyard, which involves the limitation of wine tasting and drinking due to the strict drink-and-drive legislation in France. Another option could be to cycle because there is a wine cycling path that goes from the north to the south of the Alsace vineyards. In that case, cyclists can only buy a limited number of wine bottles because they may not be able to carry much on a bike. Additionally, wine tourists may not know where to start and what type of wine tourism attractions to visit when they arrive at a wine destination. They could then rely on private wine tour companies that operate wine tours in the region, providing set itineraries with specific schedules and prices. Some of the wineries in Alsace even partner with wine tour companies to secure revenues through wine tourist visits, but this means that visitors must respect a certain schedule that may not be aligned with their personal desires. Taking

a wine tour also involves additional costs, so a tour is not always an option for all tourists.

To tackle these issues and meet the needs at hand, a structuring and innovative initiative was launched in 2019 by LK Tours at a regional level. KUT'Zig, a hop-on hop-off bus service coupled with a mobile app, provides information to visitors about the wine-related activities offered at each stop.

Methodology

The aim of this research project was to investigate how mobile applications developed by intermediaries can contribute to wine tourism mobility for a given destination and, as such, contribute to the structure of the wine tourism ecosystem. To achieve this, we adopted a qualitative approach to investigate the single case study (Yin, 2017) of KUT'Zig, LK Tours.

The researchers have been in contact with LK Tours through the corporate Chair in Wine and Tourism, a partnership scheme that aims to foster cooperation between private companies and/or organizations and universities regarding wine tourism challenges (Haller, 2021). This public-private partnership allows researchers to access internal reports and user experience statistics about KUT'Zig. These secondary data has been analyzed via an explorative approach, without having any specific expectations, except comprehensively enhancing the researchers' understanding of the mobile application coupled with the passenger transport service.

Primary data was collected through two semi-driven interviews with Stefan Vrtikapa, the project developer of KUT'Zig and a member of the LK family, and Michelle Kunegel, the CEO. The design of interview protocols addressed three main topics: (1) the company's vision/mission, (2) idea generation/innovation management, and (3) project development challenges. It was then possible to enhance and enrich former explorations into and insights about how the project was created and developed and the main difficulties encountered. Finally, the researcher had the chance to participate in a test experience of KUT'Zig during a private excursion. This privileged access to the field offered a chance to triangulate data collected through secondary data, semi-structured interviews, and participant observation (Babbie, 2013).

KUT'Zig: The Mobile Application That Facilitates Mobility

The History of LK Tours-EuropaTours

LKTours-EuropaTours is one of the leading travel networks, with 15 agencies, six group services, 70 employees, and more than 70,000 travellers in 2019. Proximity, reactivity, rigor, and business expertise are the major assets of LK companies, which

are leaders in tourism in the Grand Est region of France. It has been a family business for more than 80 years and is now owned by Michelle and Daniel Kunegel. In 1934, Nicolas Kunegel bought his first truck and developed the transport of milk between the villages of the Alsace region and Colmar. His activity diversified and came to include allowing villagers to use the vehicle to get around. These were the beginnings of the passenger transport business. In the 1970s, the first tourist activity occurred, setting up day trips and pilgrimages in Switzerland and Germany. In 1981, the company split in two to differentiate its activities: the Voyages Lucien Kunegel for the transport component and LKTours for tourism. In the 1990s, Lucien Kunegel, joined by his son Daniel Kunegel, began to take over his competitors. At the end of 2000, Michellel Kunegel, daughter of Lucien and Marianne Kunegel, joined the company and developed a new dimension of tourism activity. Several family businesses were bought out: Voyages Zimmermann in 2007, Bernard Voyages in 2010, and Europatours/Schmittours in 2012. Innovation and entrepreneurship are part of the company's values, and LKTours is constantly looking for new challenges and concepts. It has created a range of brands:

- Moov'inbus: created in 2016, Moov'inbus is the Alsatian specialist in shopping days and city breaks to the most beautiful cities in Europe.
- Cap vers l'Est: created in 2017, Cap vers l'Est is the French-speaking inbound travel business unit dedicated to Croatia, the Balkans, and the Danube in B2B.
- Le Lounge Voyages: created in 2019, Le Lounge Voyages is a concept store specializing in advice on and the creation of high-end and tailor-made trips. Travel designers welcome tourists in a private loft and offer them an extraordinary travel experience.
- KUT'Zig: created in 2019, KUT'Zig offers the opportunity for tourists to join a tour on an open-top bus and travel along the wine road. Coupled with a dedicated application, it enables tourists to locate activities at each destination.

KUT'Zig – The Open-Top Bus on the Alsace Wine Road (Fig. 1)

Why a Shuttle at the Heart of the Wine Route?

The Alsace wine route stretches for more than 170 kilometers and covers 120 villages in the departments of Bas-Rhin and Haut-Rhin. There is a dispersion of tourist activities throughout the villages, which is a concern among tourism professionals who wish to develop a regional brand image. Moreover, it is a challenge to bring tourists from the largest cities of Strasbourg, Colmar, and Mulhouse to the vineyards. A region where activities are far from one another implies that tourists might miss part of the region's tourist offerings. Access to the vineyards, the wine route, and wine tourism activities with or without a car has been a major concern for several years. In 2012, the tourist agency of the European Collectivity of Alsace, Alsace Destination Tourisme, commissioned a study on the development of mobility in the

Fig. 1 KUT'Zig – the hop-on hop-off bus

region, in the context of the arrival of the Rhine-Rhône train station. The results show that improving the tourist service via public transport is a crucial improvement needed to meet the growing expectations of visitors. In this context, companies must stand out in order to attract visitors while standing out from their competitors. Thus, the company LK Kunegel offers an original and innovative mobility alternative at the heart of the wine route through the KUT'Zig mobile application.

The KUT'Zig Mobile Application: How Does It Work? (Fig. 2)

LK Tours offers KUT'Zig as a mobility solution to tourists by setting up a hop-on hop-off bus with a retractable roof that criss-crosses the wine route. This bus allows visitors to hop on and off as they wish on a pre-established route in eight villages along the wine route: Ribeauvillé, Hunawihr, Riquewihr, Kayserberg, Turckheim, Voegtlinshoffen, Eguisheim, and Colmar. Thus, from mid-April to mid-October, KUT'Zig allows family, friends, and lovers to circle the heart of the Alsace wine route, feel their hair blowing in the wind (KUT'Zig means "ruffled" in Alsatian), and see the pearls of the vineyard.

However, KUT'Zig is more than just a transportation alternative. The solution offered by KUT'Zig is innovative, because it combines a mobile application with the mobility of travellers. The application is intended to be an indispensable tool for the traveller. First, the application allows tourists to plan their trips. It is indeed possible to buy a ticket, geolocate with the KUT'Zig, and consult the timetables of the various bus stops. In addition, the mobile application helps the traveller plan the stops and activities of his trip because the audio comments describe the municipalities served by KUT'Zig. For each municipality, the essential activities are presented,

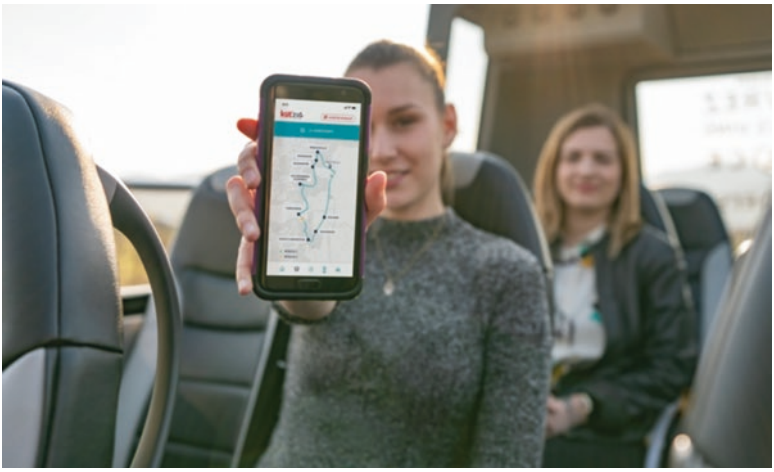

Fig. 2 KUT'Zig mobile application

with the possibility of making a reservation directly via the application. Finally, the mobile application is also intended to act as a tourist guide, because the mobile application is free and the suggestions of places and activities that are not to be missed can be used independently of the KUT'Zig service.

Analysis and Discussion of the Findings

User Experience of KUT'Zig

The KUT'Zig initiative has tackled the mobility problem by providing a hop-on hop-off bus, which enables tourists to move around the area. It also offers a pre-established route in eight villages, helping the tourists to enjoy themselves in the most beautiful villages on the Alsace wine tour. KUT'Zig provides access to a pre-established route, reducing the difficulty of transportation within a rural context (Gu et al., 2019), and thus provides information about transportation (Dimitrovski et al. 2019). KUT'Zig allows tourists to enjoy an experience at various places without worrying about the distance between them or the difficulty of reaching them, and it enables international wine tourists to go regardless of traffic regulations and having to drive on the "wrong side of the road" (Sigala, 2019a).

The 2019 and 2020 seasons represent pilot test years, because Kut'Zig was greatly impacted by the COVID-19 pandemic. However, the statistics on user experiences showed that over 967 travellers accessed KUT'Zig in 2020. Out of these 967 travellers, 291 downloaded the mobile application on IOS, and 180 did so on Android, for a total of 471. This means that 48% of KUT'Zig travellers downloaded the mobile application. The company estimated the final users of the mobile

application at around 40% of total travellers. Other data regarding the frequency of visits to the website indicated that the majority of users came from France (60.18%), followed by Germany, which accounted for 16.51%, and tourists coming from the UK (8.56%), Switzerland (3.32%), and Belgium (2.27%). No information about the profile of users has been collected thus far. It would have been interesting to know their ages, the purposes of their trips, and their reasons for getting on the bus; all those variables could potentially explain why they did or did not download the application. Moreover, no specific attention has been paid to the downloading of the app while getting on the bus. There are only displays passively encouraging passengers to proceed while getting on board. Another assumption could be made about the features provided by the mobile application, which could have an impact on the downloading of the application. One study showed that travel-related applications can be grouped into seven different categories: navigation, social, mobile marketing, security/emergency, transactional, entertainment, and information (Kennedy-Eden & Gretzel, 2012). The KUT'Zig is best categorised within the *navigation category*, which helps visitors to find their way around, including the global positioning system (GPS), and the *information category,* which gives tourists a variety of information related to wine tourism in the region. One recommendation could be to enhance the application's features and include, for example, *entertainment* such as short videos and augmented reality experiences when driving through a specific location. This would impact the user experience when accessing the mobile application and could also be another argument for the sale of the experience.

The KUT'Zig mobile application is free of charge for tourists who enjoy accessing relevant information about available activities in a certain location. This model is viable because the service providers pay a membership fee, which allows them to be present on the application. Services providers can be wineries offering wine tastings and wine tourism-related activities, tourism offices and museums, or even restaurants and food retailers. The information displayed on the mobile application mostly includes the name and precise location in the town, opening hours and activities, services, and experiences offered. The mobile application provides visibility for the wine tourism-related activities in a specific town and thus benefits the wine tourism offer providers.

The information available on the KUT'Zig mobile application, coupled with the hop-on hop-off bus, enhances tourists' mobility. This initiative can also be related to the trend toward sustainable mobility, which aims to meet transportation needs while reducing environmental impacts, promoting social equity, and avoiding negative social externalities (European Conference of Ministers of Transport, 2004). From this perspective, buses and railways are considered better alternatives to personal cars, because their environmental impacts are lower and they are more affordable (Tomej & Liburd, 2019). Because it is directly related to public transportation policy (Tomej & Liburd, 2019), KUT'Zig can be considered a first step toward sustainable mobility for tourists within the Alsace wine route.

A Passenger Transport Company as a Destination Management Organisation (DMO)

Our findings also show that LK Tours, a passenger transport company, which was the focus of this research, has evolved from a "simple" passenger transport organization into a wine tourism activity provider. It has expanded its initial functions, gone beyond being a passenger transport company, and built on its experience as a travel agency. Combining expertise with technology has led to an innovative and quite unusual wine tourism experience, which is distinctive in promoting the wine tourism destination. In fact, LK Tours includes wine tourism development and marketing as an essential part of its mission and scope to undertake activities aimed to lobby and influence the local wine tourism structure (Sigala, 2019a). This involves initiating and driving local stakeholders' cooperation, networking, and collaboration through a shared objective. It has played a central role in the governance of the tourist destination, and its performance is dependent on the stakeholders involved (Pechlaner et al., 2012). In this way, this company assumes a similar role and full function as a DMO (Reinhold et al., 2019). This supports Botti et al.'s (2015) argument stating that DMOs are not only tourist offices but also organizations designed to develop tourism activities in their area of competence. This passenger transport company, now considered a DMO, can then be seen as a new type of input/actor within the framework suggested by Robinson and Sigala (2019). Among the seven inputs/actors listed in the suggested framework, no actor is noted as a passenger transport company. We suggest adding one new input/actor to the wine ecosystem of Robinson and Sigala (2019), which could be called "transportation intermediary." This addition could speak to the increasing importance of mobility within the wine ecosystem and reinforce the idea that even enterprises not originally from the wine industry can integrate, develop, and coordinate a wine ecosystem through a specific initiative, such as that exemplified by KUT'Zig.

Even if the objective of LK Tours is to promote and develop the tourist character of their territory in order to increase competitiveness, it has not been able to progress without considering the potential difficulties in coordinating the plurality of actors involved. The project leader stated: "The main difficulty was the coordination of public and private tourism actors, which required a lot of human time and resources." This diversity of actors (different roles, degrees of involvement, and engagement) makes the implementation of collective strategies of valorization and the promotion of the territory complex and rigid, notably via a lack of constant adaptation to the new expectations of consumers. Moreover, the launching time of the project had an impact on the perception of local actors, as highlighted by Stefan Vrtikapa, "At that time, tourism was in full swing in Alsace, and KUT'Zig was perhaps perceived as just another tourist service in the region and not as a new innovative ecomobility and tourism offer." He also noted that it had a direct impact on the ability of the company to search for partners: "The search for partners was a complicated task. Out of the 100+ potential partners, about 30 participated in the presentation of the business concept and 20 joined the adventure." The coordination

therefore had to focus on collective approaches and dynamics to meet the common objective of promoting the territory while preserving the interests of the actors involved. The company's knowledge and ability to network with various stakeholders, mainly institutional organizations (such as town halls and regional councils), enabled it to manage the political issues while dealing with the constraints of opening a tourist transport line. The ability to implement a collective strategy is a determining factor in the successful promotion of a given wine tourism destination (Baker & Cameron, 2008).

The KUT'Zig initiative is therefore primarily about structuring, given that it brings together the various actors of the wine ecosystem. As a passenger transport company, KUT'Zig is therefore an intermediary, one that has become a coordinator within the wine ecosystem thanks to its position as part of the ecosystem, although it was not originally linked to the wine industry. Vrtikapa's knowledge of all the actors (public institutions and private actors) helped him to find a compromise for all involved stakeholders: KUT'Zig. As a tourism structuring offer within the Alsace wine route, KUT'Zig can also be considered via a structured and systematic perspective on the smart mobility service, encompassing three distinct phases of this service (Longo et al., 2019): (1) the pre-journey, in which tourists can prepare their itinerary, obtaining information from the mobile application and doing some pre-booking; (2) the journey, which involves taking the hop-on hop-off bus while using the mobile application to obtain information for all stops and planned visits; and (3) the post-journey, in which tourists can consider the experience and continue to use the mobile application as a tourist guide for future visits on the Alsace wine route, with or without the hop-on hop-off bus.

KUT'Zig: First Steps Toward Wine Industry 4.0

The value added expressed by the stakeholders involved in the project can be measured in terms of dynamics, knowledge exchange, and networking. Thanks to this collective project, the notoriety of the wineries has increased, generating consumer loyalty and extra sales. From this perspective, the KUT'Zig initiative structures the offer in the Alsace Region by leading an innovative BE. KUT'Zig represents one example of a successful initiative based on the technologies used. Specifically, technological convergence – when technologies from different application areas are converted into a new and common technological unit – encourages collaboration among companies from different industries (Choi et al., 2015). This can explain the initiative of a passenger transport company (LK Tours) to launch the KUT'Zig. The increased use of digital technologies within the wine industry can lead to a *wine industry 4.0*, in which both convergent and divergent business model innovation (BMI) emerge (Dressler & Paunovic, 2020). Therefore, we suggest that a classification of the business model within wine industry 4.0 should include in three categories on a convergence–divergence continuum, according to the coordination among members: disruptive convergent BMI (cooperation among multiple actors), partially

convergent BMI (two different actors collaborate), and divergent BMI (based on core competencies, so cooperation is not required). The KUT'Zig is an example of a disruptive convergent BMI based on "long-term value creation through building dynamic competencies" (Dressler & Paunovic, 2020).

Conclusion

This chapter presents a mobile application that offers an innovative solution for wine tourism in the Alsace region. Little is known about how mobile applications, developed by an intermediary, represent an innovative wine tourism offer within the wine industry ecosystem. More specifically, this chapter tackles the following questions: (1) How can intermediaries integrate and contribute to a wine ecosystem? and (2) More specifically, how can an intermediary improve the mobility of tourists within a wine destination via a mobile application?

The KUT'Zig mobile application features are described, as well as the user experience. We have seen that a passenger transport company can become a DMO. In the case of KUT'Zig, value creation is geared toward the long term based on cooperation among several actors in the business ecosystem. KUT'Zig's mobile application can serve as an example for the wine tourism industry and prove to all stakeholders in the wine ecosystem that such an innovative solution exists and is economically viable. Indeed, the use of smartphones and mobile applications has become a necessary service in the tourism industry, which is moving to a mobile-friendly ecosystem (Ramón-Saura et al., 2020). The model of the KUT'Zig mobile application could, in particular, be developed and tested in other wine regions. The case of KUT'Zig also highlights the potential of "smart rural tourism." Indeed, tourists from urban areas may take digital solutions and access for granted, which represents interesting challenges for rural wine tourism (Pelet et al., 2019). A majority of vineyards recognize the importance of social media in general but do not exploit its full potential (Canovi & Pucciarelli, 2019). Thus, the KUT'Zig case can provide some clues to vineyards regarding how to develop an innovative wine tourism offer. Finally, we have seen that mobile applications improve the mobility of tourists in a given ecosystem. In the KUT'Zig example, the mobile application facilitates the movement of consumers to the vineyards and to the products. This problem of access to the products can be linked to the last mile issue. In an urban context, the last mile issue corresponds to the "last stretch" of the delivery, aiming to reach the final consumer (Lim et al., 2018). Even if many solutions exist concerning this urban last-mile issue, the literature on innovative solutions for last-mile delivery is still limited (Mangiaracina et al., 2019). The KUT'Zig mobile application thus represents an innovative solution for the last-mile issue in a rural context. Indeed, the logic of bringing the products to the consumers in town centers is finally reversed in the KUT'Zig model. It is no longer the products that are brought to the consumers, but the consumers themselves who are brought to the products.

References

Atout France. (2017). *Key figures*. Available at: http://www.atoutfrance.fr/content/oenotourisme. Accessed July 2019.

Babbie, E. R. (2013). *The practice of social research* (14th ed.). Cengage Learning.

Baker, M. J., & Cameron, E. (2008). Critical success factors in destination marketing. *Tourism and Hospitality Research, 8*(2), 79–97.

Bardhi, F., & Eckhardt, G. (2012). Access-based consumption: The case of car sharing. *Journal of Consumer Research, 39*(4), 881–898.

Pelet, J. E., Barton, M., & Chapuis, C. (2019). Towards the implementation of digital through wifi and IoT in wine tourism: Perspectives from professionals of wine and tourism. In M. Sigala & R. Robertson (Eds.), *Management and marketing of wine tourism businesses: Theory, practice and cases*. Palgrave.

Beutel, M., Samsel, C., Mensing, M., & Krempels, K. (2014). *Business model framework to provide heterogeneous mobility services on virtual markets.* In Proceedings of the 11th International Conference on e-Business (ICE-B-2014) (pp. 145–151).

Bosworth, G., Price, L., Collison, M., & Fox, C. (2020). Unequal futures of rural mobility: Challenges for a "smart countryside". *Local Economy, 35*(6), 586–608.

Botti, L., Boulin, J.-L., Castaner, E., Marty, N., & Peypoch, N. (2015). Performance des organismes de gestion de destination (OGD): une approche par l'efficience appliquée aux offices de tourisme du sud-ouest de la France. *Sud-Ouest Européen, 39*, 45–54.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the internet: The state of eTourism research. *Tourism Management, 29*(4), 609–623.

Canovi, M., & Pucciarelli, F. (2019). Social media marketing in wine tourism: Winery owners' perceptions. *Journal of Travel & Tourism Marketing, 36*(6), 653–664.

Chantre-Astaiza, A., Fuentes-Moraleda, L., Munoz-Mazon, A., & Ramirez-Gonzalez, G. (2019). Science mapping of tourist mobility 1980-2019. Technological advancements in the collection of the data for tourist traceability. *Sustainability, 11*, 4738.

Chesbrough, H. (2006). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.

Chesbrough, H. (2011, January 18). *The Next Big Thing in Managing Innovation*. Harvard Business Review. Available at: https://hbr.org/2011/01/the-next-big-thing-in-managing

Cho, M., Boon, M., & Brymer, R. (2017). A constraint-based approach to wine tourism market segmentation. *Journal of Hospitality & Tourism Research, 41*(4), 415–444.

Choi, J. Y., Jeong, S., & Kim, K. (2015). A study on diffusion pattern of technology convergence: Patent analysis for Korea. *Sustainability, 7*(9), 11546–11569.

Choi, K., Wang, Y., & Sparks, B. (2018). Travel app users' continued use intentions: It's a matter of value and trust. *Journal of Travel & Tourism Marketing, 36*(1), 131–143.

CIVA – Conseil Interprofessionnel des Vins d'Alsace. (2019). *Rapport de production*. Available at: https://www.vinsalsace.com/en/professionnels-formateurs/. Accessed Oct 2019.

Connell, J., & Page, S. J. (2008). Exploring the spatial patterns of car-based tourist travel in Loch Lomond and Trossachs National Park, Scotland. *Tourism Management, 29*(3), 561–580.

Dimitrovski, D., Joukes, V., Rachão, S., & Tibério, M. L. (2019). Wine tourism apps as wine destination branding instruments: Content and functionality analysis. *Journal of Hospitality and Tourism Technology, 10*(2), 136–152. https://doi.org/10.1108/JHTT-10-2017-0115

Dressler, L., & Paunovic, I. (2020). Converging and diverging business model innovation in regional intersectoral cooperation-exploring wine industry 4.0. *European Journal of Innovation Management*, ahead-of-print, ahead-of-print.

European Conference of Ministers of Transport. (2004). *Assessment and decision making for sustainable transport [Electronic document]*. OECD Publications Service. https://www.itf-oecd.org/sites/default/files/docs/04assessment.pdf

Flipo, A., Sallustio, M., Ortar, N., & Senil, N. (2021). Sustainable mobility and the institutional lock-in: The example of rural France. *Sustainability, 13*, 2189.

Goncalves, O., Haller, C., & Massa, C. (2020). Vin et Tourisme: un mariage de raison: le label "Vignoble et Découverte". In M. Salvado & J. Spindler (Eds.), *Marques et Labels: leurs contributions au développement des collectivités territoriales*. L'Harmattan.

Gu, Q., Qiu, H., King, B., & Huang, S. (2019). Understanding the wine tourism experience: The roles of facilitators, constraints and involvement. *Journal of Vacation Marketing, 1–19*, 211–229.

Gu, Q., Zhang, H., Huang, S., Zheng, F., & Chen, C. (2021). Tourist's spatiotemporal behaviors in an emerging wine region: A time-geography perspective. *Journal of Destination Marketing and Management, 19*, 100513.

Haller, C. (2020). *L'Alsace, un territoire à la pointe de l'œnotourisme*. The conversation.https://theconversation.com/lalsace-un-territoire-a-la-pointe-de-loenotourisme-141812

Haller, C. (2021). The chair in wine tourism: Innovative collaboration between education, research and practice. In R. Compés López & Szolnoki; G. (Eds.), *Sustainable and innovative wine tourism: Success models from all around the world*. Cajamar.

Haller, C., Hess, I., & Méreaux, J.-P. (2019). Valorisation du vignoble alsacien à travers l'oenotourisme création d'un écosystème d'innovation régional basé sur l'expérience oenotouristique. In G. Giappichelli (Ed.), *Il Paesaggio vitivinicolo como patrimonio europeo - Aspetti gius-economici*. G. Giappichelli Editore.

Haller, C., Thach, L., & Olsen, J. (2020a). Understanding eWineTourism practices of European and North America wineries. *Journal of Gastronomy and Tourism, 4*(3), 141–156.

Haller, C. Hess, I., & Méreaux, J.-P. (2020b). Aesthetics and conviviality as key factors in a successful wine tourism experience. *International Journal of Wine Business Research,* ahead of print, ahead of print.

Haller, C., Plotkina, D., & Fabing, E. (2020c). *Œnotourisme: Le Virtuel Comme Levier De Développement*. Forbes. https://www.forbes.fr/business/oenotourisme-le-virtuel-comme-levier-de-developpement/

Hojman, D. E., & Hunter-Jones, P. (2012). Wine tourism: Chilean wine regions and routes. *Journal of Business Research, 65*(1), 13–21.

Kamargianni, M., & Matyas, M. (2017). *The Business Ecosystem of Mobility as a Service*. 96th Transportation Research Board (TRB) Annual Meeting, 8–12 January 2017.

Kennedy-Eden, H., & Gretzel, U. (2012). *A taxonomy of mobile applications in tourism*. (pp. 47–50). https://ro.uow.edu.au/commpapers/2510

Kim, D. Y., Park, J., & Morrison, A. M. (2008). A model of traveller acceptance of mobile technology. *International Journal of Tourism Research, 10*(5), 393–407.

Koening, G. (2012). Le concept d'écosystème d'affaires revisité. *M@n@gement, 15*(2), 208–224.

Kuo, T.-S., Huang, K.-C., Nguyen, T. Q., & Nguyen, P. H. (2019). Adoption of mobile applications for identifying tourism destinations by travellers: An integrative approach. *Journal of Business Economics and Management, 20*(5), 860–877.

Liang, S., Schuckert, M., Law, R., & Masiero, L. (2017). The relevance of mobile tourism and information technology: An analysis of recent trends and future research directions. *Journal of Travel & Tourism Marketing, 34*(6), 732–748.

Lim, S. F. W., Jin, X., & Srai, J. S. (2018). Consumer-driven e-commerce: A literature review, design framework, and research agenda on last-mile logistics models. *International Journal of Physical Distribution and Logistics Management, 48*(3), 308–332.

Longo, A., Zappatore, M., & Navathe, S. (2019). The unified chart of mobility services: Towards a systemic approach to analyze service quality in smart mobility ecosystem. *Journal of Parallel and Distributed Computing, 127*, 118–133.

Ma, Y., Rong, K., Mangalagiu, D., Thornton, T., & Zhu, D. (2018). Co-evolution between urban sustainability and business ecosystem innovation: Evidence from the sharing mobility sector in Shanghai. *Journal of Cleaner Production, 188*, 942–953.

Mangiaracina, R., Perego, A., Seghezzi, A., & Tumino, A. (2019). Innovative solutions to increase last-mile delivery efficiency in B2C e-commerce: A literature review. *International Journal of Physical Distribution and Logistics Management, 49*(9), 901–920.

Moore, J. F. (1993). Predators and prey: A new ecology of competition. *Harvard Business Review, 71*(3), 75–83.

Moore, J. F. (2013). *Shared purpose: A thousand business ecosystems, a worldwide connected community, and the future*. First Ecosystem Concord.

Mounce, R., Beecroft, M., & Nelson, J. (2020). On the role of frameworks and smart mobility in addressing the rural mobility problem. *Research in Transportation Economics, 83*, 100956.

Observatoire régional du tourisme d'Alsace (ORTA). (2018). *Offre, fréquentation, clientèles et chiffres d'affaires des lieux de visite de la destination Alsace*. Available at: clicalsace.fr. Accessed Oct 2019.

ORTA- Observatoire régional du tourisme d'Alsace. (2019). *Enquête clientèles 2016–17, Focus: les oenovisiteurs*. Available at: clicalsace.fr. Accessed Oct 2019.

Oruezabala, G. (2017). *Des écosystèmes d'affaires aux écosystèmes d'innovation, The Conversation*. Available at: https://theconversation.com/des-ecosystemes-daffaires-aux-ecosystemes-dinnovation-75329

Palumbo, F. (2015). Developing a new service for digital travelers satisfaction: The smart tourist app. *The International Journal of Digital Accounting Research, 15*, 33–67.

Pechlaner, H., Volgger, M., & Herntrei, M. (2012). Destination management organizations as interface between governance and corporate governance. *An International Journal of Tourism and Hospitality, 23*(2), 151–168.

Pelet, J. E., & Lecat, B. (2014). Smartphones and wine consumers: A study of Gen-Y. *International Journal of Wine Business Research, 26*(3), 188–207.

Pierce, L. (2009). Big losses in ecosystem niches: How core firm decisions drive complementary product shakeouts. *Strategic Management Journal, 30*(3), 323–247.

Ramón-Saura, J., Palos-Sanchez, P. R., & de la Cruz del Río-Rama, M. (2020). Technology-based tourism businesses: Extracting actionable knowledge and insights from social networks. In V. Ratten (Ed.), *Technological progress, inequality and entrepreneurship: From consumer division to human centricity*. Springer.

Rasinger, J., Fuchs, M., Beer, T., & Hopken, W. (2009). Building a mobile tourist guide based on tourists' on-site information needs. *Tourism Analysis, 14*(4), 483–502.

Reinhold, S., Beritelli, P., & Grünig, R. (2019). A business model typology for destinationmanagement organizations. *Tourism Review, 74*(6), 1135–1152.

Ricci, F. (2010). Mobile recommender systems. *Information Technology & Tourism, 12*(3), 205–231.

Robinson, R., & Sigala, M. (2019). Epilogue: An ecosystems framework for studying wine tourism: Actors, co-creation processes, experiences and outcomes. In M. Sigala & R. Robertson (Eds.), *Wine tourism destination management and marketing: Theory and cases*. Palgrave.

Roswati, A. R., Radhiad, I., Mazlina, A., Nurul, A. C. A., Rosdi, Z., & Mamat, R. (2020). Mobile apps in tourism communication: The strengths and weaknesses on tourism trips. *Journal of Physics*: conference series,, *1529*, 042056.

Sears, D., & Weatherbee, T. G. (2019). A vehicle for destination development? The case of the Wolfville magic winery bus. In M. Sigala & R. Robinson (Eds.), *Wine tourism destination management and marketing* (pp. 593–598). Palgrave Macmillan.

Sigala, M. (2019a). Supporting tourists' mobility in wine destinations: The hop-on hop-off bus in Swan Valley, Western Australia. In M. Sigala & R. Robinson (Eds.), *Wine tourism destination management and marketing* (pp. 357–372). Palgrave Macmillan.

Sigala, M. (2019b). Evaluating UberVINO as an e-intermediary in the wine tourism industry: Findings from Adelaide. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 177–206). Palgrave Macmillan.

Sigala, M., & Haller, C. (2019). The impact of social media on the behavior of wine tourists: A typology of power sources. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 139–154). Palgrave Macmillan.
Sigala, M., & Robinson, R. N. S. (2019). Introduction: The evolution of wine tourism business management. In M. Sigala & R. Robertson (Eds.), *Management and marketing of wine tourism businesses: Theory, practice and cases* (pp. 1–21). Palgrave.
Simeon, R., & Sayeed, L. (2011). Examining the online wine tourism experience of California wineries. *International Journal of Online Marketing, 1*(1), 24–40.
Szolnoki, G., Thach, L., & Kolb, D. (2016). *Successful social media and ecommerce strategies in the wine industry* (1st ed.). Palgrave Macmillan.
Tan, G., Lee, V., Lin, B., & Ooi, K. (2017). Mobile applications in tourism: The future of the tourism industry? *Industrial Management & Data Systems, 117*(3), 560–581.
Teece, D. J. (2007). Explicating dynamic capabilities: The nature and micro-foundations of (sustainable) enterprise performance. *Strategic Management Journal, 28*(13), 1319–1350.
Tomej, K., & Liburd, J. (2019). Sustainable accessibility in rural destinations: A public transport network approach. *Journal of Sustainable Tourism, 28*(2), 222–239.
Tussyadiah, I. P., & Zach, F. (2012). The role of geo-based technology in place experiences. *Annals of Tourism Research, 39*(2), 780–800.
VoThan, T., & Kirov, V. (2019). *Exploring the perceived value of a wine tourism mobile app: Conceptual framework and empirical study*. International Research Workshop in Wine Tourism.
Willing, C., Brandt, T., & Neumann, D. (2017). Electronic mobility market platforms – A review of the current state and applications of business analytics. *Electronic Markets, 27*, 267–282.
Wine Tech. (2021). Available at: https://www.lawinetech.com/en/the-members/
Yin, R. K. (2017). *Case study research and applications: Design and methods* (6th ed.). SAGE.
Zheng, W., Zhou, R., Zhang, Z., Zhong, Y., Wang, S., Wei, S., Wei, Z., & Ji, H. (2019). Understanding the tourist mobility using GPS: How similar are the tourists? *Tourism Management, 71*, 54–66.

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Tracking Wine Tourists' Movements Using GPS: Evidence from the Bairrada Wine Route, Portugal

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Abstract The chapter discusses the application and value of GPS (Global Positioning System) for tracking tourists' movements in rural wine tourism destinations using data collected on the Bairrada wine route, Portugal. The chapter analyses the theoretical underpinning for collecting and analysing data for tracking people's space-time movements, and then, it uses data from visitors' surveys in order to identify the challenges when GPS are applied in rural areas for developing wine tourism. Moreover, the chapter explains the benefits of using GIS cartography combined with additional spatially referenced data for identifying and analysing tourists' movement patterns. The chapter concludes by discussing the practical implications of the study findings in helping destination managers to make better data-informed decisions regarding regional planning and sustainable tourism development.

Keywords Wine tourism · Tourist movements · Spatio-temporal tourist behaviour · Global positioning system (GPS) · Tracking technologies · GIS cartography

Introduction

The focus of wine tourism market research has broadened from a winery/wine-cellar business approach to the wider, geographically, socially and culturally more complex "terroir" perspective, recognizing the role of wine tourists' engagement with the entire wine-producing territory and its unique resources (Hall et al., 2000; Holland et al., 2017; Kastenholz et al., 2021). 'Wine terroir' refers to a particular

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geographic space with unique characteristics, producing a certain type of wine (Charters et al., 2017). It is an important concept in wine tourism. Terroir is a French term used internationally to describe the environmental factors that affect a wine crop's taste, scent and colour, including unique environmental contexts, and farming practices. For wine tourists, the terroir is an important attraction, bringing local landscapes, communities and wine history together with wine tasting to offer a special rural tourism destination.

Adding to the potential of territorial branding (Orth et al., 2012; Hashimoto & Telfer, 2003), wine routes can be created to attract and guide visitors in their exploration of wine-producing territories (Bruwer, 2003; Lavandoski et al., 2018). A wine route presents visitors with opportunities to explore regions, using specific itineraries or trails, selecting wineries and other products integrated into or adjacent to that route thus discovering and supporting the broader features of a wine destinations (Xu et al., 2016).

The creation of such routes require collaboration among wineries and with other complementary tourist businesses/attractions (Sigala, 2019a) to create a viable wine tourism destination. They are designed to permit easy access and exploration for visitors using cars (or other vehicles, sometimes even on foot) with signposting, maps and relevant information on wineries, vineyards, and other attractions, and are often integrated into a national or regional framework of wine routes (Brás et al., 2010; Getz, 2000).

However relevant the constitution of such routes in enhancing regional coordination and promotion of regional wine tourism and wine brands, their effectiveness needs to be evaluated (Brás et al., 2010), using demand-side and supply-side analysis. In this context, surveys and interviews are frequently used to obtain data for statistical and content analysis that may be relevant for management and marketing decisions. On the demand side, visitors' space-time behaviour is often neglected, although it seems particularly important in analysing the success of wine route development.

This chapter presents GPS tracking as an opportunity to undertake such analyses, discusses opportunities and challenges associated with this technique and illustrates it with examples from the Bairrada wine route, which was founded in 1995 by regional and local wine-related public and private entities, in a region with a centuries-old wine-making tradition. Particularly known for its naturally sparkling wines, Bairrada's wine production is an essential part of the region's economy and shapes its cultural identity. The region's main attractions are related to its wine and gastronomy, together with two renowned thermal spas (Curia and Luso), the Buçaco mountain and forest and the cities of Coimbra and Aveiro, plus nearby beaches (Brás et al., 2010; Kastenholz et al., 2021).

This wine route was the subject of the broader research project 'TWINE – *co-creating sustainable Tourism & WINe Experiences in rural areas*'. This four-year project analysed the markets for and issues involved in co-creating integral tourist experiences in rural wine destinations, through a study of three contrasting wine routes located in the same administrative Portuguese region (Região Centro): Bairrada, Dão and Beira Interior. Involving researchers from the University of

Aveiro (coordinating the project), the Polytechnic Institute of Viseu and the University of Beira Interior, as well as experts on sustainable rural tourism, wine tourism, geography, and regional development, it focuses on tourist experiences co-created, shared and impacting on tourists, local residents, agents of supply, and other stakeholders from the associated wine-producing territories.

Within this project, the study of visitors' movements through the wine destinations defined by the wine routes is most relevant. Below, we first discuss the usefulness of GPS tracking for analysing visitors' space-time behaviour in general and in wine terroirs specifically. Next, we consider the potential for mapping this tracking information and integrating with it additional data for improved decision-making. Opportunities and challenges are highlighted, with examples from the Bairrada GPS tracking study, and the theoretical and practical contributions of such studies are discussed.

GPS for Tracking Space-Time Behaviour in Tourism: Benefits and Challenges

Spatio-temporal tourist behaviour refers to the sequence of attractions visited by tourists within a geographic space and associated movements in that geographic space (Caldeira & Kastenholz, 2020; Xia et al., 2010). Resulting from the interaction between individuals and the environment, tourist behaviour within space & time is a dynamic process associated with consumption activities (Caldeira & Kastenholz, 2020). Therefore, understanding the visitors' space-time behaviour is crucial for destination management organizations (DMO) to make information-based decisions related to issues such as transport infrastructure development and maintenance, tourism product design, creating appealing tourism activities/experiences, and tourism marketing (Ferrante et al., 2016; Lew & McKercher, 2006). Knowing where, when and how tourists go can offer valuable insights to promote the dispersion of tourists within a region, managing visitor flows, and limiting or encouraging the access to specific areas (Bauder, 2015).

Research in this domain comprises two basic and complementary approaches and their corresponding streams of research: a cognitive approach, concerning the mental processes underlying objective behaviour; and a behavioural approach, relative to objective movements (Caldeira & Kastenholz, 2020; Xia, 2007). The cognitive approach has focused on spatial perception, mental maps, and individual wayfinding. In the behavioural approach, two essential dimensions emerge: movements and multi-attraction/destination visitation (Xia et al., 2010). Based on these dimensions and on a systematic literature review on space-time behaviour, Caldeira and Kastenholz (2020) suggested a framework of analysis for spatio-temporal tourist behaviour, encompassing the factors relative to movements (territoriality, linearity, locomotion and wayfinding) and multi-attraction visitation (intensity and specificity). Two basic dimensions of the geometry of tourist movements were identified by Lew and McKercher (2006): (i) territoriality (the spatial amplitude of

tourist movements related to the concepts of dispersal and of spatial consumption), and (ii) linearity (the configuration of the exhibited patterns of movement or the direction of the movement, associated with the tourists' spatial involvement, exploratory behaviour, and activities performed). Adding to these two factors, research regarding tourists' movements has also studied: (iii) locomotion, considering means of transportation used by tourists or indicators such as speed (Bauder, 2015); and (iv) wayfinding, examining the material navigation aids used by tourists or their movements when getting lost (Caldeira & Kastenholz, 2018a). As for multi-attraction visitation, McKercher and Lau (2008) found that patterns can be examined considering: (i) the visitation intensity, indicative of the tourist's engagement with the destination, reflected in number of attractions visited or duration of visit; and (ii) the specificity of attractions visited, considering their particular characteristics.

Technology tools have stimulated a growing body of empirical research on space-time behaviour. Initial studies used direct observation and travel diaries. They had limited effectiveness and efficiency. Current research increasingly uses devices such as wearable Global Positioning System (GPS) technology, mobile phone data, Bluetooth technology, smartphone applications and near-field communication (NFC) technology (Hardy et al., 2017), as well as transaction data (Zoltan & McKercher, 2015), user-generated content (Shi et al., 2020) and Zenith images obtained using drones (Donaire et al., 2020). More recently, Hardy (2020) advocated using artificial intelligence and machine learning for predicting people's mobility using biosensors to explore the physiological effects of tourist mobility.

Of these techniques, GPS tracking studies are probably the most common. Examples include studies of visitors in tourist sites (Zheng et al., 2017), cities (Caldeira & Kastenholz, 2018a; Martins & Costa, 2021), natural areas (Mou et al., 2022) and events (Pettersson & Zillinger, 2011), as well as studying cruise ship visitors to coastal areas (De Cantis et al., 2016) and multi-destination patterns (Beeco et al., 2013; Hardy et al., 2017).

Using GPS requires complicated logistics and smaller samples, while lacking information on how visitors interact with each other, recording only individual itineraries, with bias also possibly occurring, if tourists are aware of being observed (Donaire et al., 2020). Additionally, the method is criticized for (i) neglecting participants' subjectivities; (ii) raising ethical concerns regarding the violations of privacy resulting from the close tracking of movement, though potentially mitigated by informed consent; and (iii) being too expensive and affected by technical issues: the limited battery life of devices may hamper data collection after more than 1 day, while signals may be compromised in situations such as interiors, dense forests, highly urbanized environments with high buildings, or by tracking units placed in handbags or car boots (Hardy et al., 2017). Therefore, Hardy et al. (2017) consider that the fact that tourists need to hold or wear a device is a limitation. Yet, GPS loggers and GPS-enabled smartphones are relatively unobtrusive, allowing highly accurate data quality (Yun & Park, 2015), permit the selection of the participants (Donaire et al., 2020) and can be used for multiscale studies, which is particularly interesting for special interest tourism, such as wine tourism.

The type of analysis associated with GPS tracking is mainly quantitative, but it is the only technique that can be associated with surveys (Donaire et al., 2020), whether post-visit (GPS loggers) or real-time (GPS-enabled smartphones). Questionnaire surveys complementing GPS tracking are frequently used and deemed most appropriate, as they reinforce accuracy and allow the combination of tracing objective movements and the assessment of tourists' individual and travel characteristics, perceptions and impressions (East et al., 2017).

Research combining GPS tracking with surveys has allowed the study of individual antecedents of spatio-temporal tourist behaviour, moderated by personal characteristics and travel variables (Caldeira & Kastenholz, 2018b). Also, the specific characteristics of geographic spaces have been studied as antecedents of space-time tourist activity, as well as destinations' suitability for tourism, conditioned by appropriate signage, navigation aids or information provided in different languages (Edwards & Griffin, 2013; Hernández, 2003). Complemented by surveys, GPS tracking provides rich information allowing the association of space-time tourist activity with on-site travel behaviour to be investigated, such as tourism expenditure (Domènech et al., 2020); experience outcomes, like sensory impressions (Santos et al., 2019); satisfaction (Caldeira & Kastenholz, 2018a) or loyalty (Park et al., 2019); or predicting tourist behaviour (Caldeira & Kastenholz, 2018a; Zheng et al., 2017).

Challenges and Opportunities of Tracking Tourists' Mobility in Wine Destinations

Wine tourism, with its particular interest in visits not only to wineries, vineyards and wine festivals, but the entire wine producing terroir, with its specific natural and cultural attractions, has been increasingly upgraded through the development of wine routes and trails (Festa et al., 2020; Lavandoski et al., 2018). In the context of wine routes, individual factors, such as the visitor's know-how and preferences regarding the wine theme, influence the terroir experience and spatio-temporal behaviours (Bruwer & Lesschaeve, 2012). Yet, most research focuses on wine tourists' purchasing behaviour, behavioural intentions and activity engagement, neglecting tourists' space-time activity (Gu et al., 2021).

Regardless of the advantages of a better understanding of tourists' itineraries for sustainable wine tourism development (Sigala, 2020), only a few studies explore spatio-temporal tourist behaviour in the wine tourism context. Popp and McCole (2016) examined tourists' itineraries in a wine tourism region in the USA, using a paper-based itinerary mapping methodology. Sottini et al. (2021) analysed potential impacts of global climate change on five European wine regions using big spatio-temporal data from the Flickr photo-sharing platform. Yet only two studies registered participants' precise spatio-temporal movements on site. In a GPS tracking study carried out on an emerging wine route in China, Gu et al. (2021) found that the spatial distribution of tourists was subject to the effects of spatial proximity,

agglomeration, and transportation junctions, but also a result of individual travel behaviour and motivation. Lewis et al. (2021) used an innovative mobile phone app with integrated survey and global navigation satellite system (GNSS) technology to examine the movements of wine tourists within an Australian wine region, identifying tourists' segments using demographic, spatial and temporal data, and developing co-occurrence analysis among cellars.

Study Methodology

Research Aims

Given the increasing relevance of wine tourism (Kastenholz et al., 2021; Sigala, 2019a) and the paucity of studies on wine tourists' mobility (Gu et al., 2021), the study explored how tourists consumed the Bairrada wine destination by tracking their movements within the destination.

Comprising approximately 1250 km2 and located on the coast of central Portugal (Brás et al., 2010), the Bairrada wine region was formally delimited in 1979 and recognized as Appellation Origin Controlled (AOC) in 1998. Managed by the Bairrada Route Association, this wine route encompasses 24 wineries open to visitors, four tourist information offices, and a range of natural, landscape, cultural, historical, gastronomy and wellness resources (Caldeira et al., 2021).

The empirical research undertaken in the Bairrada region, during the TWINE research project, illustrates some of the potentialities and applications of GPS, allowing the assessment of space-time behaviour of Bairrada visitors, complemented by a post-visit questionnaire survey. The empirical research undertaken in the Bairrada region, during the TWINE research project, illustrates some of the potentialities and applications of GPS, allowing the assessment of space-time behaviour of Bairrada visitors, complemented by a post-visit questionnaire survey. For the purpose of this study, three questionnaire sections were considered regarding: (i) intra-destination spatio-temporal behaviour (e.g., attractions visited, transportation used); (ii) tourists' satisfaction as experience outcome; and (iii) trip characteristics and socio-demographic profile. The questions regarding intra-destination spatio-temporal behaviour that complemented the tracking data were based on Caldeira and Kastenholz (2018b, 2020). Experience outcomes scales used 7-point Likert type scales. Overall satisfaction (adapted from Quadri-Felitti & Fiore, 2013) comprised 4 items (e.g., satisfaction with the visit to this destination; satisfaction with the experience with the place and its people). Satisfaction with destination attributes (adapted from Quadri-Felitti & Fiore, 2013; Saayman & Merwe, 2015) included seven items (e.g., rural landscape, unpolluted environment, places related with wine). The region was defined as the research area falling within the category of local destination, operationalized as the territory within the physical boundaries of a day trip (WTO, 2002, as cited by Lew & McKercher, 2006).

Data Collection

Data was collected from tourists staying in two accommodation units, between February and August 2020, inviting potential respondents to participate in the study when leaving the hotel for a destination. Those who agreed to take part in the survey received a sports watch (Garmin vívosport) with GPS equipment and were asked to return it to the research team, at the hotel, at the end of the day's visit, following the procedures suggested by Edwards et al. (2010). The device recorded the time, speed, distance, position, and direction of movements. To increase the accuracy and breadth of the information collected, the tracking study was supplemented with a personally administered post-visit questionnaire, upon return of the GPS device. The target population was leisure tourists in the Bairrada region, selected through cluster sampling, defined in time and place (Kastenholz, 2004).

Data Analysis

The spatio-temporal data was analysed using the Garmin Connect and Google Earth online software. The spatio-temporal behaviour of tourists was studied in terms of its essential dimensions: movements and multi-attraction visitation, following the conceptual framework of analysis of Caldeira & Kastenholz (2020).

Specifically, the Garmin Connect app assessed 'distance travelled', 'route geometry', 'time in motion', 'total route duration' and 'average speed' and Google Earth 'maximum distance from accommodation'. Cartography was produced using the geographic information system software QGIS 3.20.3.

As for the questionnaire survey data, descriptive statistics allowed the characterization of the respondents' space-time activity according to different factors of analysis. The internal consistency of the overall satisfaction scale ($\alpha_{satisfaction} = .740$), movements' territoriality combining the total distance travelled and maximum distance from the accommodation ($\alpha_{territoriality} = .766$).

Presentation and Discussion of the Study Findings

Profile of Respondents

Within a sample of 116 respondents, 111 GPS itineraries were validated for spatial analysis. Gender distribution is balanced, with a mean age of 42.7 years, and 43.9% holding a college degree. Only 2.6% came from abroad, which may be explained by the pandemic-induced dramatic reduction of international tourism in 2020. As for travel behaviour, about 50.9% were repeaters, and 64.7% travelled as a couple. For 57.4% of the study participants, Bairrada was the main travel destination. The most

frequent motivations to visit the destination (several responses possible) were leisure/holidays (75.9%), followed by relaxation with (51.7%), being with the family (35.3%) and contact with nature (34.5%), in line with recent studies (Bruwer & Rueger-Muck, 2018; Vorobiova et al., 2020). Wine tourism attractions alone did not score highly as a motivation: there are important marketing and other management implications arising from this. It does seem that wider attractions associated with rural tourism generally are important (see below).

Wine Tourists' Mobility Tracing

The GPS tracks with all the routes performed by tourists were loaded onto the QGIS software and the map of Bairrada demarcated region was also added (Fig. 1). Figure 1 shows that tourists did not restrict their movements to the Bairrada territory, moving much beyond the wine route.

Analysing the reported quality of the experiences *en route,* the aesthetic dimension of the rural experience, often being the primary motivation to travel to the countryside (Kastenholz et al., 2012), stands out. Indeed, the majority visited 'natural areas' (72.4%), in visits that took an average of 5 h 04 m. Table 1 summarizes data regarding the tourists' movements. The tracked itineraries exhibit broad movements. The geometry of the route travelled was complex for most

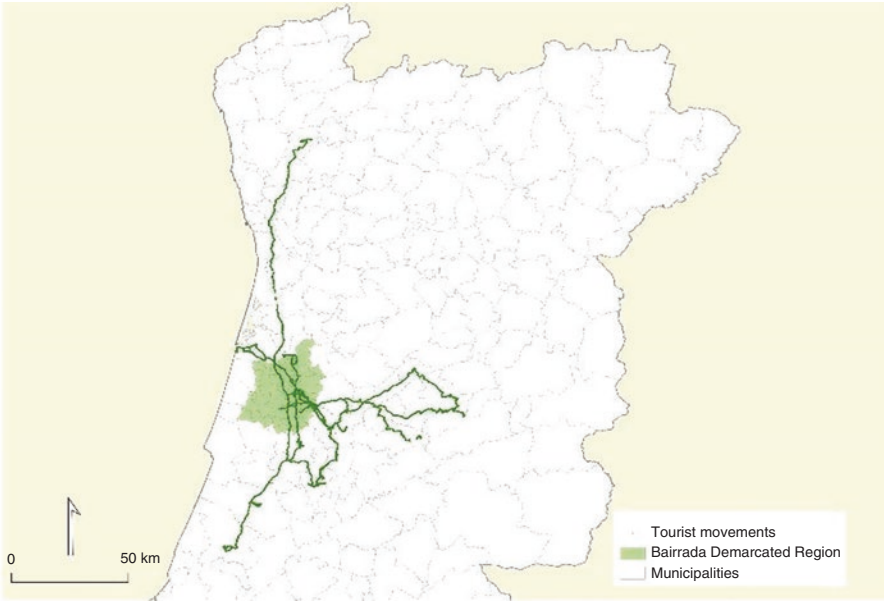

Fig. 1 Tracked tourist routes. (Source: Own elaboration)

Table 1 Characterization of the participants' tourist movements

Variables	*n* [a]	% [b]
Transportation used		
Own or rented car	105	90.5
Other	11	9.5
Itinerary linearity		
Point-to-point pattern	10	8.6
Circular pattern	3	2.6
Complex pattern	98	84.5
Missing	5	4.3
Total distance travelled	43.6 km	52.3
Maximum distance from the accommodation	13.5 km	21.5
Travel motion time	2 h 47 m	1.42
Average speed	7.71 km/h	7.32
Wayfinding aids used		
GPS	50	43.1
Maps	20	17.2

Note: $N = 116$. [a]*Mean values for quantitative variables.* [b]*Standard deviation for quantitative variables*

respondents, in line with the dispersion of attractions in rural areas (Caldeira & Kastenholz, 2020).

The vast majority of individuals used their own car, even more markedly than in Gu et al.'s (2021) study. On average, tourists spent more than half of their travel time on motion, which is in line with the longer distance travelled in rural areas. In terms of wayfinding, tourists preferred GPS over maps. Among those who admitted having got lost, the main reasons were the 'lack of signage' and the 'poor GPS functioning'.

Tourists explore the wine terroir following personalized itineraries, according to the spatial layout, landscape aesthetics, accessibilities, wine tourism supply on offer, as well as their own preferences and interests, travel context factors and navigation aids. In the case study example, respondents appreciated above all the rural landscape (M = 5.7, SD = 1.4) and the unpolluted environment (M = 5.7, SD = 1.5). They also reported a high average satisfaction with the overall experience (M = 5.9, SD = 2.0), but lower satisfaction with places related with wine (M = 3.6, SD = 2.2), which may have been conditioned by the pandemic-induced, more restricted visiting opportunities. Using data collected via survey and GPS tracking also revealed significant statistical relationships.

As for the association between space-time behaviour and experience outcomes, the amplitude of movements (total distance travelled & distance from accommodation) is correlated negatively with overall experience satisfaction ($r = -.237$, $p = .037$; $< .05$), suggesting that too much time travelling may devalue the experience. Results thereby indicate that highly appreciated multisensory experiences imply intense but slow involvement with space.

Analysing Space-Time Behaviour on Maps by Integrating Additional Data

GIS (geographical information systems) allows the analysis to be expanded and additional data to be integrated on maps, permitting analysis of a large amount of data to explore the complex space activity of tourists in destinations, conditioned by other factors. According to Shoval and Isaacson (2010), georeferenced data can be analysed through statistical procedures, where space-time information is categorized into variables that can be related with tourist and territory attributes. Furthermore, high-resolution georeferenced data can also be analysed considering the space-time data simultaneously, in order to study the temporal sequence of events, maintaining the spatial aspects of the activity (De Cantis et al., 2016; McKercher et al., 2012; Shoval et al., 2018b). This second option, when combined with GIS, permits the creation of a varied set of thematic cartographies that allows a large amount of data to be examined and related at different scales of analysis in two or three dimensions. It has thus been the most used analytical methodology in studies on spatio-temporal tourist behaviour.

If the focus of research is the tourist, a 'space-time aquarium' can be created in order to understand the visitation sequence of one or several tourists, or a sequence alignment method (SAM) can be used to create typologies of tourists according to their space-time behaviour (Martins & Costa, 2021; Shoval et al., 2015). If the focus is the destination, the analysis of how visitors 'consume' that destination is crucial, requiring the aggregation of time and space activity of all tourists.

To understand the spatio-temporal behaviour of tourists in a destination, high-resolution data obtained by GPS devices or smartphone apps can be used to map the average or total time spent by tourists in different areas or attractions (Shoval et al., 2009) or to map the most visited places at different times of the day or season (Galí & Aulet, 2019). But data can be visualized counting the number of visitors passages by using polygon demarcated maps of visit intensity, illustrating the length of visit in each polygon (Shoval, 2008) or maps that combine all this information reflecting the space-time consumption by tourists (Shoval, 2008; Shoval et al., 2020). The intensity of activity in each polygon can also be calculated as a percentage of total visitors and average time spent in each cell (McKercher et al., 2012). Shoval (2008) calculated the spatial consumption of Akko (Israel), measuring the percentage of time spent in the different localities plus the intensity of activity per cell.

It is also possible to add a third dimension on maps, simplifying reading and interpretation, as in McKercher et al. (2012), revealing the movement patterns of different groups of visitors; or use heat maps to better understand visitors' space or time density (e.g. Yun and Park, 2015) showing tourists' spatio-temporal behaviour. The heatmap represented in Fig. 2 was produced through the Heatmap (Kernel Density Estimation) processing algorithm available in QGIS software, with the creation of a raster from a point layer with information regarding tourists' time spent on each spot during their visit. In this map all tourist movements within the demarcated region of Bairrada and all wine producers with and without wine tourism supply are also shown.

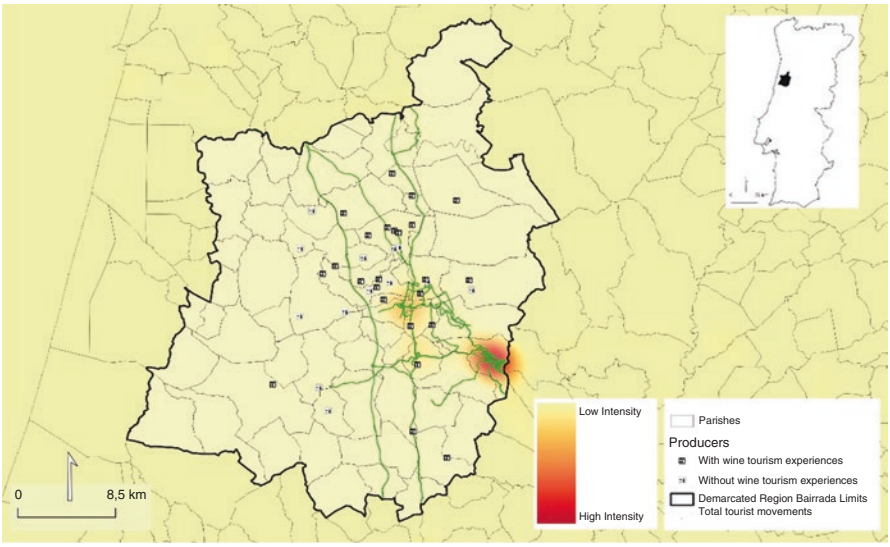

Fig. 2 Tourist space-time consumption of Demarcated Region of Bairrada. (Source: Own construction)

Figure 2 reveals that most parishes located in the westernmost part of the Bairrada region were not visited, despite existing wine tourism supply, exhibiting a very asymmetrical distribution of movements (for details see also Caldeira et al., 2021). As one of the parishes (Luso) has a large concentration of remarkable natural and cultural heritage, it registers a high density of movements contrasting to the remainder of the region. This shows the need to consider other tourism dynamics in wine producing territories and their possible articulation with wine tourism.

Overlapping the itineraries with the duration of visit and the main wine tourism attractions within the region shows that, apart from many Bairrada wine producers being on the margin of main visitor flows, most producers offering wine tourism experiences, regardless of their location, are not very much in demand. This finding is in line with Lewis et al.'s (2021) conclusions. They found that 'the locations of the cellar doors did not play a significant role in driving visitor behaviour, but rather other elements, such as offering other attractions, were significant in terms of extending the length of time the visitor stayed" (p. 6).

Conclusion and Implications for Future Research

Wine tourism, particularly in its currently increasingly popular 'terroir tourism' format, requires adequate and appealing territorial management, as well as a sound understanding of visitor behaviours and experiences that are shaped by and

significantly dependent on visitor space-time movements (Sigala, 2019b). Wine routes should be designed to facilitate the discovery of a wine-producing region, its wines and wineries, together with its other diverse, unique attractions and experiencescapes (Kastenholz et al., 2021), but frequently little is known about the actual visitor flows within their territory at the route planning stage, possibly leading to sub-optimal visits, profits and tourist satisfaction (Caldeira & Kastenholz, 2018b; Festa et al., 2020).

That is why technology that allows the tracking of visitor movements, especially if complemented by corresponding visitor survey data, using statistical procedures to explore associations amongst such data, is a powerful tool contributing to improve decision-making for wine route and wine destination development (De Cantis et al., 2016). In the present case, the conclusion about the positive correlation between increased satisfaction with the destination experience and sensory-rich winescapes, slow movements and short distances travelled may help operators develop more attractive wine route experiences. Mapping such information and the use of GIS for improved territorial analysis may significantly help destination managers understand not only the most typical visitor flows, but also the location of less visited areas with high attractive potential.

It is, indeed, important to improve the suitability and appeal of all demarcated regions for tourist visits, optimizing existing experience opportunities for tourists and developing new ones (Sigala, 2019c) in line with such findings, increasing their satisfaction through involving experiences in time and space (Ferrante et al., 2016; Lew & McKercher, 2006). Findings may also thereby help develop a new marketing strategy that can boost profitability of both wine sales and regional tourism, while yielding a more balanced spread across the region, avoiding congestion and consequent negative impacts of massive tourist flows in one area, while ignoring others with similar tourism potential. The identified concentration of wine tourism activities in the centre of the Bairrada region also suggests that future new attractions should be located in less visited areas – the "not spot" areas as described by Shoval and Isaacson (2010).

Apart from the technologies used here, the potential use of biosensors to examine physiological effects of tourist mobility will substantially add to our understanding of visitors' level of arousal when moving through time and space (Shoval & Ahas, 2016; Shoval et al., 2018a, b). This technology should help identify what are actually the most appealing, involving and memorable destination experiencescapes, and the optimal way of discovering them through travel (apparently the slower, the better, e.g. hiking or biking). This could create a deep sensorial connection with the landscape through which visitors move and taste and appreciate wine products with even greater enthusiasm.

A final, wider conclusion can be drawn. Managing tourism products, routes and destinations clearly benefits from carrying out site-specific research, integrating distinct elements and perspectives (McGehee et al., 2013, Taylor, 2015). Tourist tracking studies and GIS cartography may contribute significantly to improve such evidence-informed destination management.

References

Bauder, M. (2015). Using GPS supported speed analysis to determine spatial visitor behaviour. *International Journal of Tourism Research, 17*(4), 337–346.

Beeco, J. A., Huang, W. J., Hallo, J. C., Norman, W. C., McGehee, N. G., McGee, J., & Goetcheus, C. (2013). GPS tracking of travel routes of wanderers and planners. *Tourism Geographies, 15*(3), 551–573.

Brás, J. M., Costa, C., & Buhalis, D. (2010). Network analysis and wine routes: The case of the bairrada wine route. *Service Industries Journal, 30*(10), 1621–1641.

Bruwer, J. (2003). South African wine routes: Some perspectives on the wine tourism industry's structural dimensions and wine tourism product. *Tourism Management, 24*(4), 423–435.

Bruwer, J., & Lesschaeve, I. (2012). Wine tourists' destination region brand image perception and antecedents: Conceptualization of a winescape framework. *Journal of Travel & Tourism Marketing, 29*(7), 611–628.

Bruwer, J., & Rueger-Muck, E. (2018). Wine tourism and hedonic experience: A motivation-based experiential view. *Tourism and Hospitality Research, 19*(4), 488–502.

Caldeira, A. M., & Kastenholz, E. (2018a). It's so hot: Predicting climate change effects on urban tourists' time–space experience. *Journal of Sustainable Tourism, 26*(9), 1516–1542.

Caldeira, A. M., & Kastenholz, E. (2018b). Tourists' spatial behaviour in urban destinations: The effect of prior destination experience. *Journal of Vacation Marketing, 24*(3), 247–260.

Caldeira, A. M., & Kastenholz, E. (2020). Spatiotemporal tourist behaviour in urban destinations: A framework of analysis. *Tourism Geographies, 22*(1), 22–50.

Caldeira, A. M., Kastenholz, E., Silva, A., & Martins, M. R. (2021). How do tourists consume a wine destination in Central Portugal? A space-time analysis. *Cadernos de Geografia, 44*, 81–97.

Charters, S., Spielmann, N., & Babin, B. J. (2017). The nature and value of terroir products. *European Journal of Marketing, 51*(4), 748–771.

De Cantis, S., Ferrante, M., Kahani, A., & Shoval, N. (2016). Cruise passengers' behavior at the destination: Investigation using GPS technology. *Tourism Management, 52*, 133–150.

Domènech, A., Gutiérrez, A., & Anton Clavé, S. (2020). Cruise passengers' spatial behaviour and expenditure levels at destination. *Tourism Planning & Development, 17*(1), 17–36.

Donaire, J. A., Galí, N., & Gulisova, B. (2020). Tracking visitors in crowded spaces using zenith images: Drones and time-lapse. *Tourism Management Perspectives, 35*, 100680.

East, D., Osborne, P., Kemp, S., & Woodfine, T. (2017). Combining GPS & survey data improves understanding of visitor behaviour. *Tourism Management, 61*, 307–320.

Edwards, D., & Griffin, T. (2013). Understanding tourists' spatial behaviour: GPS tracking as an aid to sustainable destination management. *Journal of Sustainable Tourism, 21*(4), 580–595.

Edwards, D., Dickson, T., Griffin, T., & Hayllar, B. (2010). Tracking the urban visitor: Methods for examining tourists' spatial behaviour and visual representations. In *Cultural tourism research methods* (pp. 104–114).

Ferrante, M., De Cantis, S., & Shoval, N. (2016). A general framework for collecting and analysing the tracking data of cruise passengers at the destination. *Current Issues in Tourism, 21*(12), 1426–1451.

Festa, G., Shams, S. M. R., Metallo, G., & Cuomo, M. T. (2020). Opportunities and challenges in the contribution of wine routes to wine tourism in Italy – A stakeholders' perspective of development. *Tourism Management Perspectives, 33*, 100585.

Galí, N., & Aulet, S. (2019). Tourists' space–time behavior in heritage places: Comparing guided and nonguided visitors. *International Journal of Tourism Research, 21*(3), 388–399.

Getz, D. (2000). *Explore wine tourism: Management, development and destinations*. Cognizant Communication Corporation.

Gu, Q., Zhang, H., Huang, S., Zheng, F., & Chen, C. (2021). Tourists' spatiotemporal behaviors in an emerging wine region: A time-geography perspective. *Journal of Destination Marketing & Management, 19*, 100513.

Hall, C. M., Sharples, L., Cambourne, B., & Macionis, N. (Eds.). (2000). *Wine tourism around the world: Development, management and markets* (1st ed.). Butterworth Heinemann.

Hardy, A. (2020). *Tracking tourists: Movement and mobility*. Goodfellow Publishers Limited.

Hardy, A., Hyslop, S., Booth, K., Robards, B., Aryal, J., Gretzel, U., & Eccleston, R. (2017). Tracking tourists' travel with smartphone-based GPS technology: A methodological discussion. *Information Technology and Tourism, 17*(3), 255–274.

Hashimoto, A., & Telfer, D. (2003). Positioning an emerging wine route in the Niagara region: Understanding the wine tourism market and its implications for marketing. *Journal of Travel and Tourism Marketing, 14*(3/4), 61–76.

Hernández, M. G. (2003). *Turismo y conjuntos monumentales: capacidad de acogida turística y gestión de flujos de visitantes*. Tirant lo Blanch.

Holland, T., Smit, B., & Jones, G. V. (2017). Toward a conceptual framework of terroir tourism: A case study of the Prince Edward County, Ontario wine region. *Tourism Planning and Development, 11*(3), 275–291.

Kastenholz, E. (2004). Assessment and role of destination-self-congruity. *Annals of Tourism Research, 31*(3), 719–723.

Kastenholz, E., Carneiro, M. J., Marques, C. P., Lima, J., Peixeira Marques, C., & Lima, J. (2012). Understanding and managing the rural tourism experience — The case of a historical village in Portugal. *Tourism Management Perspectives, 4*(0), 207–214.

Kastenholz, E., Cunha, D., Eletxigerra, A., Carvalho, M., & Silva, I. (2021). Exploring wine terroir experiences: A social media analysis. In A. Abreu, D. Liberato, E. A. González, & J. C. Garcia Ojeda (Eds.), *Advances in tourism, technology and systems. ICOTTS 2020. Smart innovation, systems and technologies* (Vol. 209, pp. 401–420). Springer.

Lavandoski, J., Vargas-Sánchez, A., Pinto, P., & Silva, J. A. (2018). Causes and effects of wine tourism development in organizational context: The case of Alentejo, Portugal. *Tourism and Hospitality Research, 18*(1), 107–122.

Lew, A., & McKercher, B. (2006). Modeling tourist movements: A local destination analysis. *Annals of Tourism Research, 33*(2), 403–423.

Lewis, G. K., Hardy, A., Wells, M. P., & Kerslake, F. L. (2021). Using mobile technology to track wine tourists. *Annals of Tourism Research Empirical Insights, 2*(2), 100022.

Martins, M., & Costa, R. (2021). Padrões de comportamento espaciotemporais dos turistas *backpackers* no destino urbano do Porto: o método do alinhamento sequencial. *Finisterra, LVI*(118), 201–222.

McGehee, N. G. B., Boley, B., Hallo, J. C., McGehee, J., Norman, W., Oh, C.-O., & Goetcheus, C. (2013). Doing sustainability: An application of an inter-disciplinary and mixed-method approach to a regional sustainable tourism project. *Journal of Sustainable Tourism, 21*(3), 355–375.

McKercher, B., & Lau, G. (2008). Movement patterns of tourists within a destination. *Tourism Geographies, 10*(3), 355–374.

McKercher, B., Shoval, N., Ng, E., & Birenboim, A. (2012). First and repeat visitor behaviour: GPS tracking and GIS analysis in Hong Kong. *Tourism Geographies, 14*(1), 147–161.

Mou, N., Liu, Z., Zheng, Y., Makkonen, T., Yang, T., & Zhang, L. (2022). Cycling in Tibet: An analysis of tourists' spatiotemporal behavior and infrastructure. *Tourism Management, 88*, 104418.

Orth, U. R., Stöckl, A., Veale, R., Brouard, J., Cavicchi, A., Faraoni, M., Larreina, M., Lecat, B., Olsen, J., Rodriguez-Santos, C., Santini, C., & Wilson, D. (2012). Using attribution theory to explain tourists' attachments to place-based brands. *Journal of Business Research, 65*(9), 1321–1327.

Park, D., Lee, G., Kim, W. G., & Kim, T. T. (2019). Social network analysis as a valuable tool for understanding tourists' multi-attraction travel behavioral intention to revisit and recommend. *Sustainability, 11*(9), 2497.

Pettersson, R., & Zillinger, M. (2011). Time and space in event behaviour: Tracking visitors by GPS. *Tourism Geographies, 13*(1), 1–20.

Popp, L., & McCole, D. (2016). Understanding tourists' itineraries in emerging rural tourism regions: The application of paper-based itinerary mapping methodology to a wine tourism region in Michigan. *Current Issues in Tourism, 19*(10), 988–1004.

Quadri-Felitti, D. L., & Fiore, A. M. (2013). Destination loyalty: Effects of wine tourists' experiences, memories, and satisfaction on intentions. *Tourism and Hospitality Research, 13*(1), 47–62.

Saayman, M., & Van Der Merwe, A. (2015). Factors determining visitors' memorable wine-tasting experience at wineries. *Anatolia, 26*(3), 372–383.

Santos, V., Caldeira, A., Santos, E., Oliveira, S., & Ramos, P. (2019). Wine tourism experience in the Tejo region: The influence of sensory impressions on post-visit behaviour intentions. *International Journal of Marketing Communication and New Media, 5*, 54–75.

Shi, J., Xin, L., & Liu, Y. (2020). Simulation of tourists' spatiotemporal behaviour and result validation with social media data. *Transportation Planning and Technology, 43*(7), 698–716.

Shoval, N. (2008). Tracking technologies and urban analysis. *Cities, 25*(1), 21–28.

Shoval, N., & Ahas, R. (2016). The use of tracking technologies in tourism research: A review of the first decade. *Tourism Geographies, 18*(5), 587–606.

Shoval, N., & Isaacson, M. (2010). *Tourist mobility and advanced tracking technologies*. Routledge Taylor & Francis.

Shoval, N., Isaacson, M., & Birenboim, A. (2009). Monitoring impacts of visitors with aggregative GPS data. *CEUR Workshop Proceedings, 541*, 33–46.

Shoval, N., McKercher, B., Birenboim, A., & Ng, E. (2015). The application of a sequence alignment method to the creation of typologies of tourist activity in time and space. *Environment and Planning B: Planning and Design, 42*(1), 76–94.

Shoval, N., Schvimer, Y., & Tamir, M. (2018a). Real-time measurement of tourists' objective and subjective emotions in time and space. *Journal of Travel Research, 57*(1), 3–16.

Shoval, N., Schvimer, Y., & Tamir, M. (2018b). Tracking technologies and urban analysis: Adding the emotional dimension. *Cities, 72*(1240), 34–42.

Shoval, N., Kahani, A., De Cantis, S., & Ferrante, M. (2020). Impact of incentives on tourist activity in space-time. *Annals of Tourism Research, 80*, 102846.

Sigala, M. (2019a). Building a wine tourism destination through coopetition: The business model of ultimate winery experiences Australia. In M. Sigala & R. Robertson (Eds.), *Management & Marketing of wine destinations. Theory, practice and cases* (pp. 99–112). Palgrave Macmillan.

Sigala, M. (2019b). Supporting tourists' mobility in wine destinations: The hop-on hop-off bus in swan valley, Western Australia. In M. Sigala & R. Robertson (Eds.), *Management & Marketing of wine destinations. Theory, practice and cases* (pp. 357–372). Palgrave Macmillan.

Sigala, M. (2019c). Wine destination management and marketing: Critical success factors. In M. Sigala & R. Robertson (Eds.), *Management & marketing of wine destinations. Theory, practice and cases* (pp. 1–6). Palgrave Macmillan.

Sigala, M. (2020). The transformational power of wine tourism experiences: The socio-cultural profile of wine tourism in South Australia. In T.-A. De Silva, A. Gilinsky, & F. Sharon (Eds.), *Social sustainability in the global wine industry: Concepts and cases* (pp. 57–73). Palgrave Macmillan.

Sottini, V. A., Barbierato, E., Bernetti, I., & Capecchi, I. (2021). Impact of climate change on wine tourism: An approach through social media data. *Sustainability, 13*(13), 7489.

Taylor, P. (2015). What factors make rail trails successful as tourism attractions? Developing a conceptual framework from relevant literature. *Journal of Outdoor Recreation and Tourism, 12*, 89–98.

Vorobiova, N., Pinto, P., Pintassilgo, P., & Lavandoski, J. (2020). Motivations of tourists in wine regions: The case of La Rioja, Spain. *International Journal of Wine Business Research, 32*(3), 353–371.

Xia, J. (2007). *Modelling the spatial-temporal movement of* tourists [Doctoral thesis, RMIT University]. https://bit.ly/3EeQr7r

Xia, J., Evans, F. H., Spilsbury, K., Ciesielski, V., Arrowsmith, C., & Wright, G. (2010). Market segments based on the dominant movement patterns of tourists. *Tourism Management, 31*(4), 464–469.

Xu, S., Leung, Y., & Barbieri, C. (2016). Characterizing themed touring routes: A geospatial and tourism evaluation of wine trails. *Tourism Planning and Development, 13*(2), 168–184.

Yun, H. J., & Park, M. H. (2015). Time–space movement of festival visitors in rural areas using a smart phone application. *Asia Pacific Journal of Tourism Research, 20*(11), 1246–1265.

Zheng, W., Huang, X., & Li, Y. (2017). Understanding the tourist mobility using GPS: Where is the next place? *Tourism Management, 59*, 267–280.

Zoltan, J., & McKercher, B. (2015). Analysing intra-destination movements and activity participation of tourists through destination card consumption. *Tourism Geographies, 17*(1), 19–35.

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Wine Tourism Next-Gen: A Case Study of a Virtual Reality Implementation in a Wine Cooperative in France

Nathalie Maumon and Didier Bédé

Abstract This chapter discusses the planning and implementation of a virtual reality (VR) project by a small wine cooperative in the south of France. As competition in the wine industry continually increases, wine stakeholders are always looking for new and more efficient ways to attract and retain customers. Although VR-based solutions are increasingly used in retailing for marketing purposes, only very few operators in the wine industry have started using VR to enhance customer experiences and satisfaction. This research is based on an illustrative case with the Labastide Wine Cooperative. Our data collection was formalised through participating observations. In addition to these observations, one-on-one semi structured interviews with key internal players within the organisation were also conducted. The chapter starts by presenting the concept of the VR project idea and the technology solution that was adopted for maximising the technology while making it compatible with the cooperative's needs. The chapter continues by discussing the obstacles that the wine cooperative had to face during the technology implementation, which include: the implementation of the VR technology, the development of the resources used for the VR, and the use of VR by consumers. Finally, the chapter concludes by providing suggestions on how the wine tourism industry can better use VR in order to attract more clients, create a new network strategy, gain a competitive advantage, and face the current and any future health crises.

Keywords Cooperative · Wine experience · Innovation · Virtual Reality (VR) · Wine technology · Wine tourism

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Introduction

On 27 October 2020, during the presentation of the first estimates of 2020 world wine production (OIV, 2020), Director General of the International Organisation of Vine and Wine Pau Roca underlined the importance of a modern, innovative and resilient wine sector.[1] Do the OIV president's comments reflect a desire to modernise the industry by using recently developed methods, techniques and marketing approaches, show attitudes that are free from traditional social conventions, or both? Was he proposing to develop a completely new and original system that can be successful after many difficult experiences for the wine and the wine tourism industry? These suggestions are one way to start a new kind of wine tourism in response to the COVID-19 crisis situation that has significantly slowed wine tourism. The multi-crisis situation in the wine tourism industry challenges the global system of wine production, distribution and consumption (Santos et al., 2021). Generally, small- and medium-sized producers, cooperatives, and those that do not necessarily have the means to promptly adopt a wine tourism innovative system, as Britzikis created the wine "Dia Pyros" for example (Karagiannis & Metaxas, 2019), suffer the most. However, in France, only a few companies now use technology to develop wine tourism. One of them, the Labastide Wine Cooperative (LWC), which is located in Gaillac in the southwest of France near Toulouse in Occitanie, is experimenting with virtual reality (VR) implementation. This technology can help the LWC virtualise the wine tourism experience as a way to distribute and sell their wines while attracting tourists and growing wine sales. In addition to its sales, the LWC has been able to take advantage of wine tourism by developing a quality experiential course covering the different key stages of a typical wine tourism visit. In line with experiential marketing in the sense of Pine and Gilmore (1999), various studies have focused on the contributions of this experiential approach in the wine tourism sector (Haller et al., 2020; Priilaid et al., 2020; Sigala & Robinson, 2019; Vo Thanh & Kirova, 2018). Nevertheless, each experience is based on design prone to rapid obsolescence, i.e. if the experiential context remains unchanged, habit can emerge causing a weariness in addition to technological aging, hence the wear and tear of the experiential context (Roederer & Schwarzberg, 2015), meaning that there needs to be a renewal that can trigger strategic repositioning.

Faced with the sector context and various environmental constraints, such as the lack of perceived security, language barriers, the cancellation of festivals and events, the inability of people to travel and visit cellar doors or the great distance from home to do wine tourism (Cho et al., 2017), a renewal in the wine tourism industry may emerge from a specific technology: Virtual Reality (VR).

Boyd and Koles (2019, p. 442) stated the following: '*Virtual reality incorporates computer-generated, interactive and highly vivid environments that enable the user to achieve a state of immersion through the ultimate experience of telepresence, and facilitate engagements in human encounters that are multisensorial, dynamic and*

[1] Accessed at https://youtu.be/w_vGobEEyUE (15/12/2020 – 2 pm).

resemble the user's perception and understanding of the real world'. Several tools can create VR environments, yet VR headsets appear to be the most easily operationalised solution. For Flavián et al. (2019), VR headsets have a higher level of technological embodiment in their ability to generate an immersive experience via the creation of a sensation of closeness between the technology and one's senses. In response to their current strategic issues—that is, winning and retaining customers through more services, attracting a younger clientele, and enhancing the development of their social and environmental approach—the top management of the LWC have sought to gain internal and external benefits from the use of this technology.

This research explores the three main research questions: the selection and the implementation of the VR technology, the resources' development for VR and the use of VR by consumers. First, the idea itself and adopted solution to maximise the technology's compatibility will be presented. Then, the obstacles that the wine cooperative faced during the implementation of the VR technology, the development of the resources used for the VR, and the use of VR by consumers will be discussed. At the end of the paper, advice on how VR can help develop wine tourism, drive more clients, create a new network strategy, gain a competitive advantage, and face the COVID-19 crisis will be provided.

Wine Tourism *Next-Gen*: The Advantages of VR Headset as a New Experiential Context

For more than 10 years, research into wine tourism has steadily developed (Gómez et al., 2019; Sánchez et al., 2017). One of the positions of research on wine tourism has focused on the adaptation of experiential marketing in sense of Pine and Gilmore (1999), such as the proposal of new experiences for wine tourists. For Vo Thanh and Kirova (2018), in the wine tourism context, two types of experience predominate: education and entertainment experiences. The typology of wine tourists created by Priilaid et al. (2020) aims to determine the wine tourism experiences that best correspond to the category of customers. In addition, Haller et al. (2020) studied the congruence between wine tourists' expectations and wine tourism offers. Research focusing on the cocreation of oenological experiences shows that this type of experience is a tool for learning the culture of wine; that this corresponds to a popular way of life; and that wine consumption has a self-development and relational aspect (Sigala & Robinson, 2019).

However, these experiences are subject to an effect of experiential wear and tear (Roederer & Schwarzberg, 2015): e.g. technological wear and tear, and consumer weariness. Consequently, technology appears as an essential element in the creation of new experiences in tourism to counter this wear and tear effect, becoming a source of a competitive advantage (Buhalis, 2022). Thus, technological innovations appear as opportunities for experiential renewal in line with the new digital uses of consumers (Bédé et al., 2019). Specifically, VR can be used by wineries to create

new forms of wine tourism experiences by delivering information not accessible otherwise (see the harvest outside the relevant period for instance) or by providing more interactive information. VR application could be seen "*as a learning tool and as a mean to provide public access to sites and attractions that everyone can potentially benefit but visitation is limited due to physical barriers*" (Garibaldi & Sfodera, 2020, p. 415).

In terms of information systems, VR is a broad concept that encompasses multiple applications (Fuchs, 2006), including VR headsets. These technological tools have been studied with a view to reinforcing the digitization of the stores. Thus, Flavián et al. (2019) noted the opportunities that VR headsets give: customers can find added value derived from high levels of involvement and the possibilities for cocreation. Grewal et al. (2020) stated that the VR experience should enhance the impression of telepresence. Martínez-Navarro et al. (2019) demonstrated the effectiveness of VR over physical supermarkets. Along with this, more recent research has shown that VR headsets confer greater experiential stimulation than other VR applications, particularly that via computers (Flavián et al., 2021).

In the field of tourism research, Tussyadiah et al. (2018) suggested that VR headsets reinforce the telepresence concept and positively influence the perception of entertainment, consumer attitude and consumer intentions. Loureiro et al. (2020) highlighted that VR headsets appear as a real strategic opportunity by creating more immersive experiences. An et al. (2021) confirmed that VR is becoming an essential tool for destination marketing. However, this tool should be seen as a complement, not as an alternative. If the consumer really has the feeling of being transported to the desired destination, then the satisfaction with and the intentions of the visit will be positive (Kim et al., 2020). More specifically on wine tourism, VR can be used as a tool for experiential revitalisation, much like the new experiences offered by the La Cité du Vin in the Bordeaux region of France, which use 180° videos (Garibaldi & Sfodera, 2020). In line with this, Wen and Leung (2021) have demonstrated that the use of VR headsets in addition to tasting would increase wine purchasing intentions.

VR appears to be a real opportunity for creating an experiential renewal, making the wine tourism journey more attractive and, thus, more entertaining as was the case for the museum visit (Lee et al., 2020). Therefore, experiential marketing has been shown to be a strategic response because it evolves in line with consumer expectations and makes it possible to develop competitive advantages for brands (Schmitt, 1999). The creation of experiences during the process of consuming a product and/or service responds to the new expectations of individuals looking for the extraordinary and something that is meaningful in their consumption (Roederer & Filser, 2015). Research on VR as experiential stimulus has shown a positive impact on their use, and the fact that VR headsets are not democratised initiates a renewal of the experiential context, as recommended by Roederer and Schwarzberg (2015). The use of these new technologies, which generally appeals to the younger generations, can be a source of a competitive advantage. In addition, Batat (2018) advocated for the development of new experiments through the multisensory technological environment dimension to conduct an effective DCX strategy. This digital

strategy, which includes the implementation of VR, corroborates the current issue the tourist industry is facing with major environmental changes. VR headset appear to be one solution to this industry evolution (Buhalis, 2022); VR headsets can be an element of destination marketing that has the potential for creating an immersive experience (An et al., 2021; Loureiro et al., 2020) without distorting the intentions of real visits (Kim et al., 2020). Specifically, in wine tourism, the VR headset has its place within the wine tourism journey (Garibaldi & Sfodera, 2020). The coupling between the virtual visit and tasting can increase purchase intentions, but this has only been tested in laboratory conditions (Wen & Leung, 2021). The research on experiential marketing, specifically that concentrated on tourism and wine tourism, has focused on the benefits of experiences—or even the value perceived by the consumer (Sigala & Robinson, 2019). The purpose of the current research is to focus on the implementation of VR technology in a company, not to the consumer perception of this technology.

Questions remain about the implementation of VR for a small and medium size company in the wine industry. Thus, this study adopts a qualitative approach to analyse the integration of VR headsets within a whole experience journey of a wine tourist. In the next section, after explaining the methodological approach, the context of our research will be detailed, and then, a discussion on how this wine cooperative integrated VR technology into the wine tourism journey will be initiated.

Investigating the Design and Use of VR in Tourism Experiences

A Case Study Research Approach

A case study is an empirical research strategy that is appropriate for exploring the implicit interactions associated with a phenomenon (Chatelin, 2005). Operationalising this research strategy first requires choosing a relevant case with an interesting and illustrative potential. The research we are conducting is based on an illustrative case (Table 1, p. 7) following the principle of case study suggested by

Table 1 Operationalising the case study method in the Labastide wine cooperative

Population	Selection of the case study	Selecting informants from the case study	Research questions
French wine cooperatives	Labastide wine cooperative	Marketing director Sales manager Quality director Purchasing manager Wine tourism manager Consumers/users	Observation 1.1: development of the idea/(1) the implementation of the VR technology Observation 1.2: implementation/test/(2) the development of the resources used for the VR Observation 1.3: (3) the use of VR by consumers

David (2004). The current study serves to illustrate the theoretical framework mobilised and verify that it is operationalised without demonstrative or general use. The illustrative case is considered by David (2004) to be an instrumental case, that is, '*read through a theory retained a priori*' and whose empirical analysis '*is done in the light of this theory*' but that requires '*to take into account a number of elements of context*' so that the case will not merely be illustrative.

The use of a single case is recommended if any of the following applies (Yin, 2018): the researcher wants to test a theory to confirm, refute or complete it; the researcher identified a rare case that is unique or extreme in nature; and the researcher can, through a single case, reveal a phenomenon that was not yet accessible previously to the scientific community. However, much like Hlady-Rispal (2002, p. 61), the current research considers that the choice of a case can also '*raise from the astonishment of the researcher in view of a given phenomenon*'. In our situation, the redundancy, both in the scientific literature and mass media, of the studies on the wine tourism industry and the increased focus of the private companies and public authorities has sharpened our curiosity and guided our choices. In this context, the debate on the representativeness of the sample is important. The present research does not tend to be statistically representative of the sample, which is often sought in quantitative research. Sample selection was made by looking for a case where the processes we are trying to explain were most marked. Therefore, representativeness is no longer statistical but remains theoretical or analytical (Eisenhardt, 1989; Yin, 2018). The illustrative case study also contributes to a cumulative increase in knowledge by allowing the researcher to resume observations in different cases (Chatelin, 2005) and participate in scientific progress as the first approach to a phenomenon that allows comparability of the results.

Regarding our project with the LWC, the management tool is the use of VR headsets as a new attraction within their wine tourism journey. This tool has been conceptualised in accordance with their own strategy and our theoretical knowledge on the subject. The partnership with the LWC winery started in October 2018, allowing us to adopt a longitudinal approach.

To obtain a better understanding of its customers and develop an appropriate response to its marketing and logistics strategies, the LWC wanted to empowered consumers with new technology since September 2018 (Table 2, p. 7).

Our data collection was formalised through participating observations that punctuated the process of implementing VR within their wine tourism journey. In addition to these observations, one-on-one semi structured interviews with key internal players within the organisation were conducted. By adopting abductive reasoning, the analysis of these interviews allowed us to acquire a more hermeneutic view of our observations.

Table 2 Interdependence between research observations and VR implementation phases

Research observations	Observation 1.1: development of the idea/(1) the implementation of VR technology		Observation 1.2: implementation/test/ (2) the development of the resources used for the VR	Observation 1.3: (3) the use of VR by consumers
Period	October 2018–May 2019	June 2019 – mid November 2019	End of November 2019	December 2019 – (...)
VR implementation phases	Introducing the VR tool and strategic thinking for its integration	Design of the VR headsets attraction: survey of the necessary resources (establishment specifications, 360-degree video design)	Operationalisation of the VR headset attraction and launch at the 'Fête des primeurs'	Making the VR headsets attraction available

The Case Study Context

Challenges and Trends in the Wine and Wine Tourism Sector

According to the first estimates of the OIV, world wine production (excluding juices and musts) for 2020 was between 253.9 and 262.2 million hectolitres (Mio hl), with a midrange of 258 Mio hl. This is the second year in a row that global wine production has remained below average after exceptionally high production in 2018 (OIV, 2020). '*This is not necessarily bad news for the wine sector, given the current context in which geopolitical tensions, climate change and the COVID-19 pandemic are generating a high level of volatility and uncertainty in the global wine market*' (OIV, 2020). In the European Union (EU), vineyards have benefited from good weather conditions, but production is still below average because of volume declines to compensate for the negative impact of the COVID-19 pandemic (OIV, 2020). In France, for example, champagne producers have agreed to reduce the volume of their grape harvests by 22% in 2020 in response to a drop in sales caused by the COVID-19 crisis (Ruitenberg, 2020). However, in the wine sector, production is not the only function of each company that can be impacted.

Wine exports were hit hard by the COVID-19 crisis, by taxes imposed by the United States and by borders all over the world starting to be closed in March 2020. Wine exports fell by 18% between January and August (FranceAgriMer, 2020a, b, c, d). This is the first time since 2008–09 that a sharp decline has occurred in the export of wines, which is traditionally the second-largest contributor to the French trade balance (behind aeronautics).

In France, wine tourism represents an average of ten million tourists staying in vineyards each year. Since 2009, the annual growth rate of wine tourists has been about 4%. Wine-tourists spend an average of 1256 euros per stay, with 240 euros related to the purchase of wines and peripheral expenses. In 2016, Atout France (2018) estimates that the overall expenditure of wine tourists in France is equivalent to 5.2 billion euros. French visitors represent the majority of wine-tourists and international visitors account for 42% of wine tourists, led by Belgians and British, who account for half of foreign tourists followed by Dutch, German and American. Belgians and British account each for 10% of the total number of wine tourists in France. Of all nationalities, the typical wine tourist is a man, in the category of epicureans, aged 45–49 and of high socio-professional category. Apart from Germans and American, international wine tourists do not go through an intermediary to prepare their visits. Internet and word of mouth are their first vectors of information and they are very sensitive to hospitality and friendliness. The distribution of wine tourists in the 17 French vineyards is available in the Table 3 below.

This success can be explained by the desire of tourists to discover the French terroirs constantly improved thanks to the efforts of all the players in the sector. Wine tourism is thus enriched, in addition to visiting the wineries, with wine creation workshops, overnight stays on the vineyard, wine routes, walking and cycling in vineyards and professional internships and conferences for example.

Table 3 Subdivision of wine tourist by vineyard in France

Vineyards	% of wine tourist[a]
Alsace	16,90%
Armagnac	3,80%
Beaujolais	7,60%
Bergerac	3,80%
Bordeaux	18%
Bourgogne	16,20%
Champagne	17,20%
Cognac et pineau des Charentes	4,40%
Corse	2,30%
Jura	2,40%
Languedoc	9,40%
Provence	11,50%
Roussillon	4,50%
Savoie	2,70%
Sud-Ouest	4,60%
Val de Loire	13%
Vallée du Rhône	11,50%

Sources: Visit French Wine (Accessed at http://atout-france.fr/download/4097 (22/03/2021 – 10 am))
[a]Total higher than 100% as a wine tourist may have visited one or more vineyards

The Labastide Wine Cooperative History

The LWC was founded in 1949 under the name '*Cave Coopérative des Coteaux de Gaillac et du Pays Cordais*'. The agricultural services, rural engineering and the bank '*Crédit Agricole du Tarn*' helped administratively and financially start the LWC and wanted to give it a pilot cellar character (Fig. 1). This had concerned not only winemaking, but also the marketing of bottled wines. The first winemaking took place in 1951: 80 co-operators contributed to a production of 13,000 hectolitres. In 1956, an annexe of the first cellar was created in Cunac. By 1959, the production of the winery had increased to 30,000 hectolitres, or two-thirds of '*Appellation d'Origine Contrôlée*' (AOC) production. It was joined successively by two cooperative wineries: the Natural 'Mousseux of Gaillac' in 1968, which was too small to be economically viable, and that of the Cordais Country in 1974, which was facing trouble then. The latter brought a hundred cooperators and a fermenting room of 20,000 hectolitres. In 1988, the winery had 641 members, and its winery had a volume of 167,000 hectolitres. In 2016, there were about 100 cooperators and production of about 60,000 hl.

Wine Tourism at Labastide Wine Cooperative: A Well-Established Experiential Journey

LWC's mission is to bring advantages to its members without excluding the individual winery's needs (quality of life, sustainable and cooperative tool, income, etc.). Therefore, the LWC is intended to provide services, processes and market

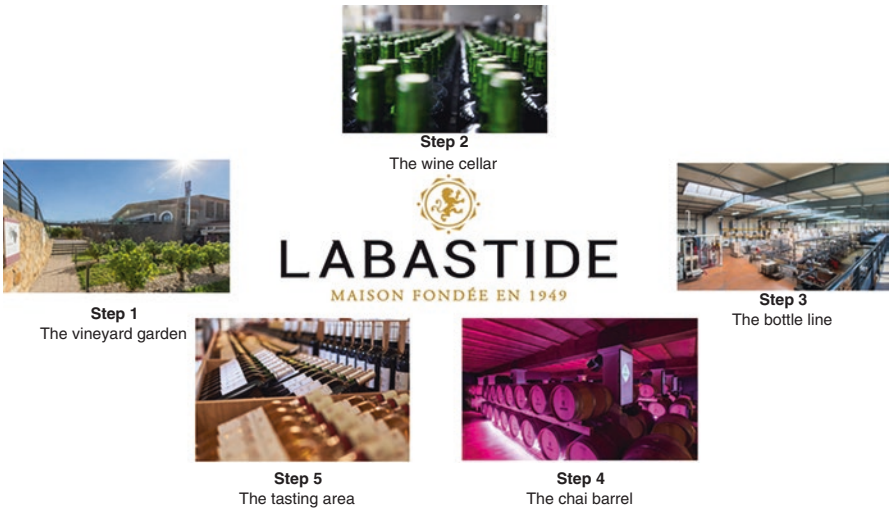

Fig. 1 The 'Parcours de Légende' before the VR area implementation

products from its members' farms to ensure their access to the market. In this specific context, the members bring their entire production to the LWC. Its vocation is to develop wine products, develop their quality image and reputation and sell them as local products. These products are sold directly to consumers or resellers. The LWC also sells its products in bulk as a raw material to professionals who can process and package them to market the products they have developed. Obviously, the first purpose of the LWC is economic. As a commercial structure, it must meet market expectations while ensuring the commercialisation of the entire production of its members. Finally, the LWC contributes to the development of heritage and vineyards through the maintenance of the landscape through the cultivation of vines and a series of partnerships with, for example, the Toulouse-Lautrec Museum, the municipalities of Labastide-de-Lévis or Albi and Cordes-sur-Ciel.

On the social front, the LWC aims to keep the largest number of winemakers professionally engaged on vineyard parcels. They contribute to the strength of the vineyard and the LWC. From the point of view of technologies, the LWC ensures material and human investments to guarantee high-quality, healthy and authentic products, as well as respect for the environment. Since 2015, the LWC has become aware of the importance of wine tourism experiences and, thus, has conceptualised its own wine tourism journey. This wine tourism experience has undergone technological adaptations over the years, culminating in their '*Parcours de Légende*'. By referring to the typology of Pine and Gilmore (1999), which has been adapted to the wine tourism context (Haller et al., 2020, Sigala & Robinson, 2019; Vo Thanh & Kirova, 2018), three types of experiences are offered within the '*Parcours de Légende*' (Table 4, p. 11):

Table 4 Description of the 'Parcours de Légende'

Steps	Description	Types of experiences
The vineyard garden	Discovery of the different grape varieties, as well as pruning techniques	Educational
The wine cellar	Corresponds to a video room offering immersion in the winemaking stage. The objective of this step is to overcome its main weak point: the fact that its own vines are far from the cellar (in connection with the cooperative). Personalisation is carried out according to visitors' expectations and questions	Educational
The bottling line	Visualisation of a real bottling line by a specific layout overlooking the production line	Educational
The chai barrel	Accompaniment to chai, which has been thought to arouse astonishment and an emotional charge. The smells of wood, the layout of the cellars and the creation of a sound and light accompany this stage of learning	Educational Escapist
The tasting area	A tasting of various wines from the cellar is offered, as well as the various explanations of the characteristics of the wine	Aesthetic

Source: Labastide wine cooperative

- Educational, Food-wine pairing experiences; (vertical) wine tasting; winemaking and viticulture experiences.
- Aesthetic, Degustation experiences; wedding tourism.
- Escapist, Relaxation, escapism in the landscape; wine spas.

Analysis and Discussion of the Case Study Findings

The results of the research study are presented and discussed below. The findings are presented first with a response to the strategic problems of the LWC, which is addressed by using VR; then, we explore the three main research questions: the selection and the implementation of the VR technology, the resources' development for VR and the use of VR by consumers.

VR: A DCX Solution to Strategic Issues

As stated above, the LWC has three major strategic aims: renew and retain its clientele, who are composed of a core age group between 50 and 85 years, with more services; attract a younger clientele; and enhance the development of their social and environmental approach: *'Two thirds of our customers in the shop are over 65 years over 15% over 80 years, and there is an urgent need to maintain the age group. Staying with an age group of 50–55 or 60–70 years and attracting young people. This is the case since more and more young people come to the shop, 7% to 8% compared with 1% in 2010. The tour route attracts all generations with technology but for young people, there is nothing exceptional, but it already allows you to lose everyone instead'* (Participant 1). It should be noted that the specificity of the LWC is that the majority of the production areas are relatively distant from the main headquarters. These wineries all have a digital presence via the cooperative's website and via a recent intensification of its presence on social networks.

The development of two distribution channels—one physical via the domain and the other virtual through the internet—implies new management of the customer experience: a digital customer experience (DCX). A DCX includes '*all interactions that an individual is likely to have with a brand/company and across all brand channels, including a specific product such as an application*' (Batat, 2018, p. 17). Considering all the interactions as complementary and nonalternative implies that three dimensions must be taken into account: (1) the customer, who has special knowledge, can develop a memorable customer experience; (2) the brand must be able to value the salient features of its positioning (values, history, know-how, etc.); and (3) a multisensory technological environment must provide an intense and continuous experience (Batat, 2018). Therefore, whatever interactions the customer may have with a technological tool, product or platform, it must be a part of a coherent package in line with the company's strategic objectives. To implement new

elements in this DCX, these three dimensions—customer experience, brand value and multisensory technological environment—must be integrated into this strategic thinking to respond to the strategic problems of the LWC.

Selection and Implementation of the VR Technology

The choice of 360-degree videos viewed through VR headsets addresses all the problems of the organisation: '*Using VR is necessary to attract more consumers, more customers. Also, there is not really competition at that level because there are not many people who are useful near us. If, in the media, they relate to the fact that we use new technologies (VR) to improve the customer's visit it will be very beneficial and rewarding'* (Participant 2). The technology behind VR headsets is not new, but it has seen a real media craze only in recent years with the release of new headsets of different quality and price ranges, allowing greater accessibility to consumers (Bédé & Maumon, 2016). Two concepts are inherent in this technology: immersion and telepresence. Fuchs (2006, p. 331) defined immersion as '*the set of objective characteristics of a virtual environment that aim to give a user sensory stimulation and action opportunities in this virtual* environment'. In addition, telepresence consists of an '*experience of a presence in an environment through a medium of communication*' (Steuer, 1992, p. 76). Recent research has indicated that VR headsets reinforce the perception of immersion and, ultimately, telepresence by having a positive impact on entertainment perception and consumer intent (An et al., 2021; Grewal et al., 2020; Kim et al., 2020; Loureiro et al., 2020; Tussyadiah et al., 2018).

Resource Development for VR

To operationalise this new VR experience—viewing 360-degree videos via VR headsets—several resources were required (Fig. 2): VR headsets, ancillary and necessary resources (audio headsets, consumables) and videos. After conducting a comparative analysis of the different types of VR headsets, the choice was made to use the '*HTC Vive Focus*', which differs in its highly technical capacity and portability. This choice is in line with Flavián et al.'s (2019, 2021) recommendations that this technology is more effective from an immersive point of view. In terms of ancillary resources, the purchase of additional equipment, such as SD cards and headphones, must be made to optimise the immersion of the participants. In addition, hygiene elements such as disposable masks, for example, must be made as well. Thus, these purchases were made in October 2019, totalling 2163.73 euros. Regarding the production of the videos, a contract was signed with an audio-visual school for the production of two 360-degree videos, which would be made during

Fig. 2 The 'Parcours de Légende' with the VR area

the harvest period, for the amount of 2517.50 euros. The total budget for the implementation of this new experiential context was 4681.23 euros.

Each video has its own storytelling in line with the positioning of the LWC, which is in accordance with the recommendations of the DCX. One video highlights a cooperator specialising in an environmental approach called 'ecological value', while the other calls for a more traditional cooperator to support a specific authentic axis of Gaillac winemaking traditions.

In short, the resources needed to create a new stage of the wine tourism journey—an experiential context—seem to be relatively organisationally and financially accessible, even to SMEs. Nevertheless, VR development requires knowledge and skills, particularly to ensure that the dimensions of the DCX are respected. As part of the implementation of this technological tool, the following were considered: (1) this technology has not democratised among the public and that these characteristics reinforce the sense of telepresence (Flavián et al., 2021; Kim et al., 2020; Loureiro et al., 2020) and are consistent with the technological uses of the goal of having a memorable experience; (2) the storytelling of the 360-degree videos are consistent with the image of the cooperative and its producers, enhancing the salient features of the LWC positioning on the market; and (3) the choice of quality technological tools and the installation in an adequate room to optimise the proposal of an intense and continuous experience.

Use of VR

During the strategic thinking phase, concerns emerged among the LWC team about financial misgivings and the use of VR headsets: '*Above all, the cost of the equipment is very expensive, we can talk about several thousand euros'* (Participant 3). *'In stores we have two helmets, the problem being, how to use them wisely? How to implement them in the tourist circuit? Because it raises the problem of performance; two helmets are not enough, watch a 5-minute video per person and then clean it constantly because of the current health situation'* (Participant 2). With this technology being new, this is conducive to the emergence of social representations as advocated by in the sense of Jodelet (2003): i.e. managers have a priori disconnected from reality due to their lack of knowledge on the subject. At first, the nonexperts, here LWC managers, thought that this technology was not intended for them because they felt that the material and financial resources were substantial.

Throughout a participating observational work, the challenge was to accompany the LWC managers to remedy these misrepresentations by informing them about the plurality of existing products, choosing material resources in line with their DCX and demonstrating that the cost was affordable. Once this milestone had been reached, the reflection of the means of operationalisation and its implementation was quickly conceptualised. It should be noted that the implementation of a new stage in the wine tourism journey requires the coherence of the DCX. This point must be explicit to optimise this strategy as best as possible. However, this element is not necessarily visible to the actors of the organisation. The renewal of the experiential context generates new activities that, in the wine industry, are close to a Blue Ocean strategy, as indicated by Priilaid et al. (2020). As such, the emergence of specific skills is vital and raises questions about the outsourcing or internationalisation of these activities from the perspective of optimising the sources that can give a competitive advantage.

One of the strengths of VR is its innovation in terms of the experiential uses it brings to consumers. This innovation generates an extraordinary effect that brings an immersive effect and telepresence (An et al., 2021; Flavián et al., 2021; Loureiro et al., 2020) corroborated by the wine tourism customer observations of LWC. Nevertheless, the use of this new technology requires consumer support throughout the experience. The start-up of the experiment involved a protocol and the ease of using the technology. This experience must be viewed as a directed production which, according to Dujarier (2014), consists of the outsourcing by the company of simplified tasks partly automated and taken care of by the consumer, which is not consistent with the recommendations of the DCX.

The possibility of considering the use of VR in directed self-production is likely to be enhanced by COVID-19, particularly in relation to social distancing: '*In addition, modern sanitary conditions have imposed on us the restriction of the entry of people from outside the services in the places of wine making. New technologies (cameras, VR) are very useful. This allows you to see what is behind the walls. But the number of headphones is very limited, the technology does not adapt to everyone, as not everyone adapts to the technology'* (Participant 4). It is important to keep

in mind that for a pleasant experience, a certain level of consumer skill is needed (Cova et al., 2013).

The consequences of COVID-19, including the travel restrictions and bans (Buhalis, 2022), have forced tourism companies to virtualise and deliver tourism experiences in new technology-based ways. The main problem with the VR experience is the lack of wine tasting '*Materially, VR does not allow the customer to develop all his senses. Only two are used more or less, sight and hearing'* (GL). The same problems regarding wine sales via the internet exist (Stenger, 2006). Since wine is considered an experienced good (Gallen & Cases, 2007), that is, all of its characteristics are assessed when consuming it, organisational solutions will have to be found to meet this need for tasting. The absence of tasting during distance selling reinforces the two dimensions of a perceived risk of food consumption: psychological risk, that is, the mismatch between the product and consumer's self-image, and the risk of performance, that is, the fear of a mismatch between taste expectations and actual tasting (Gallen & Cases, 2007).

Conclusions, Limitations and Ideas for Future Research

Understanding the impact of VR in wine tourism is pertinent because the wine industry is facing competition and pressure. VR is a next-generation tool that can further develop wine tourism. Understanding the implementation process of VR in the wine tourism industry is a considerable research program, in which our research has provided interesting insights about the planning and implementation of VR technology by a wine cooperative to enrich and upgrade wine tourism experiences.

Overall, VR allows for the integration of a new satisfying experience within the journey of the LWC. This tool appears to be a way to renew the experiential context, bringing a new way to experience wine tourism. The immersion and telepresence effect gives consumers an extraordinary feeling that corresponds to an entertainment experience. Thus, in line with the results of Vo Thanh and Kirova (2018), this type of experience is one of the most popular among the consumers of wine tourism. Nevertheless, to optimise its long-term effectiveness, the implementation of this tool must be thought of in accordance with the three dimensions of Batat (2018).

Regarding the implementation of VR, our research has also highlighted the lack of knowledge and technological VR equipment within the wine tourism industry. The VR headset market is struggling to expand in this industry for two main reasons: the lack of knowledge about its use and misperceptions. Therefore, the adoption of this technology seems to be conditional on better knowledge and use of the technology and wineries need to be trained and encouraged to adopt it. However, despite a low rate of equipment, the implementation of VR is viewed positively by the wine cooperative, mainly because consumers associate it with a positive perception. Hence, it is conceivable that wineries will equip their structure with this technology so, that the consumer experience will suffer less from the phenomenon of wear and tear (Roederer & Schwarzberg, 2015).

Although VR is useful for developing wine tourism, it is not a panacea. VR headsets allow a virtual transfer and take consumers to the place of production (e.g., in vineyards), reinforcing the immersive nature of the visit. Nevertheless, VR must be used in a reasonable manner. In fact, VR could potentially lower the positive nature of the experiment if it is used as a total alternative to the visit as a way to overcome the constraints associated with the requirement for social distancing because of COVID-19. Consumers must be able to imagine that they can carry out the face-to-face visit, which can offset the main obstacle in using VR: the lack of tasting. This tasting is considered either as an apprenticeship or an introduction (Lo Monaco & Guimelli, 2008; Amine & Lacoeuilhe, 2007). VR cannot directly offer this experience. However, it is quite simple to imagine a solution to this problem. Wen and Leung (2021) demonstrated the positive influence of the virtual wine tourism journey with tasting on purchase intention but not in real conditions. The delivery of samples or bottles of wine prior to the VR experience would allow for the tasting phase to be integrated into the experiment. Thus, VR content could be enriched by the dissemination of educational content on wine tasting, learning about the production methods or even the history of the vineyard, hence strengthening the consumption experience.

From a managerial standpoint, the community aspects seem to be weakly exploited by the wine industry. However, this an expectation of today's consumers (Lorrey & Albouy, 2015). The development of community aspects would give producers the opportunity to benefit from greater visibility and awareness.

The results reported in the current research should be considered as preliminary findings to be strengthened in the near future. As a research agenda, an understanding of the VR impact on the consumer's wine purchasing intent should be developed within a real wine tourism experience to reinforce the adoption of this technology by the wine tourism industry. In parallel, an exploration of the variables found in the wine tourism, here applied to VR, that can generate a positive impact on wine tourism consumers should be realised. This exploration would determine the most appropriate VR content to produce and diffuse to users based on their generational and cultural criteria. An understanding of the impact of VR on the wine tourism market would be useful to create innovative products and services to improve customer satisfaction and long-term loyalty.

References

Amine, A., & Lacœuilhe, J. (2007, May 31–June 1). *Les pratiques de consommation du vin: Rôle des représentations et des situations de consommation* (Paper presentation). Actes Du XXIIIème Congrès International de l'AFM, Aix-les-Bains, France. https://www.afm-marketing.org/fr/system/files/publications/s25_lacoeuihe39_5.pdf. Accessed 8 Sept 2020.

An, S., Choi, Y., & Lee, C.-K. (2021). Virtual travel experience and destination marketing: Effects of sense and information quality on flow and visit intention. *Journal of Destination Marketing & Management, 19*, 1–10.

Atout France. (2018). *Les chiffres de l'œnotourisme en France*. 1 p. https://www.dropbox.com/s/5vk86ftkeaxy8se/Wine_Tourims_in_France_Numbers.pdf?dl=0. Accessed 8 Sept 2020.

Batat, W. (2018). *Concevoir et améliorer l'expérience client digitale: Le Triangle de l'Expérience Digitale pour réussir la transformation digitale. Le Blue Sunflower Marketing pour innover efficacement. L'approche Physical 2030 pour performer*. Editions Eyrolles. https://www.eyrolles.com/Entreprise/Livre/concevoir-et-ameliorer-l-experience-client-digitale-9782212566802/. Accessed 8 Sept 2020.

Bédé, D., & Maumon, N. (2016, October 24–28). *Virtual reality and wine industry, a double oxymoron?* (Paper presentation). 39th World Congress of Vine and Wine, Bento Gonçalves, Brazil.

Bédé, D., Massa, C., & Maumon, N. (2019, May 23–24). *La réalité virtuelle au service de l'expérience de consommation oenotouristique* (Paper presentation). 6ème conférence de l'Association Francophone de Management du Tourisme, Perpignan, France.

Boyd, D. E., & Koles, B. (2019). An introduction to the special issue "virtual reality in marketing": Definition, theory and practice. *Journal of Business Research, 100*, 441–444.

Buhalis, D. (2022). Tourism management and Marketing in Transformation: Preface. In D. Buhalis (Ed.), *Encyclopedia of tourism management and marketing*. Edward Elgar Publishing.

Chatelin, C. (2005). *Epistémologie et méthodologie en Sciences de gestion: Réflexion sur l'étude de cas*. 2005-1, 3–29. https://www.researchgate.net/profile/Celine_Chatelin/publication/239808140_Epistemologie_et_Methodologie_en_Sciences_de_Gestion_reflexion_sur_l'etude_de_cas/links/5440edf50cf228087b69a17f/Epistemologie-et-Methodologie-en-Sciences-de-Gestion-reflexion-sur-letude-de-cas.pdf. Accessed 8 Sept 2020.

Cho, M., Bonn, M. A., & Brymer, R. A. (2017). A constraint-based approach to wine tourism market segmentation. *Journal of Hospitality & Tourism Research, 41*(4), 415–444.

Cova, B., Ezan, P., & Fuschillo, G. (2013). Zoom sur l'autoproduction du consommateur. *Revue Française de Gestion, 5*(5), 115–133.

David, A. (2004). *Etudes de cas et généralisation scientifique en sciences de gestion* (Vol. 39, pp. 139–166). Université Paris-Dauphine.

Dujarier, M. (2014). *Le travail du consommateur: De Mac Do à eBay: comment nous coproduisons ce que nous achetons*. La Découverte.

Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review, 14*(4), 532–550.

Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. *Journal of Business Research, 100*, 547–560.

Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2021). The influence of scent on virtual reality experiences: The role of aroma-content congruence. *Journal of Business Research, 123*, 289–301.

FranceAgriMer. (2020a). *Conjoncture de la filière vin - avril 2020*. https://www.franceagrimer.fr/fam/content/download/64123/document/NCO-VIN-note%20de%20conjoncture-A20M01.pdf?version=1. Accessed 8 Sept 2020.

FranceAgriMer. (2020b). *Conjoncture de la filière vin – juin 2020*. https://www.franceagrimer.fr/fam/content/download/64555/document/NCO-VIN-note%20de%20conjoncture-A20M06.pdf?version=1. Accessed 8 Sept 2020.

FranceAgriMer. (2020c). *Conjoncture de la filière vin – juillet 2020*. https://www.franceagrimer.fr/fam/content/download/64768/document/NCO-VIN-note%20de%20conjoncture-A20M07.pdf?version=2. Accessed 8 Sept 2020.

FranceAgriMer. (2020d). *Conjoncture de la filière vin – octobre 2020*. https://www.franceagrimer.fr/fam/content/download/64768/document/NCO-VIN-note%20de%20conjoncture-A20M07.pdf?version=2. Accessed 8 Sept 2020.

Fuchs, P. (2006). *Le traité de la réalité virtuelle* (Vol. 2). Presses de l'Ecole des Mines. https://www.pressesdesmines.com/produit/le-traite-de-la-realite-virtuelle-volume-2-l-interfacage-l-immersion-et-l-interaction-en-environnement-virtuel/. Accessed 8 Sept 2020

Gallen, C., & Cases, A. (2007). Le rôle du risque perçu et de l'expérience dans l'achat de vin en ligne. *Décisions Marketing, 45*, 59–74.

Garibaldi, R., & Sfodera, F. (2020). Technologies for enhancing wine tourism experience. In S. K. Dixit (Ed.), *The routledge handbook of tourism experience management and marketing* (p. 652). Routledge.

Gómez, M., Pratt, M. A., & Molina, A. (2019). Wine tourism research: A systematic review of 20 vintages from 1995 to 2014. *Current Issues in Tourism, 22*(18), 2211–2249.

Grewal, D., Noble, S. M., Roggeveen, A. L., & Nordfalt, J. (2020). The future of in-store technology. *Journal of the Academy of Marketing Science, 48*(1), 96–113.

Haller, C., Hess-Misslin, I., & Mereaux, J.-P. (2020). Aesthetics and conviviality as key factors in a successful wine tourism experience. *International Journal of Wine Business Research, 33*(2), 176–196.

Hlady Rispal, M. (2002). *La méthode des cas. Application à la recherche en gestion*. De Boeck Supérieur.

Jodelet, D. (2003). 1. Représentations sociales: Un domaine en expansion. In D. Jodelet (Ed.), *Les représentations sociales* (7th ed., p. 45). Presses Universitaires de France.

Karagiannis, D., & Metaxas, T. (2019). Innovation in Wine tourism businesses: 'Turning Ashes to Gold'. In M. Sigala & R. N. S. Robinson (Eds.), *Management and marketing of wine tourism business* (pp. 345–363). Springer.

Kim, M. J., Lee, C.-K., & Preis, M. W. (2020). The impact of innovation and gratification on authentic experience, subjective well-being, and behavioral intention in tourism virtual reality: The moderating role of technology readiness. *Telematics and Informatics, 49*, 1–16. https://doi.org/10.1016/j.tele.2020.101349

Lee, H., Jung, T. H., tom Dieck, M. C., & Chung, N. (2020). Experiencing immersive virtual reality in museums. *Information & Management, 57*(5), 1–9.

Lo Monaco, G., & Guimelli, C. (2008). Représentations sociales, pratique de consommation et niveau de connaissance: Le cas du vin. *Les cahiers internationaux de psychologie sociale, Numéro, 78*(2), 35.

Lorrey, T., & Albouy, J. (2015). Perspective générationnelle de la consommation de vin en France: Une opportunité pour la segmentation. *Décisions Marketing, 79*, 93–112.

Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on virtual reality and augmented reality in tourism context: A text-mining approach. *Tourism Management, 77*, 1–21.

Martínez-Navarro, J., Bigné, E., Guixeres, J., Alcañiz, M., & Torrecilla, C. (2019). The influence of virtual reality in e-commerce. *Journal of Business Research, 100*, 475–482.

OIV. (2020). *The first estimates of 2020 world wine production. Wine production speaking from the International Organisation of Vine and Wine's headquarters in Paris, by web conference and press release, Director General Pau Roca, presented on 27 October*. http://www.oiv.int/js/lib/pdfjs/web/viewer.html?file=/public/medias/7542/en-oiv-oiv-press-conference-october-2020-press-release.pdf. Accessed 8 Sept 2020.

Pine, B. J., & Gilmore, J. H. (1999). *The experience economy: Work is theatre & every business a stage*. Harvard Business School Press.

Priilaid, D., Ballantyne, R., & Packer, J. (2020). A "blue ocean" strategy for developing visitor wine experiences: Unlocking value in the Cape region tourism market. *Journal of Hospitality and Tourism Management, 43*, 91–99.

Roederer, C., & Filser, M. (2015). *Le marketing expérientiel: Vers un marketing de la cocréation*. http://sbiproxy.uqac.ca/login?url=https://international.scholarvox.com/book/88830591. Accessed 8 Sept 2020.

Roederer, C., & Schwarzberg, M. (2015). Cycle de vie d'un contexte expérientiel: Une approche exploratoire du parcours artistique du tramway de Strasbourg. *Décisions Marketing, 78*, 79–94.

Ruitenberg, R. (2020). *French wine volumes to recover after record-early grape harvest.* https://www.bloomberg.com/news/articles/2020-09-08/french-wine-volumes-to-recover-after-record-early-grape-harvest. Accessed 8 Sept 2020.

Sánchez, A. D., de la Cruz Del Río Rama, M., & García, J. Á. (2017). Bibliometric analysis of publications on wine tourism in the databases Scopus and WoS. *European Research on Management and Business Economics, 23*(1), 8–15.

Santos, V., Ramos, P., Sousa, B., & Valeri, M. (2021). Towards a framework for the global wine tourism system. *Journal of Organizational Change Management, 35*(2), 348–360.
Schmitt, B. (1999). Experiential marketing. *Journal of Marketing Management, 15*(1–3), 53–67.
Sigala, M., & Robinson, R. N. S. (2019). Introduction: The evolution of wine tourism business management. In M. Sigala & R. N. S. Robinson (Eds.), *Management and marketing of wine tourism business: Theory, practice, and cases* (pp. 1–21). Springer.
Stenger, T. (2006). La prescription dans le commerce en ligne: proposition d'un cadre conceptuel issu de la vente de vin par Internet. *Revue Française du Marketing, 209*, 71–85.
Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of Communication, 42*(4), 73–93.
Tussyadiah, I. P., Wang, D., Jung, T. H., & tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism Management, 66*, 140–154.
Vo Thanh, T., & Kirova, V. (2018). Wine tourism experience: A netnography study. *Journal of Business Research, 83*, 30–37.
Wen, H., & Leung, X. Y. (2021). Virtual wine tours and wine tasting: The influence of offline and online embodiment integration on wine purchase decisions. *Tourism Management, 83*, 104250.
Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE.

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Riverland on the Verge: Promoting International Wine Tourism Through Virtual Reality in Riverland, South Australia

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Abstract Wine tourism is a fast-growing industry that can be particularly important to the development and sustainability of rural areas such as the Riverland wine region in South Australia. Capitalising on this growth can be quite difficult as wine regions struggle to differentiate themselves, and attract tourists due to the lack of consumer awareness of the region and inherent feelings of uncertainty and risks faced when selecting and paying for a destination before pre-experiencing it. Successful promotion of a wine region should enhance tourist knowledge of the region, mitigate perceptions of risk, improve attitudes towards the region and increase involvement. To tackle this challenge and promote international tourism, a Riverland wine region virtual reality experience was created that simulates the reality of the tourism destination and its attractions in order to enable potential tourists to pre-taste and learn about a destination before committing to visit. Virtual reality is proposed to provide a new approach to wine tourism destination marketing.

Keywords Virtual reality · Marketing · Experiences · International · Wine tourism · Riverland · South Australia

Introduction

Wine tourism is growing quickly (Mitchell et al., 2000; Thanh & Kirova, 2018), with wine being one of the top five drivers of destination choice in Australia (Tourism Research Australia, 2020). In 2018-2019, 8.4 million tourists (12% international tourists) visited a winery during their stay (an average of 7 nights) in Australia throughout which they spent $9.6 billion (Wine Australia, 2020). Wine tourism is especially important for the development and sustainability of rural areas

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as it contributes to corporate investments, growth of local businesses (through direct spending by tourists), and generation of employment (Alebaki & Iakovidou, 2011; Hall et al., 2000). While the importance of wine tourism is clear, promoting a wine region and motivating tourists to visit can be difficult. Tourists face a multitude of constraints that can significantly impact their decision to visit (Gilbert & Hudson, 2000). It has been argued that constraints are likely to be more important than travel motivation factors when choosing a destination and can negatively impact quality of travel (Gilbert & Hudson, 2000; Li et al., 2011). Hence, an understanding of both these constraints (such as distance from home and lack of information (Hung & Petrick, 2010)) as well as travel motivators (such as wine tasting of particular grape varieties (Sparks, 2007)), can be imperative when attempting to promote a tourist destination such as the Riverland wine region.

In an attempt to promote a wine tourism region, motivate tourists to visit and alleviate perceived constraints, local and national tourism marketing organisations collaborate with a multitude of partners (Telfer, 2001). This was indeed the case for the Riverland wine region where partners including The University of Adelaide, Riverland Wine Industry Development Council Inc., the Department of Primary Industries and Regions (PIRSA), and 57 Films collaborated in a project funded by Wine Australia aimed at promoting the wine region. The Riverland wine region is the perfect example of a wine region with beautiful and unique winescape that embodies the constraints of accessibility and distance (258 km from the closest city of Adelaide), stress and anxiety related to higher uncertainty of visiting, low level of awareness (resulting in lower involvement) and English language barriers (considering that the region is rural hence may not provide needed services). These constraints would need to be addressed in order to motivate tourists to visit the region.

To tackle this challenge, a virtual reality experience was created (focusing on attracting international tourists -particularly from China and the USA) that mimics the reality of the tourism destination and attractions offered. By mimicking the reality of the destination and allowing users to immerse themselves in the experience, the VR experience increases awareness of the region while allowing users to 'try before buying', hence lowering feelings of stress and anxiety of visiting the region by removing feelings of uncertainty (Lee & Oh, 2007; Martins et al., 2017). This makes VR the perfect option to promote the Riverland Wine Region and represents a new approach to wine tourism destination marketing.

Literature Review

Wine Tourism Motivations and Constraints

Leisure travel constraints have been classified into 'intrapersonal' (relating to psychological conditions of an individual such as stress, anxiety and perceived self-skill – especially related to English language barriers), 'structural' constraints

(accessibility issues, security issues, insufficient time and money) and constraints associated with 'unfamiliar culture' (Chen et al., 2013; Fredman & Heberlein, 2005; Lai et al., 2013; Nyaupane & Andereck, 2008; Shores et al., 2007). Among these constraints, distance from home, lack of information, low involvement, insufficient time and money have been listed as primary (Hung & Petrick, 2010; Kim & Chalip, 2004). Specifically in wine tourism, Cho et al. (2017) identified lack of interest, knowledge and information (within intrapersonal constraints); accessibility issues, insufficient time and money (within structural constraints); and lack of family programs (as a destination level constraint) as the major wine demand constraints. Sigala (2019) expanded on wine tourism constraints research by focusing on factors influencing families with children (such as wine tourism experience designed for families with children and intrapersonal constraints such as lack of information about activities for children). Adding to the destination level constraints, Bonn et al. (2016) accentuated the importance of the lack of emotional attachment with the destination, lack of diverse attractions, tourism infrastructure and wine-specific attractions.

If these constraints were to be removed or mitigated, a destination would become much more attractive to visit (Chen et al., 2013).

When considering tourists' motivation to travel to a wine region, wine tasting of particular grape varieties was identified as the key travel motivator (Sparks, 2007). Other factors such as relaxation, wine involvement, socialization, a desire for self-development, meeting the wine maker, learning about wine, novelty and overall experiencing a hedonic experience were also found to be important in motivating tourists to travel to a wine region (Alant & Bruwer, 2004; Brown et al., 2007; Carmichael, 2005; Getz & Brown, 2006; Marzo-Navarro & Pedraja-Iglesias, 2009; Sparks et al., 2005). Moreover, scenery, surrounding destination and winescape have been argued to incentivise wine region visitation (Carlsen & Boksberger, 2015; Getz, 1998; Hall et al., 2000; Sparks et al., 2005). Winescape is defined as attributes of the wine region, and is characterised by the winemaking activity, presence of vineyards, and the wineries where wine is produced (Telfer, 2001).

Advertising that tackles the factors that motivate visitation, by incorporating elements of novelty, winescape, showcasing the surrounding destination and landscape, and conveying the feeling of a relaxing hedonistic experience, should help promote visitation effectively (Sparks, 2007). Emphasising what makes a wine region unique and the distinctive wine tasting opportunities should further 'pull' tourists to the region (Sparks, 2007). These are all very important characteristics to consider when deciding what elements to include in the promotion of a wine region.

Virtual Reality is an impactful tourism marketing tool as it allows potential tourists to 'sample' a destination before committing to visiting, hence conveying what the region has to offer (by addressing factors that serve to motivate destination selection) whilst alleviating intrapersonal constraints (Huang et al., 2016; Williams, 2006). This ability to provide sensory information to potential users is particularly important in the tourism sector as it mostly consists of products/services that can't be tested in advance (hence intrapersonal constraints such as level of uncertainty

and perceptions of risk are higher) and selection would need to depend on external cues such as descriptive information (Gratzer et al., 2004; Liu, 2005).

Virtual Reality

Eliciting an emotional reaction contributes to the memorability of a tourism experience (Martins et al., 2017; Slåtten et al., 2009) as well as allows for the tourist to become fully involved in the existing surroundings. Virtual reality experiences can be utilised to increase involvement and illicit emotions for the purpose of impacting the development of wine tourism and wine sales (Martins et al., 2017). Virtual reality (VR) is defined as a "set of technologies that enable people to immersively experience a world beyond reality" (Berg & Vance, 2017, p. 1). A VR experience can be characterized by its ability to offer both immersion and presence (Gutierrez et al., 2008). Immersion can be defined as the extent of isolation of a VR user from the real world, where 'fully immersed' implies that the user is completely encompassed by the virtual environment (Gutierrez et al., 2008). Presence refers to "*the sense of being in the virtual environment rather than the place in which the participant's body is actually located"* (Sanchez-Vives & Slater, 2005, p. 333). The level of perceived immersion can impact a user's perceptions of presence (Baños et al., 2004) which in turn increases the effectiveness of a virtual reality application in promoting a touristic destination. While perceptions of presence can vary from person to person depending on the user's psychology, they are without a doubt impacted by the quality (resolution) of the VR experience (Dinh et al., 1999; Gutierrez et al., 2008). Multisensory engagement is also an important factor in achieving a high level of presence in virtual environments (Deneve & Pouget, 2004; Ernst & Bülthoff, 2004), where the more senses are engaged, the higher the perceptions of immersion in the experience and the higher the level of presence (Feng et al., 2016).

VR and (Wine) Tourism Marketing

The potential implementation of VR in tourism, hospitality management and marketing has long been discussed in the marketing and tourism literature (Guttentag, 2010; Huang et al., 2016; Tussyadiah et al., 2018). The experiential nature of VR allows for an expansion of the richness of data provided hence contributing to managing expectations of potential tourists, better informed decisions, and a more satisfactory vacation overall (Buhalis & Law, 2008; Cheong, 1995). Lee and Oh (2007) found that providing a virtual tour of a hotel soothed travel anxiety. Apart from alleviating intrapersonal constraints (feelings of anxiety, stress, uncertainty), a VR experience can also mitigate structural constraints such as offering the opportunity to provide accessible tourism to everyone (Guttentag, 2010). Other benefits to

potential tourists include the facilitation of immersive, entertaining and social experiences allowing them to experience the unique offering of the region (Castro et al., 2018; Jung et al., 2018). The adoption of VR offers benefits not only to potential tourists, but also tourism destinations and businesses. These benefits include preservation of heritage sites (Guttentag, 2010) and increase of revenue generation by facilitating marketing and promotions, as well as sales and distribution (Gibson & O'Rawe, 2018; Radde, 2017). Wan et al. (2007) examined the role of virtual experiences in the context of natural parks and theme parks, identifying that VR was more effective in advertising as compared to brochures. Hence, VR could be a more effective tool to portray all the elements that motivate a wine destination selection (such as winescape and scenery). While a VR experience can serve as a substitute to visiting the destination in certain conditions (destination is not open to the public or not accessible to certain individuals) (Guttentag, 2010), VR applications are only capable of satisfying the desire to escape one's daily routine (mental rather than physical escape), engage in social interaction or find excitement or novelty (as some users may view the VR system itself as a novelty) to a limited degree (Stangl & Weismayer, 2008; Wall & Mathieson, 2006).

VR is already being used to promote destinations and attract tourists (Cho et al., 2002; Wan et al., 2007). Brancott estate in New Zealand, in collaboration with Found Studio, created a VR experience titled 'The Red Shed'. The experience attempted to increase feelings of immersion by appealing to multiple senses via the incorporation of scented sprays and wind machines. Users could conduct a virtual tour of the Brancott wine cellar and vineyards. The pop-up exhibit, titled the Red Shed, toured multiple festivals in UK during the summer of 2016 (Campaign Live, 2016).

Other wineries utilising VR for promotion include Bodegas Ramón Bilbao, in Spain. The latter created a Virtual Reality experience leading them to win the 'Best of Wine Tourism' award for Innovative Wine Tourism from the Great Wine Capitals Global Network (Great Wine Capitals, 2020). The experience captured the history of the winery and the process of winemaking (described by an expert in viticulture). It also portrayed the artistic tasting room followed by wine and food pairing. In Australia, the Seppeltsfield wine estate in the Barossa Valley created a VR experience featuring the vineyard and its wines (Seppeltsfield, 2020).

Wine tourists tend to be engulfed by the holistic tourism experience generated by the interactions between tourists, winery workers and physical elements of the wineries themselves (Fernandes & Cruz, 2016). Hence, understanding whether these elements would also influence perceptions of a virtual reality experience is important to delivering an impactful Riverland VR experience. Understanding key drivers of Riverland tourism as well as elements tourists would like to see in the VR, will lead to the creation of a Riverland Virtual Reality experience that can influence viewers' decision to visit Riverland.

Riverland: The Wine (Tourism) Industry and Region

The Riverland wine region is the home of 1000 wine grape growers with more than 21,000 hectares under vine, and is responsible for a third of the national crush (producing over 450,000 tonnes of wine grapes and 320 million litres of wine a year), making it the largest wine growing region in Australia (Riverland Wine, 2020). Its importance goes beyond this contribution to the scale of production. The region contributes to the export value, innovative viticultural practices and diversity of the Australian wine industry. Having more than a dozen cellar doors in the region, combined with several other producers such as distilleries, food producers and breweries, the region provides a diverse wine and food trail. The warm climate, and rich natural setting produce full-flavoured wines with a focus on sustainable winemaking practices. The region has a unique character within the Australian wine story and focuses on not only scaled farming but also 'premiumisation' of its wines (Riverland wine, 2020). Located between the bends of Murray River and the edge of the Great Australian Outback, only 2–3 h from Adelaide, the region has a unique location, stunning natural beauty, hot and continental climate, diverse wildlife, unique accommodation options (such as houseboats and glamping), outdoor activities (water sports, hiking, fishing etc.) and a long history of food and wine production, making it a perfect tourism destination (Riverland Wine, 2020). However, the region is not broadly recognized (level of awareness is not the same when compared to regions such as Barossa or McLaren Vale) or perceived as a region which produces premium food or wines. These perceptions have negatively influenced tourism (PIRSA, 2020).

Focused on the domestic market, in 2019 the region attracted 9000 international overnight visitors, representing significantly lower numbers when compared to other renowned Australian wine regions (Yarra Valley wineries attracted 191,000 international tourists while neighbouring regions like Barossa Valley and Adelaide Hills attracted 55,000 and 56,000 international visitors respectively) (SATC, 2019; Wine Australia, 2020). Only 2% of Riverland visitors were international, out of which 30% travelled for business rather than tourism reasons (SATC, 2019). Key international tourism markets (not including sales and export) include New Zealand (17%), United Kingdom (17%) and USA (13%) (SATC, 2019). While China is a major wine sales market, it is not a significant tourism market. Although the region can address key travel motivators (by offering a relaxing hedonistic experience, beautiful scenery and unique winescape), travel constraints such as low level of awareness (resulting in lower involvement), accessibility and distance (258 km from the closest capital city of Adelaide), stress and anxiety related to higher uncertainty of visiting, and English language barriers for Chinese tourists (considering that the region is rural hence may not provide needed services) influence destination selection.

"Riverland on the Verge": The VR Project

The Scope of the Project

The "Riverland on the Verge" project aimed to promote international tourism (particularly focused on the USA and China due to being key Australian wine export markets) and consequently wine sales via the creation and distribution of a virtual reality experience of the Riverland wine region that accentuates the region's unique offering and addresses the constraints. The project, funded by Wine Australia, started in 2018 and included partners such as The University of Adelaide (in charge of conducting the research needed to inform what to include in the Riverland VR experience in order to increase its effectiveness), Riverland Wine Industry Development Council Inc. (in charge of the distribution of the VR experience together with PIRSA), the Department of Primary Industries and Regions (PIRSA), and 57 Films (in charge of creating the VR experience). While key motivation factors that influence destination selection of a wine region have been discussed, it is important to go one step further and explore the key motivators of the Chinese and American's tourists.

USA and Chinese Tourists

Research indicates that for travellers from the USA (one of the two target markets for the 'Riverland on the Verge' project), safety and security are the most important factors when choosing a holiday destination, followed by nature and wildlife; good food, wine, local cuisine and produce; value for money; local hospitality; rich history and heritage; world class coastline; beaches and marine wildlife; family friendliness; a range of quality accommodation options, and finally cleanliness and good infrastructure (SATC, 2017).

SATC (2017) research in China (second target market for the 'Riverland on the Verge' project) shows that world class natural beauty and wildlife are the strongest drivers when selecting a destination, followed by a safe and secure environment; quality food and wine; coastline, beaches and marine wildlife; romantic destinations; rich history and heritage; value for money; family friendly environment; hospitality and world class events and festivals. The experience seeker Chinese market segment is mainly comprised of adults aged 30–59 years old looking for quality and unique experiences.

Developing the VR Project

Design Thinking Methodology

Design Thinking methodology was used to create the Riverland virtual reality experience. Design Thinking is a methodology that tackles complex problems by understanding the human needs involved (empathising), re-framing the problem in human-centric ways (define), creating many ideas in brainstorming sessions (ideating), and by adopting a hands-on approach in prototyping (prototype) and testing (test). The process of design thinking is flexible, iterative, and focuses on continuous cooperation between users and designers (Waloszek, 2012). The five stages do not have to follow any specific order and can often occur in parallel or be repeated iteratively. Table 1 provides a summary of key actions undertaken for each of the five stages.

In order to gain an understanding of the potential tourists, their motivations, needs and their constraints when it comes to travelling to a wine region as well as the role of a virtual tourism experience, an extensive literature review of consumer travel motivations & constraints (particularly in wine tourism research) as well the use of VR in marketing and tourism was conducted by the University of Adelaide. An analysis of the current Riverland wine region offering was also conducted by SMA Tourism. Moreover, focus groups were conducted in 2019 in both China and USA. The focus groups, conducted by the University of Adelaide, served the purpose of not only exploring the importance of relevant factors (motivators and constraints when choosing a destination) identified in the literature (Emphasize stage), but also identifying factors of a VR experience in general and a Riverland VR experience in particular that would increase its effectiveness (Ideate stage). SATC (2017) reports that based on the existing visitation as well as wine exports, Shanghai is one of the three key cities to focus on (with the other two being Hong Kong and Guangzhou). Thus, the focus groups in China were conducted in Shanghai. The large number of Chinese students studying in Adelaide (pre COVID-19) and their visiting friends and family have been found to represent an opportunity for tourism expansion. Thus, a focus group was also conducted in Adelaide mostly comprised of Chinese students.

Table 1 Riverland VR experience design thinking stages

Emphasize	A literature review of consumer travel motivations & constraints & the use of VR in marketing/tourism was conducted to understand the challenge
Define	The goal of positively influencing desire to visit and buy wines from the Riverland wine region via a VR experience was clearly articulated
Ideate	Focus groups (8 in total) were conducted in both the USA and China to understand elements that influence the impact of a Riverland VR experience
Prototype	A prototype of the Riverland VR experience was developed to test the impact of our solution
Test	The Riverland VR prototype was tested by 110 participants and proposed improvements were implemented in order to create the final product

Questions aimed at understanding motivators and inhibitors (constraints) to visit wine regions, opinions regarding technical aspects of the Virtual Experience (length, narration, background music, language, elements that decrease feelings of dizziness), as well as preferences related to what the Riverland VR experience should include (type of activities, accommodation, scenery, winescpae, wildlife) etc., were imperative to the idea generation stage as well as the concept and prototype development stage. The participants were shown two-dimensional picture vignettes of the Riverland Wine Region, and asked to rank the most striking elements that they believed should be portrayed in a Riverland VR experience. The picture vignettes, as well as pertinent information on factors that may influence outcomes of the Riverland VR experience were utilised to create a concept map. The concept map, in conjunction with technical recommendations and concept recommendations, was used to guide the shooting of the Riverland VR experience (by 57 Films) and the creation of a prototype (consisting of a VR montage with interactive options) (Prototype stage). The prototype was then tested (during testing stage) (via a survey where participants were asked to answer questions after seeing the VR experience) and data were analysed by the University of Adelaide (using a combination of statistical and qualitative analysis methods). When testing the prototype, participants were asked to indicate whether the Riverland VR experience influenced their attitudes towards the region, their desire to visit as well as their desire to buy Riverland wines. Moreover, their recommendations on how to improve the experience were captured (whether anything should be added, removed, expanded on etc.). Utilising consumer feedback the prototype was further improved and the final product was created.

Testing the VR Project: Insights from Wine Tourism Demand

The information collected through the stages of design thinking (as indicated in Table 1), corroborated the constraints and motivators to visiting a wine region discussed in the literature review. The Riverland wine region was perceived to be more isolated than other regions (structural constraint). Participants lacked awareness, perceived the risk of travelling to the region to be higher due to the level of uncertainty, and Chinese participants raised the language barrier constraint (intrapersonal constraints). Key motivators to visit the region included uniqueness, novelty, scenery, wine tasting (as well as meeting wine makers), local food and a need for a relaxing and fully immersive hedonistic experience. When discussing the Riverland VR experience, core elements such as landscape (the Murray River), wildlife (kangaroos), local food and wine, activities (houseboating, fishing, relaxing, wine tasting, river walk) and accommodation (glamping and houseboating) were accentuated by both American and Chinese participants. The differences between the two groups consisted only in the degree of importance placed in each of the elements. In order to decrease the language barrier constraint, Chinese participants raised the importance of having the experience in their native tongue, but still narrated by a local expert. They preferred the experience to be cohesive and to tell a story. Moreover,

while an aerial perspective was considered exciting, participants accentuated the importance of including images from the viewer's point of view (to convey how the experience would feel like if they were there). Elements such as the portrayal of natural sounds and people doing activities, contributed to their immersion and presence in the experience. A summary of the above results is illustrated in Table 2. Results of the prototype testing were very positive indicating that the Riverland VR experience improved attitudes towards the region. Moreover, the experience mitigated travel constraints and left participants feeling less anxious about the idea of travelling to a more remote region (instead perceiving the remoteness as an opportunity to fully immerse themselves in the region). Most importantly, viewing the prototype of the Riverland VR experience, increased participant's desire to visit the region and buy Riverland wines (Table 2). Recommendations to improve the prototype included further additions to the winespace (corroborating its importance as a wine tourism motivator) of the region, as well as inclusion of more wildlife and activities. This feedback was incorporated in creating the final product.

Finalizing the VR Project

Considering the similarities between the two markets, and in order to increase the reach of the experience, the final Riverland VR experience was broken down into two parts: a montage (same for everyone for both markets and intended to be embedded as a 360° video on any homepage or shared on any video platform e.g. YouTube.) and options of experiences that can be selected (dependent on preference).

The concept map (Fig. 1) showcases the breakdown.

The montage was placed at the beginning of the Riverland VR experience to tell an exciting story and increase the desire to find out more. It also conveys the key highlights that Riverland has to offer (Riverwalk, houseboat, wine and food,

Table 2 Focus group and prototype testing outcomes

Elements to include in the Riverland Virtual Reality (Focus groups outcomes)	Landscape (Murray River, vineyards, almond trees, town and outback) Wildlife (especially kangaroos) Local food and wine Activities (houseboating, fishing, relaxing, wine tasting, river walk) Accommodation (particularly glamping and houseboating) Natural sounds and people doing activities Images from the viewer's point of view
Outcomes of prototype testing	Increased desire to visit the Riverland wine region Increase in positive attitudes towards the region Increase in desire to buy Riverland wines Decrease anxiety to travel to the wine region

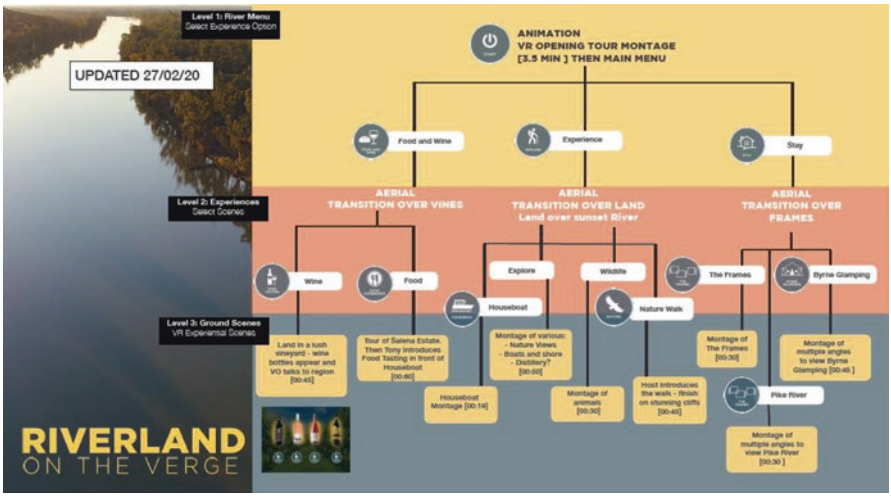

Fig. 1 Riverland VR experience concept map. (Source: 57 Films, 2020)

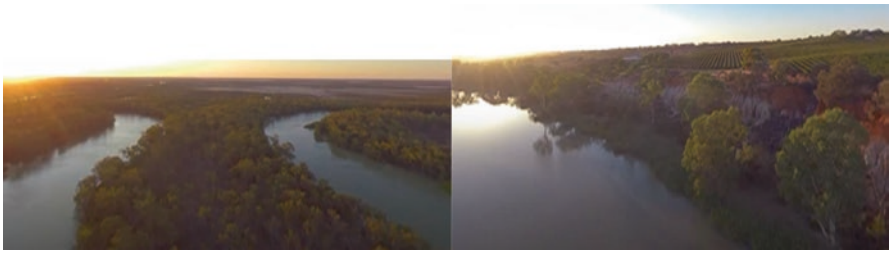

Fig. 2 Landscape vignette (vineyards, imagery of the Murray river). (Source: 57 Films)

glamping, distillery, landscape etc.). Within the landscape category, imagery of the river, vineyards, town and outback were considered very important and were hence included in the experience. Figure 2 showcases a vignette of the landscape portrayed in the final VR experience (in order of appearance: vineyards and imagery of the Murray river).

The montage is narrated (via a voiceover) and at times (depending on the activity) an expert guide is included. At the end of the montage, viewers are given the option to explore more in the following three categories: food & wine, attractions and accommodation. The food and wine options include a winery experience (where a host introduces Riverland wines), and a food experience (where a host introduces food tasting and a restaurant). The second category, attractions, includes the opportunity to explore a houseboat, view multiple areas of a town, river and bush, and explore the river walk (where a host introduces the wildlife). The third category, accommodation, allows for viewers to explore the Frames (luxury accommodation) and Byrne glamorous camping "glamping".

Each option ranges from 20 to 60 s in length. As the only differences between the two markets (USA and China) consisted in the ranking of experiences they would like to see, the second half allows for that flexibility in the selection of experiences. The VR experience includes imagery from the viewer's point of view, not just from an aerial perspective. From the consumer's perspective, it's important the viewer's height matches an actual person (often point of view is too high, and people feel unnaturally tall). Importance was placed on making the experience cohesive with a logical content/story thread. The key theme is framed around how would spending a few days in the Riverland look like (ranging from activities to do, food and wine to try and places to stay).

VR Hardware and Technical Considerations

In a VR market with numerous platforms and technologies, it was important to carefully consider how to provide the best experience for the viewer and maximise reach, while at the same time keeping development and maintenance costs low. As of 2019, there were 4 major VR platforms, Oculus (owned by Facebook), HTC Vive (HTC), Windows mixed reality (Microsoft) and Google Daydream with their own platform stores and only limited compatibility between the platforms. For the Riverland VR experience, the Oculus platform was selected as it is the platform with most active users. Another important consideration was the type of headset used. There are currently three general types of headsets on the market: – Tethered VR headsets, providing the best performance with the downside that the headset needs connection to a PC (Examples: HTC Vive, Oculus Rift). – Mobile VR headsets, using a smartphone to power the headset with the advantage of being widely accessible but less powerful (lower visual quality) (Examples: Google Daydream, Samsung Gear VR). – Standalone VR headsets have all the required technology (CPU, GPU, sensors etc.) integrated, making them more flexible than tethered headsets, and at the same time offer a better quality VR experience compared to mobile VR headsets (Examples: Oculus Go, Oculus Quest or HTC Cosmos). Considering the advantages discussed, the standalone VR headsets (Oculus Quest) were selected for the Riverland VR project. To produce the best VR experience and at the same time reach as many potential viewers as possible, it was decided to split the final product into two versions:

Version 1: An Interactive version available as an application on the Oculus platform for experience centres, cellar doors, accommodation or trade shows. The app allows full interactivity (and ability to select experiences following the montage). The Oculus Go headset would be needed to visualise the experience.

Version 2: 360° video that can be embedded on any homepage or shared on any video platform e.g. YouTube. Currently, only very limited 360° Australian content is available on YouTube. Therefore, there is a great potential to showcase the Riverland wine region as a technology pioneer/early adopter (a brand message they are wanting to portray). This format is platform independent (no app needs

to be downloaded) and therefore more potential views can be reached. 360° videos can also be viewed in 2D using regular devices such as smartphones and PCs further increasing reach. The 360° video can be used to promote the app and the region by linking to the interactive VR application, or any other homepage (Riverland Wine's website, information on where to purchase the wines and/or book a holiday).

Prototype & Final VR Technology

57 Films managed the development and production process, beginning with site selection (informed by literature review and focus group outcomes), scheduling, script development (informed by the research team) and camera tests, then coordinated four shoot blocks over 18 months. Footage was captured in key locations throughout the Riverland wine region, including mounting the 360° camera to a large-payload drone for shots over the River Murray, vineyards and bush. The production phase necessitated footage revision, addition of on-screen graphics and interactions and completion of sound mix.

The prototype of the Riverland VR experience was created in Cenario VR. This program was selected as it allows for the build of a simple scene-by-scene interactive experience hosted within the app itself. This approach allows greater flexibility and faster iterations during the development phase without the expense and complexity of programming for a standalone app delivery as per the final product. The final product features increased resolution, stereoscopic video and spatial audio utilising the Unity graphic engine for the build. This allows for standalone app outputs which are not reliant on third-party software. Moreover, it improves compatibility and accessibility across a range of headsets and users, and combined with the online version ensures it can be accessed by a wide range of audiences.

Distributing the VR Experience: Strategy for Market Engagement

As already discussed, to produce the best VR experience and at the same time reach as many potential viewers as possible, the final product was split into two versions: interactive version and 360° video.

When considering distribution, the interactive version was further characterized into two types: *Premium, and consumer versions.* The premium experience can be viewed on an Oculus headset (content installed) with headphones, and allows for navigation through user selection via the 'stare' function (where one is able to go into a category by visualizing the desired option for a few seconds). The premium experience allows for high resolution. The *Consumer* experience can be viewed

through the Cardboard Virtual Reality (CVR) goggles. The application (with content) would need to be downloaded onto a smartphone.

A physical framework, named 'VR Space', was created to facilitate the experience of the premium virtual reality product using a stand- alone VR headset (Oculus), in a safe and enjoyable way. The VR Space will be deployed at an international, national and local level, characterised by being a:

- design/model for use at international events whereby the exhibit organisers construct the VR Space to specification,
- transportable item for Riverland Wine members to use as an 'add on' to their own international/domestic exhibitions, and
- installation at key locations where international tourists are likely to visit or transit.

After a consideration of key locations most likely to be visited by tourists, The National Wine Centre, in Adelaide was selected. A VR Space was installed at the National Wine Centre (Figs. 3 and 4) and integrated into their Wine Discovery Journey, exposed to more than 48,000 visitors per year. A VR Space was also installed at the Pike River Riverland Wine Centre integrating with their current interactive story boards that profile the journey of more than 20 Riverland wineries (Fig. 5). Moreover, a portable VR Space unit will be made available for Riverland Wine members to use as part of their own exhibits (Fig. 6). It has been designed with its own transportable crate.

The Pike River Riverland Wine Centre VR space includes one self centering swivel chair, one VR headset stand with graphics applied, free standing sign unit

Fig. 3 National Wine Centre VR Space exhibit 1. (Source: Riverland Wine, 2020)

Fig. 4 National Wine Centre VR Space exhibit 2. (Source: Riverland Wine, 2020)

Fig. 5 Pike River Riverland Wine Centre VR exhibit. (Source: Riverland Wine, 2020)

with built-in directional speaker and a carpet with colour printed graphics and branding elements. The portable VR unit is very similar to the Pike River Riverland Wine Centre display, with the only difference being the dual design, allowing two users to experience the VR experience at the same time.

The consumer product (Cardboard Virtual Reality (CVR) experience) will be distributed through channels at both international and domestic levels. A key component of the CVR is the requirement to download the application from a web store. This process includes the interim step of gathering contact details through the Riverland website before redirecting to the App Store. The contact data can then be used by agencies such as Destination Riverland, the peak tourism body for the

Fig. 6 Portable VR unit. (Source: Riverland Wine, 2020)

Riverland Region, to undertake further wine tourism marketing activities. The CVR will be distributed through tourist Visitor Information Centres in key areas, such as the City of Adelaide tourist Visitor Information Centre, a major regional hub (Mt Gambier), and a major wine region adjacent to the Riverland (Barossa Valley).

Conclusions: Lessons Learnt

The launch of the Riverland VR experience was delayed due to Covid-19, hence the impact of the experience has yet to be measured. However, the prototype testing results suggested the impacts of the experience on desire to visit, wine sales, and attitudes towards the region were positive and a promising indication of its likely success.

The study supports the role of Virtual Reality as an impactful tourism marketing tool which allows potential tourists to 'experience' a destination before committing to visit. By conveying what the region has to offer (by addressing factors that serve to motivate destination selection and lower perceived destination level constraints) via an experience that engages the senses, the Riverland VR experience was successful in mitigating intrapersonal constraints by lowering sense of anxiety (hence supporting the study by Lee and Oh (2007) on the role of VR on soothing travel anxiety), increasing level of knowledge by providing information on activities offered (for different groups including child friendly activities), increasing level of interest in the region as well as positively influencing attitudes. This impact suggests that the Riverland VR experience could be utilized to increase national tourism as well, particularly during events that prevent international travel such as COVID-19.

Furthermore, the utilization of VR to promote a wine region is a new approach to wine tourism destination marketing, hence allowing the Riverland Wine Region to differentiate itself from other regions.

This represents one step forward in Riverland's journey to be recognized nationally and internationally as a unique, must visit Australian wine region and tourism destination.

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References

Alant, K., & Bruwer, J. (2004). Wine tourism behaviour in the context of a motivational framework for wine regions and cellar doors. *Journal of Wine Research, 15*(1), 27–37.

Alebaki, M., & Iakovidou, O. (2011). Market segmentation in wine tourism: A comparison of approaches. *Tourismos, 6*, 123–140.

Baños, R. M., Botella, C., Alcañiz, M., Liaño, V., Guerrero, B., & Rey, B. (2004). Immersion and emotion: Their impact on the sense of presence. *Cyberpsychology & Behavior, 7*(6), 734–741.

Berg, L. P., & Vance, J. M. (2017). Industry use of virtual reality in product design and manufacturing: A survey. *Virtual Reality, 21*(1), 1–17.

Bonn, M. A., Cho, M., Lee, J. J., & Kim, J. H. (2016). A multilevel analysis of the effects of wine destination attributes on travel constraints and revisit intention. *International Journal of Contemporary Hospitality Management, 28*(11), 2399–2421.

Brown, G. P., Havitz, M. E., & Getz, D. (2007). Relationship between wine involvement and wine-related travel. *Journal of Travel & Tourism Marketing, 21*(1), 31–46.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism Management, 29*(4), 609–623.

Campaign Live. (2016). *Campaign live official website*. Available at: https://www.campaignlive.co.uk/article/brancott-estate-creates-multi-sensory-vr-tour-festivals/1403206. Accessed 3 Nov 2020.

Carlsen, J., & Boksberger, P. (2015). Enhancing consumer value in wine tourism. *Journal of Hospitality & Tourism Research, 39*(1), 132–144.

Carmichael, B. (2005). Understanding the wine tourism experience for winery visitors in the Niagara region, Ontario, Canada. *Tourism Geographies, 7*(2), 185–204.

Castro, J. C., Quisimalin, M., Córdova, V. H., Quevedo, W. X., Gallardo, C., Santana, J., & Andaluz, V. H. (2018). Virtual reality on e-tourism. In *IT convergence and security 2017* (pp. 86–97). Springer.

Chen, H. J., Chen, P. J., & Okumus, F. (2013). The relationship between travel constraints and destination image: A case study of Brunei. *Tourism Management, 35*, 198–208.

Cheong, R. (1995). The virtual threat to travel and tourism. *Tourism Management, 16*(6), 417–422.

Cho, Y. H., Wang, Y., & Fesenmaier, D. R. (2002). Searching for experiences: The web-based virtual tour in tourism marketing. *Journal of Travel & Tourism Marketing, 12*(4), 1–17.

Cho, M., Bonn, M. A., & Brymer, R. A. (2017). A constraint-based approach to wine tourism market segmentation. *Journal of Hospitality & Tourism Research, 41*(4), 415–444.

Deneve, S., & Pouget, A. (2004). Bayesian multisensory integration and cross-modal spatial links. *Journal of Physiology, Paris, 98*(1-3), 249–258.

Dinh, H. Q., Walker, N., Hodges, L. F., Song, C., & Kobayashi, A. (1999, March). Evaluating the importance of multi-sensory input on memory and the sense of presence in virtual environments. In *Proceedings IEEE virtual reality (Cat. No. 99CB36316)* (pp. 222–228). IEEE.

Ernst, M. O., & Bülthoff, H. H. (2004). Merging the senses into a robust percept. *Trends in Cognitive Sciences, 8*(4), 162–169.

Feng, M., Dey, A., & Lindeman, R. W. (2016, March). An initial exploration of a multi-sensory design space: Tactile support for walking in immersive virtual environments. In *2016 IEEE symposium on 3D user interfaces (3DUI)* (pp. 95–104). IEEE.

Fernandes, T., & Cruz, M. (2016). Dimensions and outcomes of experience quality in tourism: The case of port wine cellars. *Journal of Retailing and Consumer Services, 31*, 371–379.

Fredman, P., & Heberlein, T. A. (2005). Visits to the Swedish mountains: Constraints and motivations. *Scandinavian Journal of Hospitality and Tourism, 5*(3), 177–192.

Getz, D. (1998). Wine tourism: Global overview and perspectives on its development. In *Wine tourism–perfect partners: Proceedings of the first Australian wine tourism conference* (pp. 13–33). Canberra: Bureau of Tourism Research.

Getz, D., & Brown, G. (2006). Critical success factors for wine tourism regions: A demand analysis. *Tourism Management, 27*(1), 146–158.

Gibson, A., & O'Rawe, M. (2018). Virtual reality as a travel promotional tool: Insights from a consumer travel fair. In *Augmented reality and virtual reality* (pp. 93–107). Springer.

Gilbert, D., & Hudson, S. (2000). Tourism demand constraints: A skiing participation. *Annals of Tourism Research, 27*(4), 906–925.

Gratzer, M., Werthner, H., & Winiwarter, W. (2004). Electronic business in tourism. *International Journal of Electronic Business, 2*(5), 450–459.

Great Wine Capitals. (2020). *Great wine capitals official website*. Available at: https://www.greatwinecapitals.com/de/node/2632. Accessed 3 Nov 2020.

Gutierrez, M., Vexo, F., & Thalmann, D. (2008). *Stepping into virtual reality*. Springer Science & Business Media.

Guttentag, D. A. (2010). Virtual reality: Applications and implications for tourism. *Tourism Management, 31*(5), 637–651.

Hall, C. M., Sharples, L., Cambourne, B., & Macionis, N. (2000). *Wine tourism around the world: Development, management and markets*. Butterworth-Heinemann.

Huang, Y. C., Backman, K. F., Backman, S. J., & Chang, L. L. (2016). Exploring the implications of virtual reality technology in tourism marketing: An integrated research framework. *International Journal of Tourism Research, 18*(2), 116–128.

Hung, K., & Petrick, J. F. (2010). Developing a measurement scale for constraints to cruising. *Annals of Tourism Research, 37*(1), 206–228.

Jung, T. H., Lee, H., Chung, N., & tom Dieck, M. C. (2018). Cross-cultural differences in adopting mobile augmented reality at cultural heritage tourism sites. *International Journal of Contemporary Hospitality Management, 30*(3), 1621–1645.

Kim, N. S., & Chalip, L. (2004). Why travel to the FIFA World Cup? Effects of motives, background, interest, and constraints. *Tourism Management, 25*(6), 695–707.

Lai, C., Li, X. R., & Harrill, R. (2013). Chinese outbound tourists' perceived constraints to visiting the United States. *Tourism Management, 37*, 136–146.

Lee, O., & Oh, J. E. (2007). The impact of virtual reality functions of a hotel website on travel anxiety. *Cyberpsychology & Behavior, 10*(4), 584–586.

Li, M., Zhang, H., Mao, I., & Deng, C. (2011). Segmenting Chinese outbound tourists by perceived constraints. *Journal of Travel & Tourism Marketing, 28*(6), 629–643.

Liu, S. Q. (2005, August). A theoretic discussion of tourism e-commerce. In *Proceedings of the 7th international conference on electronic commerce* (pp. 1–5). Xi'an, China. ACM Press.

Martins, J., Gonçalves, R., Branco, F., Barbosa, L., Melo, M., & Bessa, M. (2017). A multisensory virtual experience model for thematic tourism: A port wine tourism application proposal. *Journal of Destination Marketing & Management, 6*(2), 103–109.

Marzo-Navarro, M., & Pedraja-Iglesias, M. (2009). Wine tourism development from the perspective of the potential tourist in Spain. *International Journal of Contemporary Hospitality Management, 21*(7), 816–835.

Mitchell, R., Hall, C. M., & McIntosh, A. (2000). Wine tourism and consumer behaviour. In *Wine tourism around the world: Development, management and markets* (pp. 115–135). Butterworth-Heinemann.

Nyaupane, G. P., & Andereck, K. L. (2008). Understanding travel constraints: Application and extension of a leisure constraints model. *Journal of Travel Research, 46*(4), 433–439.

PIRSA. (2020). *Business case for riverland wine and food centre*. Available at https://pir.sa.gov.au/__data/assets/pdf_file/0015/355011/Riverland_Wine_and_Food_Centre_Business_Case.pdf. Accessed 15 Feb 2021.

Radde, B. (2017). *Digital guest experience: Tools to help hotels to manage and optimize the digital guest experience*. Tredition.

Riverland Wine. (2020). *Riverland wine official website.* Available at: https://www.riverlandwine.com.au/. Accessed 3 Nov 2020.

Sanchez-Vives, M. V., & Slater, M. (2005). From presence to consciousness through virtual reality. *Nature Reviews Neuroscience, 6*(4), 332–339.

Seppeltsfield. (2020). *Seppeltsfield official website*. Available at: https://seppeltsfield.com.au/take-a-virtual-tour-2/. Accessed 3 Nov 2020.

Shores, K. A., Scott, D., & Floyd, M. F. (2007). Constraints to outdoor recreation: A multiple hierarchy stratification perspective. *Leisure Sciences, 29*(3), 227–246.

Sigala, M. (2019). Wine tourists with children: A constrained-based approach for untapping a latent wine tourism market segment. In *Management and marketing of wine tourism business* (pp. 101–126). Palgrave Macmillan.

Slåtten, T., Mehmetoglu, M., Svensson, G., & Sværi, S. (2009). Atmospheric experiences that emotionally touch customers – A case study from a Winter Park. *Managing Service Quality: An International Journal, 19*(6), 721–746.

South Australian Tourism Commission (SATC). (2017). *South Australian International Wine Tourism Strategy.* Available at: https://tourism.sa.gov.au/research/strategies/international-wine-tourism-strategy. Accessed 1 Nov 2020.

South Australian Tourism Commission (SATC). (2019). *Riverland: Regional tourism profile: December 2017–2019.* Available at: https://tourism.sa.gov.au/regions/riverland. Accessed 1 Nov 2020.

Sparks, B. (2007). Planning a wine tourism vacation? Factors that help to predict tourist behavioural intentions. *Tourism Management, 28*(5), 1180–1192.

Sparks, B., Roberts, L. M., Deery, M., Davies, J., & Brown, L. (2005). *Good living tourism: Lifestyle aspects of food and wine tourism*. Sustainable Tourism CRC.

Stangl, B., & Weismayer, C. (2008). Websites and virtual realities: A useful marketing tool combination? An exploratory investigation. In *Information and communication technologies in tourism 2008* (pp. 141–151). Springer.

Telfer, D. J. (2001). Strategic alliances along the Niagara wine route. *Tourism Management, 22*(1), 21–30.

Thanh, T. V., & Kirova, V. (2018). Wine tourism experience: A netnography study. *Journal of Business Research, 83*, 30–37.

Tourism Research Australia. (2020). *State of the industry 2018–2019*. Available at: https://www.tra.gov.au/. Accessed 1 Nov 2020.

Tussyadiah, I. P., Wang, D., Jung, T. H., & tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism Management, 66*, 140–154.

Wall, G., & Mathieson, A. (2006). *Tourism: Change, impacts, and opportunities*. Pearson Education.

Waloszek, G. (2012). *Introduction to design thinking*. SAP. Available at: http://www.sapdesignguild.org/community/design/design_thinking.asp. Accessed 2 Nov 2020.
Wan, C. S., Tsaur, S. H., Chiu, Y. L., & Chiou, W. B. (2007). Is the advertising effect of virtual experience always better or contingent on different travel destinations? *Information Technology & Tourism, 9*(1), 45–54.
Williams, A. (2006). Tourism and hospitality marketing: Fantasy, feeling and fun. *International Journal of Contemporary Hospitality Management., 18*(6), 482–495.
Wine Australia. (2020). *Australian wine tourism snapshot 2018–2019*. Available at: https://www.wineaustralia.com/market-insights/australian-wine-tourism-snapshot. Accessed 2 Nov 2020.

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The Future of the Wine Tourism Experience: The Potential of Smart(er) Winescapes?

Donna Sears and Terrance G. Weatherbee

Abstract While the wine tourism sector has seen a steady technological evolution over the last several decades, wineries engaged in wine tourism still tend to lag the developments found elsewhere in the broader tourism sector. Contemporary wine tourists have high expectations concerning technology-enabled independent travel. Therefore, wineries wishing to effectively participate in tourism must continue to advance and leverage technology to improve their ability to deliver positive customer experiences.

However, there is a gap in our understanding of the potentials for technology and experiences in wine tourism because research has mainly focused on the use of the internet for product marketing or the use of social media as a customer interface. This has resulted in a gap in our understanding of the full capability of technology to support wine tourism experiences. This is especially critical given that wine tourism experiences consist of a multiplicity of touchpoints, and many interactions lie outside the control of an individual winery. So, we argue that the most efficacious way to exploit these technologies is to develop them within a connected and smart(er) winescape. To that end, this chapter employs a customer-journey proposition model to identify the various customer-touchpoints where technology can be employed to support or enhance customer experiences. The chapter continues by exploring the possibilities in widening the range of technologies for the creation of smart winescapes.

The use of these technologies means that wine businesses and other stakeholders in the smart winescape need to rethink their business models. Rather than being grounded solely in a competitive context, wineries will need to embrace a more collaborative approach. The way forward will require working with other businesses in the ecosystem to provide exceptional wine tourism experiences through the judicious use of technology. Finally, the chapter suggests future considerations for wineries and wine tourism researchers as the move to smart(er) winescapes advances.

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Technology and Tourism

Most mass tourism businesses enthusiastically embraced the use of modern information and communication technologies (ICTs) starting in the mid-twentieth century (Crouch, 1991). A trend which only accelerated with the arrival of proprietary computer networks and later still with the Internet (Werthner & Klein, 1999). As Internet and networked technologies were adopted by both mainstream and niche players alike, these technologies fundamentally changed tourism business models and the nature of the relationships and interactions business could have with customers. Though Internet technologies effectively revolutionized tourism (Buhalis & O'Connor, 2005; Rayman-Bacchus & Molina, 2001), just a short decade later smartphones and mobile software application ecosystems would transform the sector again.

The shifts in the *when* and *how* of transactions between the tourist and the services they desired, enabled by mobile and networked technologies, represented a significant departure from those supported by previous generations of technology. Mobile technologies are now disrupting much of the linearity of pre-trip, destination, post-trip tourism activities. While the physical aspect of tourism (that is travel) remains linear and sequential, the digital relationship between businesses and tourists is no longer similarly constrained (Ukpabi & Karjaluoto, 2017; Xiang & Fesenmaier, 2020).

The traditionally accepted linear sequence of co-creation in tourist experiences has also been completely dislocated. For example, the ubiquity of digital cameras, integrated within mobile phones, means that recollection – through the reviewing and sharing of photos – no longer must wait until film is developed at home, post-trip. Instead, the photos can be reviewed by the photographer and shared with those at home via social media platforms almost instantly. Similarly, the global density of mobile technologies now means that tourists not only seek online information for planning their trips prior to departure, but smartphones give them 24/7 access to businesses and services in the transitionary spaces between home and destination, e.g., in airports and during enroute travel, as well as supporting interactions and exchanges in real time while at their destination(s) (Egger & Buhalis, 2008; Ascolese & Llantada, 2019; Buhalis & Jun, 2011; Sigala, 2009; Sigala & Haller, 2019). The always-on nature of these technologies, enabling both tourist and business alike (Buhalis & O'Connor, 2005; Gretzel et al., 2015), has significant – but as yet largely untapped – potential for the future of wine tourism.

However, having yet to fully adapt to the mobile-enabled and experience-based tourism demands, wineries are missing out on the benefits of the more enduring value that can be gained by providing an engaging wine tourism experience (WTE)

at each potential touchpoint with the customer/tourist (Carlsen & Boksberger, 2015). Further, most wineries do not yet effectively utilize the full suite of other non-mobile technologies to support wine tourism activities and wine tourist experiences (Canovi & Pucciarelli, 2019; Cassar et al., 2018; Dressler & Paunovic, 2019; Haller et al., 2020; Sears & Rowe, 2011). And it is those very experiences that the current generation of technologically-enabled tourists has come to expect (Neuhofer & Buhalis, 2014; Martins et al., 2017). In this regard, wine tourism lags the broader technological trends being embraced in the tourism sector (Garibaldi & Sfodera, 2020); the shift from a product orientation to a visitor/tourist experience is only a nascent practice in the wine tourism niche (Haller et al., 2020).

The Wine Tourism-Technology Gap

Within the context of the study of tourism in general, research into wine tourism remains a specialty subject area. Given that the study of wine business over the last two decades has mostly been from a marketing perspective (Weatherbee et al., 2019) there remains a technological deficit in the study of wine tourism. So, beyond research surrounding the product marketing orientation of the Internet or the use of Social Media as a customer interface, the potential for the application of technology in wine tourism practice is an area that has only lately garnered much research attention (Garibaldi & Sfodera, 2020; Kirova, 2020; Sigala & Haller, 2019). Academic study concerning the potential of advanced networked technologies to enable and support wine tourism is also still in the early stages (Gretzel et al., 2015). A circumstance this chapter and volume wish to address.

In the following sections, we first situate technology in wine tourism by presenting a portrait of the 'state of the art'; the types of technology(ies) currently in use by wineries that are well-recognized as exemplar sites of wine tourism. Inspection of their online activities (e.g., marketing communications) provided a window into the winery's digital customer-facing market presence, and a stock-taking of their descriptions of how they use other technologies. This yields a baseline snapshot of technologies in use in the world's leading wineries operating in the wine tourism space.

We then discuss the importance of situating the use of these technologies – and other potential near-horizon technologies not yet in common use in wine tourism – in light of experience-based smart tourism concepts (Buhalis & Amaranggana, 2013; Gretzel et al., 2015). To do this, we employ the customer-journey proposition concept (Følstad & Kvale, 2018) and use it to identify the various customer-touchpoints where technology can be employed to support or enhance customer-experiences. We then explore the possibilities in using a wider range of technologies for the creation of *smart* winescapes (Pelet et al., 2019). Finally, we conclude by suggesting future considerations for wineries and wine tourism researchers as the move to smart(er) winescapes advances.

While we previously acknowledged that the linearity of the tourism experience has been irrevocably disrupted by technology, our analysis is framed using the widely accepted linear model of the staged tourism journey (pre-trip, destination, post-trip) for three reasons. First, much of the literature is still organized in this way and adhering to a similar framing surfaces the conceptual linkages between tourism activities and technological capabilities. Second, organizing our findings according to the physical location of the tourist facilitates a clearer description of the potential for deploying technology at critical touchpoints to enhance the WTE. Finally, the wineries in our study have mainly assumed a linear progression of the wine tourist experience, so this highlights the gap between current practices and the future potentials inherent in a technological enabled smart winescape.

Assessing the Gap: Wine Tourism and Technology-in-Use Across the Customer Journey

To determine the degree to which wineries already use technologies with smart winescape potential, we identified wineries that are well known for their engagement with wine tourism. We began with a list of the most popular wine tourism regions in the world (Malathronas, 2017), and then used Google with Boolean search terms: "best winery" and "name of wine region" to identify wineries that are recognized as top tourist destination wineries within their respective regions. These results were cross-referenced with recommendations from popular travel aggregator sites such as tripadvisor.com and tripsavvy.com. This approach considers both the technical sophistication of the winery's marketing communication efforts (e.g., Search Engine Optimization, as demonstrated by Google rankings) and tourist/customer reviews (used for rankings on aggregator sites).

These searches resulted in a list of 18 wineries in 16 regions (see Table 1), that are well known for their engagement with wine tourism. Given the importance of the web for tourism planning (Dredge et al., 2018; Vidal, 2019) and the expectations of today's tourists about technology, wineries known for their wine tourism focus were expected to showcase both customer-facing technology in their marketing communications (e.g., websites) as well as to highlight other technologies available to support the tourist experience in situ. As customer experience, co-creation, and technology are all acknowledged as core factors influencing the contemporary development of wine tourism from a demand-side perspective (Sigala & Robinson, 2019) we have included three types of technologies in our assessment. Following Buhalis, those ICT systems used by wineries to manage their customer "information, functions and processes as well as to communicate interactively with their stakeholders" (2003, p. 7); those networkable technologies supporting consumer owned technologies such as mobile devices, tablets, or smart wearables; and finally, organizational use of standalone technologies such as Virtual Reality (VR) systems.

Table 1 Technology deployment across the Wine Tourist Experience (WTE) in exemplar wine tourism wineries[a]

Winery	Experience stage			Notes
	Pre-	During	Post-	
Ivanhoe Wines Hunter Valley, Australia (www.ivanhoewines.com.au)	Med	Med	Low	Regional website allows for bookings of accommodations and tours
Truett-Hurst Winery Napa and Sonoma, California (www.truetthurst.com)	Med	Med	Low	Common reservation system with other wineries in the region
Castello di Amorosa Napa/Sonoma, California (www.castellodiamorosa.com)	High	Med	Low	Recommends (and links) a selection of accommodations and restaurants | Embedded youtube video: Virtual Tour of The Castello | 360o photo gallery
Herdade da Malhadinha Nova Alentejo, Portugal (www.malhadinhanova.pt)	Med	Med	Low	Provides links to tour operators, tourism sites, etc.
Vergelegen Wine Estate Cape Winelands, South Africa (www.vergelegen.co.za)	Med	Med	Low	At the time of this writing, selling/consuming wine is illegal in South Africa, so the website reflects this
Vins d'Alsace Schoenheitz Route des Vins, Alsace, France (vins-schoenheitz.com)	Med	Med	Low	
Santo Wines (Union of Santorini Cooperatives) Santorini, Greece (santowines.gr)	Med	Med	Low	Beautiful photography presented in photo galleries: wine tasting; landscapes; wine & delishop; Winery-Vineyard
Vina Baron Philippe De Rothschild Maipo, Chile (www.bpdr.com/en/branded-wines/chile)	Low	Low	Low	Embedded video: French with English subtitles
Odfjell Vineyards Maipo, Chile (odfjellvineyards.cl)	Low	Med	Low	Embedded video: Spanish with English subtitles
Summerhill Okanagan, Canada (www.summerhill.bc.ca)	Med	Med	Low	Virtual 3d tour in wedding/event section; thorough, multi-platform mapping/directions for getting to the winery
Cedar Creek Estate Winery Okanagan, Canada (www.cedarcreek.bc.ca)	Med	Med	Med	Wine-paired recipes and Q & As with the team; integrated with job search website for careers;Spotify playlists to pair with wines

(continued)

Table 1 (continued)

Winery	Experience stage			Notes
	Pre-	During	Post-	
Antinori nel Chianti Classico Tuscany, Italy (www.antinori.it)	Med	Med	Low	Youtube videos are in Italian with no subtitles, except 3rd party video (Gismondi on Wine)
Vincola Torcello Bento Goncalves, Brazil (www.torcello.com.br)	Med	Med	Low	Whats App chat button on all pages
Bodega La Azul Mendoza, Argentina (bodegalaazul.com)	Low	Med	Low	RSS feed Good directions to the winery with Google maps and step-by-step driving directions
Bodegas Lopez de Heredia Vina Tondonia Rioja, Spain (www.lopezdeheredia.com)	Med	Med	Low	Offers hotel and restaurant advice, claiming good contacts with these partner organizations
Weingut Willi Schaefer Moselle Valley, Germany (www.weingut-willi-schaefer.de)	Low	Low	Low	No map or driving directions, no social media, no online bookings, contact is via email, telephone, or fax
Chateau d'Agassac Bordeaux, France (agassac.com)	Low	Med	Low	English and French versions of the site are a bit jumbled
Old Bridge Winery (since 1998) Vayots Dzor, Armenia (www.oldbridgewinery.com)	Med	Med	Low	Chat function (appears to be live)

[a]Potential for interactive technology touchpoints is rated for each of the experience stages. Low = minimal potential interactivity (brochureware). Medium (Med) = moderate interactivity (e.g., embedded google maps). High = additional interactivity and evidence of connections to other organizations in the wine tourism ecosystem (e.g., shared reservation systems)

Each winery website was visited using both desktop and mobile browsers to confirm the presence/absence and degree of sophistication of the various features and technologies identified in the literature as best practices (Ascolese & Llantada, 2019; Nikoli & Lazakidou, 2019); see examples in notes to Table 1. A netnographic approach (Kozinets, 2002) was used to collect data and develop coding for the technology deployed in- and described by- these exemplar wineries. The winery's use of technology was assessed as Low-Medium-High in an evaluative comparison against recommended best practices at the touchpoints for each stage: pre-trip, destination experience, and post-trip. The overall results are summarized in Table 1 and the results for each stage are discussed in the sections below.

Pre-trip. Consistent with the findings of Haller et al. (2020), whose definition of eWine Tourism focuses almost entirely on the pre-experience (planning) stage, the wineries in our study appeared to be technologically optimized for the pre-

experience stage. Online booking was a common feature; one that has only grown in importance because of COVID-19 restrictions, with tastings typically available by reservation only as of this writing (although tastings were formerly 'drop-in' at most wineries) and with time limits – lingering at the tasting bar is now actively discouraged (in locations where tasting rooms were permitted to be open at all). Winery websites also commonly employ aerial video of vineyard and/or winery infrastructure – providing the potential visitor with a visual preview of their on-site experience(s).

Destination/winery Experience. Most websites were mobile-friendly and contained embedded interactive maps, features that are most useful during the experience stage (an important advancement over the findings of Neilson & Madill, 2014). However, there was no attention given to describing any other technology awaiting wine tourists at the winery (e.g., wifi availability, mobile/wearable devices, AR/VR, etc) that might serve to entice a potential wine tourist to visit (Buhalis & Foerste, 2015; Dredge et al., 2018; Penco et al., 2020) or foreshadow potential for engagement with technology on site.

Post-trip. Wineries appear to make minimal effort to use technology to stay connected with wine tourists in the post-experience stage. When present, these efforts focus on social media (the websites tended to have links to several platforms with the most prevalent being facebook, which is consistent with the findings of Szolnoki et al., 2018), wine clubs, and newsletters for ongoing interaction with customers. None of the wineries appear to significantly engage with – or attempt to leverage – the potential of more sophisticated technologies such as augmented or virtual reality at any phase of the tourist journey.

Overall Assessment. In the main, these premiere wine tourism-focused wineries used their promotional real estate on the web with a product orientation rather than for the provision or promotion of wine tourism experiences. Contrasted with the use of technologies in other tourism offerings, the deployment and use of technology in wine tourism lags that of cultural tourism, such as museums. Though wineries are currently less technologically enabled, the use of technology by these other tourist offerings serve to foreshadow the value of more experiential technologies in wine tourism, such as augmented reality (Kirova, 2020; Nikoli & Lazakidou, 2019).

Moving Forward: A Smarter Winescape Within a Tourism Ecosystem

Given the advancement of technology use in other areas of tourism, and especially the development of smart tourism destinations, it is only a small conceptual leap to consider the potentials a smart winescape would have for wine tourism. To provide the holistic experiences now expected by wine tourists (Kirova, 2020), a smart winescape would require an interconnected set of technologically mediated interactions

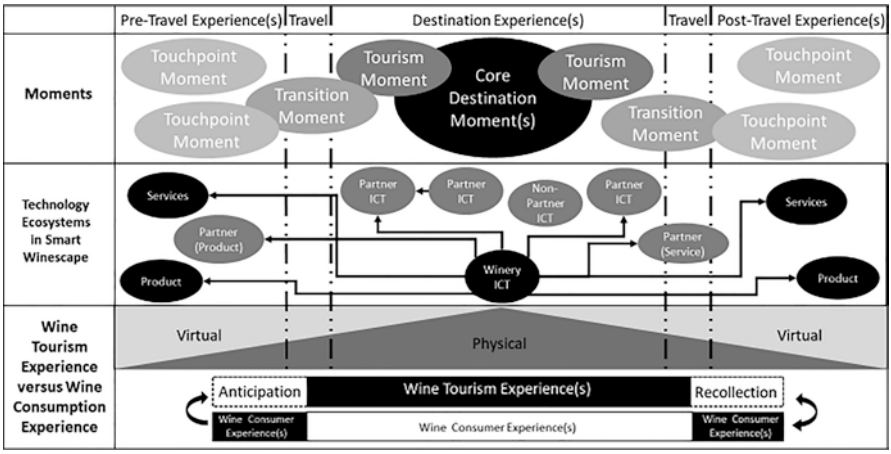

Fig. 1 Wine tourism experience: Idealized journey map

(touchpoints and moments). However, it is very unlikely that this set of interactions could be provided by a single organization (Dredge et al., 2018; Navío-Marco et al., 2018): as "… it is not so much the individual technological advances but rather the interconnection, synchronization and concerted use of different technologies that constitutes smartness" (Hőjer and Wangel, 2015 cited in Gretzel et al., 2015, p. 179). The provision of a truly holistic WTE, therefore, requires collaboration amongst various stakeholders within the winescape (Femenia-Serra et al., 2019) and hence coordination across providers and technologies as conceptually depicted in Fig. 1.

At the macro-level, a smart winescape – like other smart destinations – thus consists of the set of organizations employing ICT to collectively enhance the wine tourism experience across the experience stages. These actors may include wine-related businesses (e.g., vineyards, wine museums, etc.), complementary businesses (e.g., food service, wine tours, accommodations, attractions, etc.), and other public and private organizations such as Destination Marketing Organizations (DMOs) and associations (Femenia-Serra et al., 2019). Consistent with smart tourism more generally (Buhalis & Sinarta, 2019), the best WTEs will occur when these actors cooperate and link their technologies to share information and co-create a customer experience in real time. This is particularly pertinent as tourists have now moved past the traditional linear tourism journey/path in terms of their interactions with tourism businesses and their digital social worlds. The always-on nature of the tourist use of mobile technologies is an impetus for real-time engagement capability.

Mapping the Wine Tourism Experience: Technology, Touchpoints, and the Journey

Following previously established work related to extended high involvement (Arnould & Price, 1993) and tourism experiences (Lemon & Verhoef, 2016), we adopt a customer journey approach which apportions the WTE into three stages: pre-trip; destination experience; and post-trip. Though technological mediation now means that making clear distinctions between each of these experience stages is problematic – for example, social media facilitates co-creation and co-design which empowers tourists (Sigala, 2009) to develop "their own personalized wine tourism experiences" (Sigala & Haller, 2019, p. 1) throughout the full customer journey (Sigala & Gretzel, 2017) – as discussed previously, we map the experience in stages (see Fig. 1). As Werthner et al., (2015), explain: "… it is all about the perception of experiences in the various travel stages." (p. 5). Likewise, Femenia-Serra et al. (2019) emphasize the importance of matching the right technological tools with the appropriate stage(s). So, while technological interactions are 24/7, there are still times when certain technologies are more effective than others. Especially at journey points where there are physical constraints imposed by the linearity of travel and site visitation. Mapping technology throughout a staged process thus allows us to identify and highlight the various technologies that are more – or less – effective if deployed in one stage versus another.

Applying a customer journey approach in this way also allows us to plot the applications of technology for customer engagement/experience not only at wineries but also within the broader notion of the winescape (Bruwer & Gross, 2017; Crowley, 1993; Quintal et al., 2015; Thomas et al., 2018). In anticipation of increased technology use in wine tourism overall, we have framed the customer journey lens within an ecosystem that affords – or has the potential to afford – smart(er) wine tourism experiences. We frame the deployment of technology in terms of a co-created experience, as the interfaces between winery and the customer represent the touchpoints that enable much of the WTE.

By evaluating specific technologies and their touchpoints we can identify the opportunities where technology can be used to generate, enable, or constrain value creation activities (March & Wilkinson, 2009) within an experience-based construct (Pine & Gilmore, 1999; Quadri-Felitti & Fiore, 2012). This also identifies the differences in contribution between specific technologies (Duncan & Moriarty, 2006; Terblanche, 2014) and highlights which technologies are designed to enable, facilitate, or mediate experience versus others which comprise the experience (e.g., virtual reality).

Our conceptualization of technological touchpoints and experiential moments within the WTE draws upon the service blueprint literature (Bitner et al., 2008; Følstad & Kvale, 2018). Since customer experience is increasingly mediated by- and/or created at – various technological interfaces (Buhalis & Foerste, 2015; Kirova & Thanh, 2019; Neuhofer et al., 2014), interface interactions have become

the touchpoints where experience is enabled/co-created in the winescape. Moments are those touchpoints that become memorable due to their greater significance or their strong valence (e.g., financial, cognitive, or affective); positive because of their surprise or delight (Oliver et al., 1997) or negative because of failure (McCollough et al., 2000). Cumulatively, these moments exert a strong influence on the trajectory, assessment, and construction of the overall wine tourism experience as moments become remembered elements that are the hallmark of customer experience (Carbone & Haeckel, 1994; Pine & Gilmore, 1999).

Wine tourism experiences consist of a multiplicity of touchpoints, and many interactions lie outside the control of an individual winery (Ascolese & Llantada, 2019; Back et al., 2020; Lemon & Verhoef, 2016) reinforcing the fact that the smart winescape is possible only if constructed collaboratively. So, to fully understand the WTE, we must look across the broader winescape and consider how to leverage technology to create (or contribute to) a holistic WTE (see Fig. 1). This approach also permits us to situate actual practices within the layered concept of *smart tourism* with respect to technologies and their application at the customer (e.g. winery experience), wine tourism (e.g., regional ecosystem or cluster), and destination tourism (e.g., regional tourist destination) levels (see Gretzel et al., 2015). This reorientation of thinking about the WTE is a necessary first step in envisioning and creating a *smarter* winescape.

Smart Winescape and Emergent Technology

A global assessment of the empirical data in our study, combined with a synthesis of additional technologies used in practice or described in the general tourism literature (Ascolese & Llantada, 2019; Nikoli & Lazakidou, 2019), identifies the set of leading technologies that hold potential for enhancing touchpoints to create memorable moments in the WTE. For example, online sharing economy platforms (e.g., airBnB, VRBO, uber), messaging applications (e.g., SMS, WhatsApp, facebook messenger, WeChat), and social media platforms (e.g., Instagram, facebook, twitter) are already impacting tourism ecosystems. To illustrate, uber has made it possible for wine tourists to safely tour wine regions by crafting DIY itineraries for themselves and/or to be shared with a small group of friends. Messaging facilitates dynamic interaction amongst customers/tourists and experience providers in each phase of the journey. Social media sharing can dramatically amplify – either positively or negatively – a wine business's reputation, creating a significant impact on the WTE for other customers. Yet, while these tools have already been widely embraced by consumers and can be leveraged by providers within the smart winescape, going forward winescape actors will need to actively invest in/adopt different and more sophisticated technologies to maintain parity with other parts of the tourism sector (Gretzel et al., 2015).

Of course, the efficacy of any particular technology will vary with stage or touchpoint characteristics, such as: physical location of the wine tourist (e.g., pre-travel,

in transit, destination experience, post-travel); availability of requisite facilitating technologies and infrastructure (such as high-speed internet or Internet of Things (IoT)); or type of organizational offerings and interactions with the wine tourist (e.g., hotels will likely differ from wineries).

For instance, wine businesses might consider a virtual reality (VR) tour to introduce the experience before guests arrive; or augmented reality (AR) to provide interpretation/education during the onsite WTE. These offerings can be enhanced when artificial intelligence (AI) technologies and data analytics allow for the customization of VR or AR experiences based upon individual customer profiles (Greengard, 2019). The required investment, along with consideration of tourist expectations, means that careful thought needs to be given to how and what technology is deployed within the winescape in support of the WTE.

Considerations in the Development of Smart(er) Wine Tourism and Winescapes

Moving beyond the digital-only status of e-tourism to a truly smart winescape means seeking out opportunities to bridge the digital and physical realms (Gretzel et al., 2015). Building IoT into the winescape will bring the full potentials of network connectivity and real-time data into being while at the same time enabling a more profound tourism experience. One where the technological enablement remains ever-present and ready to support the WTE yet invisible and seamless to the tourist (Gretzel et al., 2015). Characteristics such as the ubiquity of IoT infrastructure, the necessity of context-driven need fulfillment and co-created experiences where the technology is pervasive but unobtrusive will be the drivers of successful implementation of *smart* (Gretzel et al., 2015).

Although we tend to exalt the notion of progress and seek advancements in technology whenever possible, the use of technology is not in and of itself inherently beneficial (Anaya & Lehto, 2020). Interactions between an organization and its customers have always had the potential for both positive as well as negative outcomes; and technology tends to amplify both (Anaya & Lehto, 2020). For example, interrupting a pleasurable experience with an unwanted technology interjection can produce a jarring juxtaposition that may leave the tourist feeling frustrated rather than fulfilled (Femenia-Serra et al., 2019, p. 124). So, technology should not be employed simply because it is available, but rather should be assessed for its fit with both the organization's goals and the targeted customer segment's desires for a WTE; deployed with care as a complementary component. In other words, technologies must be carefully matched with customer expectations (Werthner et al., 2015) and their capabilities paired with the appropriate stage of the customer journey or hedonic element of the WTE.

Wineries should also consider the balance needed between using technology in support of the WTE with the morally expected and legally demanded rights to

privacy. Effectively managing the tension between personalizing the WTE and the risk of alienating their customers by demanding too much personal information in order to customize will be critical (Kabadayi et al. 2019). So, technology should not be considered a panacea for wine businesses and the smart winescape will need to be implemented in a balanced fashion. That is, actors in the ecosystem need to be concerned about "too much mediation" (Gretzel et al., 2015, p. 185) of the tourism experience by or through technology (Stankov & Gretzel, 2020; Urquhart, 2019).

Conclusion

While the wine tourism sector has steadily evolved technologically over the last several decades, wineries engaged in wine tourism still tend to lag the developments found elsewhere throughout the broader tourism sector (Buhalis, 2019; Canovi & Pucciarelli, 2019). To remain successful, wineries will need to keep pace with changes in wine tourist demand and with competitive offerings (Sigala & Robinson, 2019; Thach, 2016). Wineries wishing to effectively compete must continue to improve their ability to contribute to a positive customer experience (Sigala & Robinson, 2019). Niche tourist segments – such as wine tourists – have high expectations concerning technology-enabled independent travel; customization and personalization; information-gathering; reservations and booking; access to sharing economy platforms; interactive mapping; omnipresent wi-fi; and more (Surugiu & Surugiu, 2015; Wilhelm Stanis & Barbieri, 2013).

Wineries will need to deploy technologies that allow for: broader customer reach; more in-depth customer engagement, and interactions with other organizations within their regional tourism ecosystems (Dressler & Paunović, 2019; Thach, 2016). Going forward, wineries will need to seek out and deploy the appropriate technology at the most critical touchpoints in each of the stages of the wine tourist customer experience (Carlsen & Boksberger, 2015). This means that wine businesses and other stakeholders in the smart winescape will have to rethink their business models and understand that rather than being grounded in a competitive context they should be shifting their business to a collaborative model where they are "aiming to interact and exchange resources" with other businesses in the ecosystem so as to provide "for value co-creation" in the WTE (Gretzel et al., 2015, p. 183).

In sum then, in moving towards a smarter winescape, practitioners need to stay abreast of digital and smart tourism trends; choose and use technology judiciously and strategically; understand their customer segments and the best technology-fit for each; prioritize the provision of either experiences or product sales; and seek to create networks with other organizations in the winescape. In doing so, wineries increase the potential for technology touchpoints to be elevated to positive memorable moments that will serve to enhance rather than detract from the overall WTE.

Although wine tourism is grounded in the senses – it requires the physicality of wine and vine – technology can still be used to support and enhance the WTE, whether wine tourists are on site or not. While technology cannot comprise the core

(Neuhofer et al., 2014) of the wine tourism offering, it can effectively enable the tourist's ability to experience the core as well as contribute to that experience by mediating it at other touchpoints throughout the winescape. A case where the cliché, *the whole is greater than the sum of its parts* reflects the difference between wine consumption and memorable wine experiences. Therefore, it behooves us to determine which elements best contribute to the whole in terms of both practice and research.

References

Anaya, G., & Lehto, X. (2020). Traveler-facing technology in the tourism experience: A historical perspective. *Journal of Travel & Tourism Marketing, 37*(3), 317–331.

Arnould, E. J., & Price, L. L. (1993). River magic: Extraordinary experience and the extended service encounter. *Journal of Consumer Research, 20*(1), 24–45.

Ascolese, G., & Llantada, J. (2019). *The next great tourism revolution: A report on travel and tourism trends*. WAM We Are Marketing.

Back, R. M., Lowry, L. L., & Higgins, L. M. (2020). Exploring a wine farm micro-cluster: A novel business model of diversified ownership. *Journal of Vacation Marketing, 27*, 103–116. https://doi.org/10.1177/1356766720954258

Bitner, M. J., Ostrom, A. L., & Morgan, F. N. (2008). Service blueprinting: A practical technique for service innovation. *California Management Review, 50*(3), 66–94.

Bruwer, J., & Gross, M. J. (2017). A multilayered macro approach to conceptualizing the winescape construct for wine tourism. *Tourism Analysis, 22*(4), 497–509.

Buhalis, D. (2003). *eTourism: Information technology for strategic tourism management*. Prentice Hall.

Buhalis, D. (2019). Technology in tourism-from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: A perspective article. *Tourism Review International, 75*(1), 267–272.

Buhalis, D., & Amaranggana, A. (2013). *Smart tourism destinations, information and communication technologies in tourism 2014* (pp. 553–564). Springer.

Buhalis, D., & Foerste, M. (2015). SoCoMo marketing for travel and tourism: Empowering co-creation of value. *Journal of Destination Marketing & Management, 4*(3), 151–161.

Buhalis, D., & Jun, S. (2011). E-tourism. *Contemporary Tourism Reviews, 1*, 2–38.

Buhalis, D., & O'Connor, P. (2005). Information communication technology revolutionizing tourism. *Tourism Recreation Research, 30*(3), 7–16.

Buhalis, D., & Sinarta, Y. (2019). Real-time co-creation and nowness service: Lessons from tourism and hospitality. *Journal of Travel & Tourism Marketing, 36*(5), 563–582.

Canovi, M., & Pucciarelli, F. (2019). Social media marketing in wine tourism: Winery owners' perceptions. *Journal of Travel & Tourism Marketing, 36*(6), 653–664.

Carbone, L. P., & Haeckel, S. H. (1994). Engineering customer experiences. *Marketing Management, 3*(3), 8–19.

Carlsen, J., & Boksberger, P. (2015). Enhancing consumer value in wine tourism. *Journal of Hospitality & Tourism Research, 39*(1), 132–144.

Cassar, M., Caruana, A., & Vella, J. (2018). Positioning of wine tourism websites across different country winescapes. *International Journal of Wine Business Research, 30*(4), 394–409.

Crouch, G. (1991). Expert computer systems in tourism: Emerging possibilities. *Journal of Travel Research, 29*(3), 3–10.

Crowley, W. K. (1993). Changes in the French winescape. *Geographical Review, 83*, 252–268.

Dredge, D., Phi, G., Mahadevan, R., Meehan, E., & Popescu, E. (2018). *Digitalisation in tourism – In-depth analysis of challenges and opportunities*. Aalborg University.

Dressler, M., & Paunovic, I. (2019, June). An exploration of digital innovation activity of German wineries in the regional tourism context: Differentiation and complementarity. In *Proceedings of the 1st international research workshop on wine tourism: Challenges and futures perspectives, Strasbourg, France* (pp. 27–28).

Duncan, T., & Moriarty, S. (2006). How IMC's touchpoints can operationalize service dominant logic. In R. Lusch & S. Vargo (Eds.), *The service dominant logic of marketing*. Routledge.

Egger, R., & Buhalis, D. (2008). *eTourism case studies: Management and marketing issues in eTourism*. Butterworth-Heinemann.

Femenia-Serra, F., Neuhofer, B., & Ivars-Baidal, J. A. (2019). Towards a conceptualisation of smart tourists and their role within the smart destination scenario. *The Service Industries Journal, 39*(2), 109–133.

Følstad, A., & Kvale, K. (2018). Customer journeys: A systematic literature review. *Journal of Service Theory and Practice, 28*, 196–227.

Garibaldi, R., & Sfodera, F. (2020). Technologies for enhancing wine tourism experience. In S. Dixit (Ed.), *The Routledge handbook of tourism experience management and marketing* (pp. 409–416). Routledge.

Greengard, S. (2019). *Virtual reality*. Mit Press.

Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart tourism: Foundations and developments. *Electronic Markets, 25*(3), 179–188.

Haller, C., Thach, L., & Olsen, J. (2020). Understanding eWine tourism practices of European and North America wineries. *Journal of Gastronomy and Tourism, 4*, 141–156.

Kabadayi, S., Ali, F., Choi, H., Joosten, H., & Lu, C. (2019). Smart service experience in hospitality and tourism services. *Journal of Service Management, 30*(3), 326–348.

Kirova, V. (2020). Value co-creation and value co-destruction through interactive technology in tourism: The case of 'La Cité du Vin'wine museum, Bordeaux, France. *Current Issues in Tourism, 25*, 1–14.

Kirova, V., & Thanh, T. V. (2019). Smartphone use during the leisure theme park visit experience: The role of contextual factors. *Information & Management, 56*(5), 742–753.

Kozinets, R. V. (2002). The field behind the screen: Using netnography for marketing research in online communities. *Journal of Marketing Research, 39*(1), 61–72.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing, 80*(6), 69–96.

Malathronas, J. (2017). *World's best wine tours and trails*. CNN travel. Retrieved from https://www.cnn.com/travel/article/wine-trail-destinations/index.html

March, R., & Wilkinson, I. (2009). Conceptual tools for evaluating tourism partnerships. *Tourism Management, 30*(3), 455–462.

Martins, J., Gonçalves, R., Branco, F., Barbosa, L., Melo, M., & Bessa, M. (2017). A multisensory virtual experience model for thematic tourism: A Port wine tourism application proposal. *Journal of Destination Marketing & Management, 6*(2), 103–109.

McCollough, M. A., Berry, L. L., & Yadav, M. S. (2000). An empirical investigation of customer satisfaction after service failure and recovery. *Journal of Service Research, 3*(2), 121–137.

Navío-Marco, J., Ruiz-Gómez, L., & Sevilla-Sevilla, C. (2018). Progress in information technology and tourism management: 30 years on and 20 years after the internet-Revisiting Buhalis & Law's landmark study about eTourism. *Tourism Management, 69*, 460–470.

Neilson, L., & Madill, J. (2014). Using winery web sites to attract wine tourists: An international comparison. *International Journal of Wine Business Research, 26*(1), 2–26.

Neuhofer, B., & Buhalis, D. (2014). Experience, co-creation and technology: Issues, challenges and trends of technology enhanced tourism experience. In S. McCabe (Ed.), *The Routledge handbook of tourism marketing* (pp. 124–139). Routledge.

Neuhofer, B., Buhalis, D., & Ladkin, A. (2014). A typology of technology-enhanced tourism experiences. *International Journal of Tourism Research, 16*(4), 340–350.

Nikoli, G., & Lazakidou, A. (2019). The impact of information and communication technology on the tourism sector. *Almatourism-Journal of Tourism, Culture and Territorial Development, 10*(19), 45–68.

Oliver, R. L., Rust, R. T., & Varki, S. (1997). Customer delight: Foundations, findings, and managerial insight. *Journal of Retailing, 73*(3), 311–336.

Pelet, J. E., Barton, M., & Chapuis, C. (2019). Towards the implementation of digital through WIFi and IoT in wine tourism: Perspective from professionals of wine tourism. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business*. Palgrave Macmillan.

Penco, L., Serraville, F., Profumo, G., & Viassone, M. (2020, August 25). Mobile augmented reality as an internationalization tool in the "Made In Italy" food and beverage industry. *Journal of Management and Governance, 25*(4), 1179–1209.

Pine, B., & Gilmore, J. (1999). *The experience economy: Work is theatre & every business a stage*. Harvard Business Press.

Quadri-Felitti, D., & Fiore, A. (2012). Experience economy constructs as a framework for understanding wine tourism. *Journal of Vacation Marketing, 18*(1), 3–15.

Quintal, V. A., Thomas, B., & Phau, I. (2015). Incorporating the winescape into the theory of planned behaviour: Examining 'new world' wineries. *Tourism Management, 46*, 596–609.

Rayman-Bacchus, L., & Molina, A. (2001). Internet-based tourism services: Business issues and trends. *Futures, 33*(7), 589–605.

Sears, D., & Rowe, T. (2011). Discovering the online potential of Nova Scotia's fledgling wine industry: Winery websites. In *Proceedings of travel & tourism research association (International conference)*, London, ON, June 2011.

Sigala, M. (2009). E-service quality and Web 2.0: Expanding quality models to include customer participation and inter-customer support. *The Service Industries Journal, 29*(10), 1341–1358.

Sigala, M., & Gretzel, U. (Eds.). (2017). *Advances in social media for travel, tourism and hospitality: New perspectives, practice and cases*. Routledge.

Sigala, M., & Haller, C. (2019). The impact of social media on the behavior of wine tourists: A typology of power sources. In *Management and marketing of wine tourism business* (pp. 139–154). Springer.

Sigala, M., & Robinson, R. (2019). Introduction: The evolution of wine tourism business management. In M. Sigala & R. Robinson (Eds.), *Management and marketing of wine tourism business: Theory, practice, and cases* (pp. 1–24). Palgrave Macmillan.

Stankov, U., & Gretzel, U. (2020). Tourism 4.0 technologies and tourist experiences: A human-centered design perspective. *Information Technology & Tourism, 22*(3), 477–488.

Surugiu, M. R., & Surugiu, C. (2015). Heritage tourism entrepreneurship and social media: Opportunities and challenges. *Procedia-Social and Behavioral Sciences, 188*, 74–81.

Szolnoki, G., Dolan, R., Forbes, S., Thach, L., & Goodman, S. (2018). Using social media for consumer interaction: An international comparison of winery adoption and activity. *Wine Economics and Policy, 7*(2), 109–119.

Terblanche, N. S. (2014). Some theoretical perspectives of co-creation and co-production of value by customers. *Professional Accountant, 14*(2), 1–8.

Thach, L. (2016). Emerging issues in wine tourism. In K. Lee (Ed.), *Strategic winery tourism and management: Building competitive winery tourism and winery management strategy* (pp. 115–125). CRC Press.

Thomas, B., Quintal, V. A., & Phau, I. (2018). Wine tourist engagement with the winescape: Scale development and validation. *Journal of Hospitality & Tourism Research, 42*(5), 793–828.

Ukpabi, D., & Karjaluoto, H. (2017). Consumers' acceptance of information and communications technology in tourism: A review. *Telematics and Informatics, 34*(5), 618–644.

Urquhart, E. (2019). Technological mediation in the future of experiential tourism. *Journal of Tourism Futures, 5*(2), 120–126.

Vidal, B. (2019). *The new technology and travel revolution*. Retrieved from https://www.weare-marketing.com/blog/tourism-and-technology-how-tech-is-revolutionizing-travel.html

Weatherbee, T. G., Sears, D., & MacNeil, R. (2019). Mapping wine business research in the international journal of wine business research: 2007–2017. *International Journal of Wine Business Research, 31*(4), 591–601.
Werthner, H., & Klein, S. (1999). ICT and the changing landscape of global tourism distribution. *Electronic Markets, 9*(4), 256–262.
Werthner, H., Alzua-Sorzabal, A., Cantoni, L., Dickinger, A., Gretzel, U., Jannach, D., et al. (2015). Future research issues in IT and tourism. *Information Technology & Tourism, 15*(1), 1–15.
Wilhelm Stanis, S. A., & Barbieri, C. (2013). Niche tourism attributes scale: A case of storm chasing. *Current Issues in Tourism, 16*(5), 495–500.
Xiang, Z., & Fesenmaier, D. (2020). Travel information search. In Z. Xiang, M. Fuchs, U. Gretzel, & W. Höpken (Eds.), *Handbook of e-tourism* (pp. 1–20). Springer.

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Part III
Innovation and Wine Tourism

FOMENT: Promoting Technology Acceleration and Adoption in the Australian and International Wine Tourism Industry

Carla Dias Wadewitz

Abstract The wine tourism industry is a good example of how technological advances are changing the industry value chain and promoting closer relationships between wineries, wine regions and tourists. The disruption of the wine tourism industry through technological developments has been hoped-for by many for a varied number of reasons. Firstly, because the democratisation of wine tourism offers growth opportunities to a number of smaller and regional wineries who are in need of economic stimulus. Additionally, it offers wineries access to a ready supply of visitors to their cellar door (in person or virtually) increasing sales and decreasing the costs of distribution channels. Although some wineries and tourism operators have already adopted some technological innovations, the industry in general has not yet caught up with the latest technological applications. This chapter analyses FOMENT, a comprehensive Wine and Tourism Tech program, launched in South Australia in 2019, which promotes both technology acceleration of start-ups who are developing innovative and promising technologies and fosters technology adoption of these relevant technologies by wineries and other wine tourism players. FOMENT is supported by the Australian and South Australian Government and it aims to help start-ups to skill-up in business model innovation and Industry 4.0 technologies as well as connecting them with the wine tourism industry in Australia and globally. This chapter also discusses the innovation and business model of three technology start-up companies in wine tourism (namely Airguides, CogniVocal, Twenty Five Doors) that have participated and benefited from FOMENT. By discussing these three case studies, the chapter explains how their journey through FOMENT have influenced the further development of their business model in order to provide high-tech, customer-centred products and services that enhance wine tourism experience and satisfaction.

Keywords FOMENT · Wine tourism · Innovative business models · Acceleration program · WineTech · TourismTech · Start-up

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Introduction

A significant percentage of local, interstate and international tourism in Australia derives from wine tourism.[1] Australia has a diverse variety of wines, landscapes, outdoor activities such as concerts as well as nature adventures and tasty gourmet experiences. The focus on excellence in order to provide the best customer experience around wine tourism has been validated by the highly positive feedback from all kinds of tourists who travel "down under" (Tourism Australia, 2019, 2021). It is, therefore, not a surprise that the Australian wine tourism industry has been looking for technological developments across the value chain that could enable wineries and tourism operators to become more agile and globally renowned for their abilities.[2]

FOMENT is a program offered to companies developing new technologies that can in turn disrupt the wine tourism industry and create economic, environmental and social benefits for wineries, wine regions, tourism operators and the wider community. Technology should be harnessed in order to enhance the differentiation and quality of products and services, effective marketing and useful content, efficiency gains including logistics and payments, sustainability practices as well as customer experience, loyalty and feedback. Having made a significant impact in the industry, FOMENT is now internationally recognised brand in promoting technologies that deliver these benefits.

This chapter aims to provide supporting evidence relating the importance of developing an appropriate program of this nature. This would not be possible without the support of a committed ecosystem, including key stakeholders to promote not only knowledge transfer, technology adoption but also to ensure the sustainable national and international growth of FOMENT.

In order to achieve this goal, the chapter is structured as follows. The present chapter starts by introducing the founding rationale of FOMENT, followed by its aims, key stakeholders and methodology. The FOMENT program will then be explained in detail in order to pinpoint the critical components to develop and deliver an effective program in wine tourism tech. Next, three case studies of wine tourism tech companies that have participated in FOMENT will be presented to provide concrete examples of how FOMENT contributed to the enhancement of their business model by promoting knowledge transfer and technology adoption by industry. The chapter concludes by addressing the importance to scale FOMENT and expand the program by adopting an effective growth model supported by key national and global partnerships in the wine tourism industry.

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[1] Allen, B. (2019, December 16). *New data shows importance of tourism to Australian wine industry*. The Shout. Retrieved from https://www.theshout.com.au/news/new-data-shows-importance-of-tourism-to-australian-wine-industry/, accessed February 7, 2021.

[2] Karantzavelou, V. (2019, November 28). *IFITTTalk on "New technologies and Innovation in (Wine) Tourism"*. Travel Daily News. Retrieved from https://www.traveldailynews.com/post/ifitttalk-on-new-technologies-and-innovation-in-wine-tourism, accessed February 9, 2021.

FOMENT

The meaning of the word "foment" is commonly associated with the definition "instigate or stir up".[3] That is exactly the purpose of technology acceleration in wine tourism behind the idea of FOMENT: "to instigate and stir up the wine tourism industry" in order to boost the adoption of new revolutionary technologies that positively shape the industry for better outcomes for wineries, tourism operators and tourists.

The Founding Rationale

Early access to new technology is a huge advantage for the Australian wine and tourism sectors. Technology is developing at a faster pace than ever before and Australian businesses need to be at the vanguard of this continuous change. Despite its importance, Australia is currently facing a digital deficit in wine and tourism technologies. Particularly SMEs are behind some of their international peers in utilising platforms and digital tools to build and rapidly scale their businesses.[4] Companies in the Australian wine and tourism industries have been relatively slow in adopting Industry 4.0 technologies (e.g. Internet of things, Automation & Robotics, Bid Data Analytics, AR and VR, AI & Machine Learning, 3D Printing),[5] especially when compared to the USA and France. On the other hand, Australia has been much faster than others in adopting improved viticulture, winemaking and packaging in wine and designing and delivering virtual reality experiences in tourism, with a great history of Australian R & D and product innovation. The geographical distance between the Australian wine regions also makes the transfer of knowledge and the scaling of Industry 4.0 tech more challenging than in other countries. However, tech adoption can certainly play an important role promoting better communication and transfer of knowledge across the different ecosystems, wine regions, tourism operators and other wine tourism industry players (Sigala et al., 2019).

In addition, as a result of COVID-19, the Australian wine and tourism sectors have had to deal with significant changes which increased the need and speed for the adoption of technology across the wine and tourism value chains (Wine Australia, 2020). Technology is re-wiring customer relationships through, for example, virtual

[3] Oxford, *Lexico*. s.v. "Foment". Retrieved from https://www.lexico.com/definition/foment, accessed February 21, 2019.

[4] Consultancy.com.au (2020, March 15). *Australia risks falling behind in Industry 4.0 technologies*. Retrieved from https://www.consultancy.com.au/news/1760/australia-risks-falling-behind-in-industry-40-technologies, accessed February 7, 2021.

[5] Corner, S. (2020, February 2020). *Australian businesses unprepared for Industry 4.0, says KPMG*. IoT Australia. Retrieved from https://www.iotaustralia.org.au/2020/02/20/jot-studies/australian-businesses-unprepared-for-industry-4-0-says-kpmg/, accessed February 7, 2021.

wine tastings and virtual tourism experiences,[6] social media and influencers, GPS mapping of tours and innovative booking and revenue generating online platforms. Some consumers are finding virtual experiences more convenient and enjoying having personal and customised conversations with winemakers while at the same time learning about wineries and tasting wines from the comfort of their homes.[7] Virtual cellar doors, combining online shop fronts, virtual wine tasting, virtual winery tours, live streamed events and other imaginative consumer engagement strategies such as challenges and quizzes, have given winemakers the opportunity to speak directly to consumers allowing them to sneak "behind the scenes" at their favourite wineries. Winemakers are not only able to tell their stories, educate consumers to understand the winemaking process, but also conduct virtual wine tastings in real-time. Online communities with dedicated and passionate brand advocates and customised themes have spiralled with virtual cellar doors. Therefore, a winemaking transition where customers and distributors become closer to the making of the wine is already taking place. This results in increased visibility of stock throughout supply chains, better feedback into wine production of what consumers are buying and perhaps even opportunities to access designer wines and even their own brands and to create orders during making rather than after bottling. In addition, it also increases the ability for the wine industry to keep up with fast-changing consumer trends, including improving wine tourism experiences and the channels used to advertise them (Sigala, 2020). Australian wine consumers value innovation and authenticity (Qesja et al., 2020) and technology provides the needed assurance to bridge the customer engagement, sales and efficiency challenges that were amplified by COVID19.

The possibilities for technology development and new industry applications are practically endless and these are exciting times when industry is eager to learn more about tech with a view to adopting technologies that can solve the problems that wine tourism players have been dealing with for many years. Historically, Australia has always been a desirable wine tourism destination (Austrade, 2020) and the numbers of domestic and international wine tourists have grown on average 3% in the last 3 years and were expected to grow 4% per annum between 2020 and 2022 (Australian Grape & Wine, 2019), which has been unfortunately affected by COVID-19. However, a significant number of tourists often reference that they feel lost when they arrive to such a large country as Australia and would like to have more options to connect to Australian tourism operators. This also happens in wine tourism where, according to UniSA Research (2014), 20% of people don't know a

[6] Barth, J. (2020, March 19). Technology Connects Wineries And Consumers Through Virtual Wine Tastings. Forbes. Retrieved from https://www.forbes.com/sites/jillbarth/2020/03/19/technology-connects-wineries-and-consumers-through-virtual-wine-tastings/?sh=9dcd6db594a1, accessed March 17, 2021.

[7] Halliday, J. (2020, May). *How to host a wine tasting at home*. Halliday. Retrieved from https://www.winecompanion.com.au/articles/news/how-to-host-a-wine-tasting-party-at-home#, accessed March 17, 2021.

winery before visiting it.[8] Only in the last couple of years, some start-ups have started to create and deliver tech solutions to allow local and international wine tourists to access information on wineries and their location as well as their offerings. In March 2021 Wine Australia has launched 24/7 virtual platform called "Australian Wine Connect" to bring the global wine community together to experience and explore Australia's wine scene. This interactive platform is a greatly anticipated go-to resource for Australian wine featuring wineries from across 65 regions, connecting winemakers, buyers, importers, distributors, media, educators and more; and offering a diverse program of engaging events and experiences (Hannan, 2020). However, some of these new tech solutions are just the tip of what Australia can offer to tourists looking for experiences in wine.

At the end of 2018, three organisations identified this market gap and united their common passion for the industry and joined their capabilities to increase technology development and adoption in the Australian wine and tourism industries. Namely, The Wine Industry Suppliers Association (WISA), Flinders New Venture Institute (Flinders NVI, entrepreneurial organisation part of Flinders University) and Hydra Consulting (Hydra, a consulting company that specialises in the wine tourism industry) all agreed that technology was crucial to grow the Australian wine tourism nationally and globally.[9] Each organisation was developing their own initiatives and saw the great opportunity of working together to develop a comprehensive program that could contribute to the promotion and progress of the Australian wine and tourism industries. The result of this collaboration is FOMENT – Australia's Wine and Tourism Tech Revolution! FOMENT was initially designed to be an empirical experiment on whether accelerating tech start-ups in the Australian wine tourism industry would prove successful. Since its launch in 2019, the response to FOMENT has been immensely positive, which transformed beyond the initial experiment (named "FOMENT Pilot") into a globally recognised and acclaimed wine tourism tech accelerator.

Aims

After developing prototypes or final versions of their products/services, many tech start-ups in wine tourism are ready to scale-up to new markets or acquire new customer segments. However, although their innovative tech product or service has the potential to disrupt the wine and tourism industries locally, nationally or globally,

[8] University of South Australia, School of Marketing. (2014). *Australian Wine Industry - Cellar Door Research Study 2013*. Retrieved from http://www.marketingscience.info/wp-content/uploads/2016/07/Cellar-Door-Project-Stage-1.pdf, accessed March 17, 2021.

[9] The Lead South Australia (2019, July 30). *South Australia's new wine and tourism accelerator Foment will open its doors to national and international startups alike*. Smart Company. Retrieved from https://www.smartcompany.com.au/startupsmart/news/foment-wine-tourism-accelerator/, accessed March 17, 2021.

most of them don't know exactly how to go about the next steps to achieve these goals.

FOMENT represents and is catalyst for the Australia's wine and tourism technology revolution,[10] helping founders of cutting-edge wine and tourism technology businesses scale for growth, locally and globally. In addition, FOMENT also aims to attract international tech players to disseminate their leading-edge technologies in the Australian wine tourism industry. The main aim of FOMENT is "*to position Australia as one of the most important wine and tourism tech hubs in the world*", by being at the forefront of international industry developments, attracting talent from Australia, and around the world, and generating significant amount of expertise and jobs across the wine tourism value chain. To achieve this aim, FOMENT is based on two foundation pillars – technology acceleration and technology adoption:

1. **Tech Acceleration**: FOMENT uses a combination of workshops, prototyping sessions, market testing, industry connections and solution refinement techniques to make sure businesses have the best chance for success. The FOMENT model is one of "Venture Client", which means that by participating in the FOMENT Program companies don't have to give up their equity to acquire expertise into improving both their business model and offering. One of the most common valuable outcomes is the growth in the customer base and sales given the connections provided for the local and international wine and tourism industries;
2. **Tech Adoption**: FOMENT builds connections between wine and tourism businesses with the tech community. FOMENT works with companies that enable Australia's great tourism and wine businesses enabling technologies to be widespread in Australia so that businesses become more efficient in production and logistics, more successful in applying technology and more engaged with consumers. COVID-19 has rewritten the rules for many industries and the wine tourism sector is adapting to a fast-changing international environment (Dressler & Paunovic, 2020), so the pace of technology adoption is about to accelerate tremendously. In addition, Millennials and Gen Z are currently looking for fast and real time information so tourism tech needs to provide solutions that go beyond the traditional travel agencies. FOMENT has been designed to speed up tech adoption by wine and tourism businesses by connecting them with providers of tech solutions which can make them more competitive, profitable and more likely to increase spend of existing customers and reach new customer segments in younger generations of consumers in Australia or overseas. Being part of FOMENT means participants are welcomed into national and international networks of people passionate about staying on the leading edge in wine and tourism and have the chance to validate their technologies in partnership with industry. The program also wants to ensure that international tech start-ups are familiar with the Australian wine and tourism sectors so that products or services developed overseas are adapted (if needed) to Australian users.

[10] FOMENT. Retrieved from www.foment.com.au, accessed January 17, 2021.

Stakeholders

FOMENT has attracted the support of the Commonwealth and South Australian Government, Wine Australia and the Barossa Grape & Wine Association (BGWA). In addition, FOMENT is also an industry partner to several organisations such as the Tourism Industry Council of South Australia (TiCSA), Spark Festival and SouthStart. The number of sponsors and partners continue to expand nationally and internationally as FOMENT matures.

The bold vision and the ambitious goals of FOMENT, together with its uniqueness in Australia and globally, have been instrumental in attracting sponsors and partners to obtain the required support to run the program on a yearly basis since 2019.

The South Australia Government has been very supportive of the development of an innovation ecosystem enabling entrepreneurs and start-ups to develop new business ideas and trial them in South Australia. Initiatives such as the South Australian Entrepreneur Visa (SISA)[11] and the South Australian Landing Pad[12] have attracted several businesses within Australia and from overseas. In combination with programs such as Go2Gov[13] and funding schemes such as the Research, Commercialization and Start-up Fund (RCSF)[14] and the South Australia Venture Capital Fund, the South Australia Government is investing strongly in the development of a vibrant entrepreneurial ecosystem. Moreover, over the last decade, South Australia has invested heavily in research and development and has developed world class expertise acting as a catalyst of technological development, particularly in the frontiers of Machine Learning (ML), AI, Data Analytics, Robotics/Automation, Digital Transformation and Augmented and Virtual Reality (AR/VR). In addition to world leading research capability, South Australia is emerging as a key tech hub in this digital revolution. Players such as the Massachusetts Institute of Technology (MIT) Living Lab, Accenture, Technicolor, AWS, and BAE Systems have located in the state to develop the next generation of these technologies and connect with key research industries while leveraging capabilities to train the future workforce.

This vibrant entrepreneurial environment supports the growth of FOMENT and facilitates the connections with relevant players within the innovation ecosystem, not just in South Australia, but also across Australia and overseas. The major current

[11] Government of South Australia (2021, March). *New Entrepreneur Visa*. Retrieved from https://www.migration.sa.gov.au/visa-options/new-entrepreneur-visa, accessed March 18, 2021.

[12] Government of South Australia (2021, March). *South Australian Landing Pad*. Retrieved from https://invest.sa.gov.au/south-australian-landing-pad, accessed February 10, 2021.

[13] Government of South Australia (2021, March). *Go2Gov*. Retrieved from https://fixe.org.au/accelerators/go2gov, accessed February 10, 2021.

[14] Government of South Australia (2021, March). *Grants & Funding.* Retrieved from https://fixe.org.au/community/grants-funding/research-commercialisation-and-startup-fund, accessed February 10, 2021.

Fig. 1 FOMENT stakeholders

stakeholders of FOMENT, which are key to the wine tourism industry (Getz 2019), are illustrated in Fig. 1.

Methodology

The aims of the FOMENT program are the basis of the FOMENT Methodology (Fig. 2). The latter is designed to help the participants to focus on business model innovation supported by their unique tech solution, which needs to be tested and validated by the market. After reaching that milestone, participants continue to engage with industry to adopt their products or services and, ultimately, scale their business. In essence, the underlying core activities of the FOMENT Methodology challenge the participants to think about the several dimensions of their business models, and supporting technologies, and to validate their critical business assumptions with potential customers and industry partners.

The FOMENT Methodology is built around six core activities that are expanded upon by specialised programmatic elements, which are key to its success and the underlying reason why it became a global platform and an international brand of reference to showcase Australia as recognised wine tourism tech hub:

- Workshops: Daily sessions that focus on diverse topics such as creative and design thinking process, business model innovation and testing, customer engagement and growth hacking, product/service validation, financials and investment, pitching and storytelling, among many others tailored to the needs of the Participants;
- Sharing Lessons: Daily interactions amongst participants to share experiences and knowledge through presentations or challenges, which is extremely powerful not only for community building but also for the establishment of business collaborations and relationships;

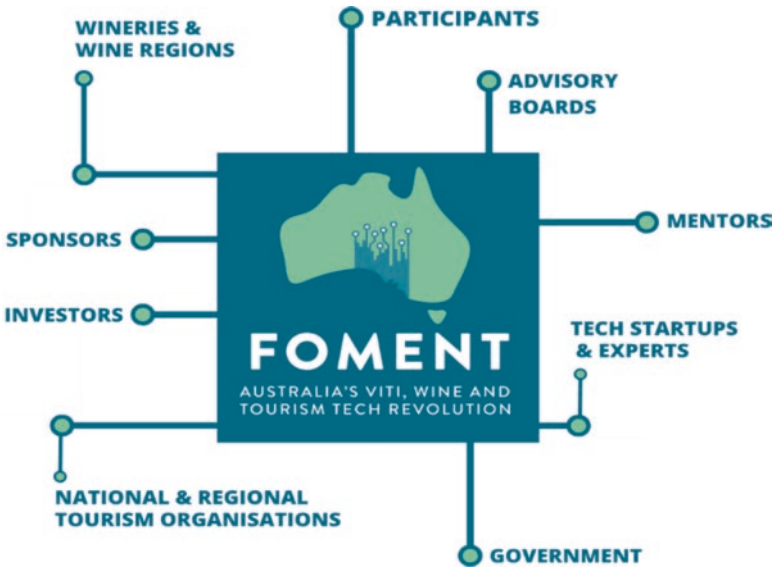

Fig. 2 The FOMENT methodology: core activities

- One-on-one meetings: Participants have the opportunity to meet and interact with world-class mentors and members of the FOMENT Advisory Board which is composed by wine and tourism thought leaders and experts;
- Guest speakers: Experts participate in the workshops by presenting on specific topics, such as Value Proposition, Customer Experience, Digital Marketing, Industry 4.0 Technologies, Growth Hacking, Legal/IP and Valuation/Investment;
- Direct introductions: Participants are introduced to industry leaders, investors and decision makers who are renowned in the wine and tourism industries;
- Site visits: During FOMENT, participants travel (physically or virtually) to wineries, tourism destinations and operators, innovation precincts and industry and government organisations;
- Industry Engagement: Participants are invited to take part in events held to help raise the public profile of FOMENT which are delivered as a combined in-person and virtual experience.

The Pilot Program in 2019

The inaugural Pilot of the FOMENT program was officially launched in July 2019 by the South Australian Premier Steven Marshall at the WineTech event[15] that took place in Adelaide.[16] The South Australian Government became the main sponsor of the FOMENT Pilot. Participant tech start-ups for the inaugural pilot program were selected by using the following, among other criteria: Market Opportunity, Technology Differentiation, Scalability and Relevance to the Australian market. Numerous applications were received and ultimately, the following seven companies from across Australia were selected to participate in the pilot program:

1. Cellr (WA): a technology that incorporates Near Field Communication (NFC) and Radio Frequency Identification (RFID) chips into wine bottle caps, which can be scanned by an accompanying app that instantly confirms the wine's provenance, producer and, as an option, brand or promotional messaging;
2. Dionysus (NSW): a wine journal app that helps wine festival-goers find and buy the bottles they tried and enjoyed;
3. GAIA (SA): a technology that identifies and maps all of Australia's vineyards, using AI and satellite imagery. Through a combination of machine learning algorithms, GAIA, a spin-off of Consilium Technology, automatically scans high-resolution satellite images of Australia's wine regions to identify where vineyards are located and the details of the plantations;
4. Rover Journey (SA): Chinese micro-influencer marketplace, helping Australian businesses reach Chinese consumers by engaging local brand advocates;
5. Taglog (SA): an integrated online platform with field devices for data logging, capturing the labour process as it occurs, including a time and GPS stamp;
6. Twenty Five Doors (NSW): an online platform which has established partnerships with cellar doors and wine regions to improve wine tourism experiences. Wine tourists can easily and quickly obtain a digital map for a wine route based on their wine preferences and book tastings and other experiences on the spot and in real time;
7. Ziontech (ACT): a blockchain-based platform allowing wineries to track the provenance of bottles of wine. Its Titanium Thread app, which creates a "digital cellar door", allows consumers to use their smartphones to scan wine labels and discover the vineyard's story.

FOMENT Pilot, which had a national focus, started on November 11th 2019 running for six sessions over 3 weeks. Through a combination of workshops, speakers' sessions, Advisory Boards and mentor sessions, visits and participation in events

[15] WISA (2019, July 22–24). *WineTech Trade Exhibition*. Retrieved from https://www.wisa.org.au/events/winetech-trade-exhibition, accessed January 28, 2021.

[16] Government of South Australia (2019, July 23). *Boosting South Australia's wine and tourism industries*. Retrieved from https://www.premier.sa.gov.au/news/media-releases/news/boosting-south-australia-s-wine-and-tourism-industries, accessed March 17, 2021.

(such as SouthStart[17] and the International Federation for IT and Travel & Tourism (ITTT) conference[18]), the participants learned, networked, established relevant industry relationships and collaborations, including developing partnerships amongst them. Above all, participants accelerated their knowledge, improved their business model and tested the adoption of their technologies with wineries, wine regions, tourism organisations and tourism operators. The KPIs collected from the participants in the weeks and months after the pilot provide strong evidence of the benefits of FOMENT. Across the majority of the participating companies, sales have increased (based considerably on the partnerships established during the program), investments rounds were successfully completed and new jobs were created as a result of the new demands generated for the business.

Finally, the feedback from the participants, as well as from the Advisory Board members, mentors, speakers and other community members involved in the pilot program, was extremely positive, highlighting the relevance of FOMENT to the Australian and international wine and tourism industries. Annabel Mugford, Strategic Projects Advisor for the Barossa Grape and Wine Association and Foment Advisory Board Member has highlighted: "Being a part of FOMENT has shown me the value that the program can bring to our wine and tourism industries – accelerated ideation and potential for new product development which brings the viticultu rists/winemakers/tourism business into the process. This in turn helps the businesses to understand and grasp the benefits of rapid innovation. FOMENT will bring global best practice into the Australian industry."

The 2020 FOMENT Program

Following up from the initial positive feedback supported the continuation of FOMENT and the take-off of FOMENT 2020, which was formally launched in June 30th 2020 via YouTube live stream[19] from the Yalumba Winery, located at the heart of the Barossa Valley region. The event, called "Wine and Tourism Tech Variety Hour", was based around participation, in person or online, of many prestigious players from the wine and tourism industries, including wineries, tourism operators,

[17] Tauriello, G. (2019, November 21). *SouthStart wine technology session builds case for Australian wine-tech hub*. The Advertiser. Retrieved from www.adelaidenow.com.au/business/sa-business-journal/southstart-wine-technology-session-builds-case-for-australian-winetech-hub/news-story/9d8922e98799b51fe5a8bf32729f9d44, accessed January 29, 2021.

[18] Karantzavelou, V. (2019, November 28). *IFITTTalk on "New technologies and Innovation in (Wine) Tourism"*. Travel Daily News. Retrieved from https://www.traveldailynews.com/post/ifitttalk-on-new-technologies-and-innovation-in-wine-tourism, accessed February 9, 2021.

[19] FOMENT. (2020, June 30). *FOMENT 2020 Launch | Wine and Tourism Tech Variety Hour*. Video. YouTube. https://www.youtube.com/watch?v=6XPgMHEwAC0, accessed February 5, 2021.

government and investors, and was voted as one of the most watched online wine tourism events internationally in 2020.

FOMENT, once again positioned as "Australia's Wine and Tourism Tech Revolution", announced the opening of the applications for the FOMENT Program 2020 running over 4 weeks in October 2020. The response to the launch was extremely encouraging as many applications were received from Australian and international companies.

For the section of participants, FOMENT 2020 worked in consultation with industry players from wine tourism to identify the areas where technology can make a pivotal difference. Based on this research, some areas were identified where wine tourism would gain more from technological developments and adoption. Some examples include:

- Augmented and Virtual Reality for engaging communication, promote branding campaigns and storytelling;
- Blockchain traceability, reducing counterfeiting and improving customer knowledge on provenance and trust promoting customer engagement and brand loyalty (e.g. using unique labels and geolocation technology);
- Established tech for customer visits to cellar doors: improved engagement and communication pre and post visit;
- Internet of things, Big Data Analytics and Cloud storage for better decision making (e.g. data collection and analysis in the field: wineries, tourism hotspots, etc.);
- Market rationalisation: supply chain, connection with consumers, improved marketing content and communication channels;
- Product/Service differentiation;
- Virtual engagement: establishing the "new normal" in a COVID-19 emerging world (e.g. virtual tastings, virtual tours, 3D printing of on the spot applications in wine tourism).

FOMENT 2020 kicked-off on October 6th 2020, with participants from Australia and overseas thanks to an innovative hybrid delivery model, a mix of in person and virtual participation, supported by technologies that allow participants online to enjoy the experiences of the FOMENT almost if they were attending in person, including visits to wineries and tourism wine regions.

The majority of the participants, based in Australia, were joined by peers from the UK, USA, France, NZ, a feat which highlights the demand for technology development and adoption in the wine tourism sector around the world and the relevance of FOMENT. With technology solutions ranging from customer engagement, cellar door experiences, e-platforms solutions among others, the list of participants of FOMENT 2020 includes:

1. **Airguides** (AUS): a platform which allows tourists to book trips that are created by some of the world's best storytellers (photographers, filmmakers, chefs and even winemakers). Airguides delivers unique trip packages for working professionals looking for experiential travel with a focus on responsible tourism and regional destinations;

2. **Borough Markets** (AUS): a digital marketing platform and marketplace utilising cutting edge data science and artificial intelligence to help small and medium wineries to run advertising and sales campaigns;
3. **CogniVoca**l (AUS): a voice Artificial Intelligence solution that connects wine consumers and tourists directly with wineries, which are able to more efficiently sell their wines and experiences while at the same time educating consumers and promoting tourism to their cellar doors;
4. **Cyunity** (USA): a platform for wineries to connect and communicate with customers/tourists through podcasts in real time, which has been developed to improve engagement with the digitally connected millennial generation;
5. **Deep Planet** (UK/USA): precision viticulture tools which combine machine learning, satellite data, sensors, soil samples, weather and other agricultural data to help growers manage variability, optimise irrigation inputs, improve yield and quality and accurately forecast yield;
6. **Digital Door** (NZ): a video-first digital cellar door solution helping to connect producers in the new world with consumers to bridge the "experience gap" when shopping for wine online;
7. **eBottli** (AUS): a platform which uses IoT devices to save time and money using simple mobile solutions to reduce administrative and management workloads, improve sales potential and guarantee the full wine provenance from the harvest to consumer;
8. **Epicurean Group** (AUS): a loyalty & rewards platform, which is designed to support and help wine producers and tourism related businesses with a collaborative marketing program where they get exposure to a larger number of consumers;
9. **Going to Places** (AUS): a national booking platform connecting Australia's wine and tourism regions and travelling routes with an associated booking and sales platform supported by blockchain to protect the integrity and authenticity of the products;
10. **Leading Key Idea** (AUS): a wine supply chain traceability solution which deploys texture capture devices in the production lines of the filler to capture the cork image. Customers use their smart phones to take a picture of the cork and verify its authenticity and production process when opening the bottle;
11. **RGX Systems** (France): a spectral imaging solution to digitise the diagnostic and quality control processes in the vineyard through the detection of chemical and physiological compositions of the product by finely measuring colour variations.

FOMENT 2020 was based on the FOMENT Methodology of the successfully implemented Pilot Program in 2019. However, the following improvisations and new features were also conducted:

- Immersion week: participants spend 1 week in a renowned Australian wine region in order to directly engage with industry. Barossa Valley was chosen given its importance for the wine tourism industry. A week was dedicated to the region,

where participants learned the needs of one of the world's capitals for wine tourism from key regional figures;

- Industry Engagement Events:
  - The Great Barossa Debate[20]: organised in conjunction with the Barossa Grape & Wine Association, was delivered as part of the Barossa Immersion Week, specifically designed to influence discussion across the Barossa community about the possibilities that new technologies can present to the wine tourism industry. The topic ("Technology is the solution to the Barossa continuing to build its title as Australia's Global Food & Wine Region") was decided through an online survey circulated to the region, engaging key wineries and tourism operators to influence the topic that they wanted to hear debated by local industry personalities and some of FOMENT participants, through a combination of in person and live-streamed event;
  - Spark Festival[21]: several FOMENT participants were showcased in Australia's largest event for start-ups, innovators, entrepreneurs and investors.
- Linkage to FOMENT global online platform and community of industry leaders, world class mentors, media experts and investors. The launch of FOMENT 2020 has attracted a lot of interest from local players but also from international players in the wine industry eager to join FOMENT online community.

Once again, the feedback from all participants, mentors, advisors, industry and government was tremendously positive, supporting the ongoing delivery of FOMENT for the next coming years as it expands nationally and internationally.

An illustrative way to show FOMENT in action is through relevant case studies. Below three case studies from FOMENT have been selected to illustrate some examples of the innovative business models in wine tourism while simultaneously highlighting the major benefits and outcomes of participating in FOMENT.

The Three Case Studies

Airguides: "A platform where people can book trips created by trusted and experienced storytellers"[22]

[20] FOMENT. (2020, October 14). *The Great Barossa Debate | FOMENT 2020*. Video. YouTube. https://www.youtube.com/watch?v=F559TH6xnmc, accessed March 17, 2021.

[21] Spark Festival. (2020, December 14). *FOMENT: Australia's Wine and Tourism Revolution*. Video. YouTube. https://www.youtube.com/watch?v=W_ZVXlfvjMY, accessed March 17, 2021.

[22] Airguides. (2021, March 10). Retrieved from www.airguides.com, accessed February 12, 2021.

Business Model and Value Proposition

What if instead of using a travel agency to book holidays, tourists could book them directly with experts who already lived the experiences they wish to enjoy and drank the wine they want to taste or from the winery they may want to visit?

Airguides is the first platform where people can book trips created by storytellers who design unique trip packages for working professionals and adventurers with a desire for experiential travel. Combining authentic content and recommendations from storytellers, Airguides personalises each trip and takes care of all planning and bookings, including accommodation, experiences and transport. Airguides trips have a strong focus on responsible tourism, First Nations' experiences and regional destinations, including some of the most popular wine regions, as illustrated in Fig. 3.

In partnership with the most inspiring photographers, filmmakers, chefs and even winemakers in Australia and New Zealand, Airguides creates unique and independent trip packages. For tourism boards, Airguides creates collaborative marketing campaigns turned into visitor enablement, providing tourism boards with storytelling content, unique travel packages and conversion data from bookings.

Fig. 3 Example of an Airguides travel experience: Paroa Bay Winery, New Zealand. (Source: photo by Shaun Jeffers)

The Click for the Company's Vision

Airguides story began in 2014 when founders Bibi Jellema and Paul Rowsthorn, both with a passion for responsible travel and creating life changing travel experiences, ventured into the deep jungles of Borneo. In search of Borneo's famous Orangutang, they stumbled upon a "creature "even more rarely seen by tourists, the legendary Sir David Attenborough, known for his traveling documentaries, such as "Life Collection" that constitutes a comprehensive study of animal and plant life on Earth. In Bibi and Paul's own words: "We were face to face with our favourite storyteller when the idea popped up. How can we follow in the footsteps of the people who inspire us to travel? What if storytellers could plan your trip and you could discover destinations through their eyes?" That is how an idea inspired by one of the world's greatest travellers and storytellers gave birth to Airguides. The company was brought to life in 2017 when the Airguides platform launched. By constantly listening to its customers, Airguides is able to offer unique trip packages in Oceania created by storytellers and personalised to match tourists' travel dreams. Every trip matches Airguides four core values:

1. **Access to the "lesser known"**: Airguides believes that there is no greater adventure than the one that is lesser known. With the expert knowledge of storytellers, trips are designed to less travelled destinations waiting to be explored;
2. **Created by storytellers**: experiences can be created by following in the footsteps of trusted photographers, filmmakers, chefs and even winemakers, who inspire the discovery of remote destinations and the understanding of cultures;
3. **Luxury meets adventure**: combination of luxury accommodation with unique experiences by partnering with local operators who have exclusive access to unique stays;
4. **Responsible travel**: is at the core of Airguides' story and is reflected in everything the company does. The Airguides team is always searching for ways to scale their impact and contribute to a more sustainable future.

Paul and Bibi have built Airguides for over 3 years, pivoting and listening closely to customers to achieve the proper product/market fit. The CEO Paul Rowsthorn is a former business analyst with 7 years of experience in tourism product development and sales. The COO Bibi Jellema has studied International Development Studies and accumulated 6 years of experience in tourism partnerships and business operations. In addition, Jordan Digby, the CTO, served previously as CTO of Viator (acquired by Tripadvisor for US$200 Million) and designed the underlying architecture of popular e-commerce platforms such as BA Holidays and Qantas Holidays. Paul's sales and product skills, Bibi's expertise in partnerships and operations and Jordan's technical knowledge, combined with their global tourism networks, contributed to the development of a business model that adds value to all parties – travellers, storytellers, operators and local communities and has been extremely important to scale the company's growth and impact, especially in the post COVID-19 environment.

Benefits for Wine Tourism Operators, Tourists and Tourism Destinations

Airguides currently operates in Australia and New Zealand and aims to become in the short term the most trusted trip booking platform in Oceania. Before COVID-19 its customers were mostly originated from the USA, typically couples looking for unique "down under" experiences. During COVID-19, given the travel restrictions in place, the company mostly focused on building trip packages in preparation for the trans-Tasman tourism bubble, targeting high-value travellers from Australia and New Zealand.

Airguides market research during COVID-19 showed that a significant number of tourists was very interested in "Food & Wine" themed trips and this is why Airguides decided to incorporate wine tourism into their new trip packages. Airguides has already worked together with regional tourism boards (RTOs) and wineries and the founders see a huge opportunity to leverage these connections to continue to grow their sales at their pre COVID-19 growth rate. Airguides works together with regional organisations such as the South Australian Tourism Commission, Barossa Tourism, Barossa Grape & Wine Association, Wine Australia, TiCSA and many local tourism operators. The company's main goal is to deliver successful co-marketing campaigns, providing their partners with wine tourism storytelling content, exposure, customers and conversion data.

Benefits from Participating in FOMENT 2020

Airguides was in the process of designing trip packages in Australia with a focus on "Food and Wine" themes, so applying for FOMENT 2020 was a timely opportunity. The founders wanted to learn more about the Australian wine regions, the wine and tourism industries and build partnerships with tourism organisations, tourism boards and local operators. During FOMENT, Airguides worked hard to build strong connections with industry and build trips with influential Australians in the Food and Wine sectors to drive visitation, attract high-value travellers and utilise key networks (storytellers, wine and tourism boards and media) to promote wine regions, nationally and internationally.

Throughout FOMENT, Airguides was able to participate in several events such as the "Great Barossa Debate" which gave the company the visibility it was looking for. Airguides was the winner of the jury's choice at the final FOMENT 2020 pitch event, a recognition of the company's fantastic contribution for the wine tourism industry.

From their home offices in Melbourne, Bibi and Paul were able to attend virtual immersion week in the Barossa and visits to wineries in McLaren Vale, learning firsthand from winemakers and wine and tourism experts. FOMENT provided the team with a valuable learning experience, allowing the company to connect with

Australia's wine tourism industry from the comforts of home. Bibi and Paul were thrilled to have taken out the winning pitch for their platform: "Before we joined FOMENT we were worried how it's possible to deliver a FOMENT virtually as we are based in Melbourne (VIC). We were absolutely blown away by the support from the whole FOMENT team, mentors, advisors and industry connections. All the barriers stopping us from building Food & Wine trips have been completely smashed over!"

CogniVocal: "The Voice that will guide your taste and book the perfect wine tourism experience"[23]

Business Model and Value Proposition

What if someone could ask their Alexa/Google home assistant or in their smartphone for a suggestion for a wine, which they heard of or that would go well with a certain meal, and could instantly order it on the spot?

CogniVocal (Fig. 4) has developed an application called "Wine Tasting AI", which is a voice solution using artificial intelligence algorithms (Voice AI) to connect and engage wine consumers directly with producers and wineries. This solution not only helps to educate consumers, but also significantly increase winery sales and promote tourism to their cellar doors.

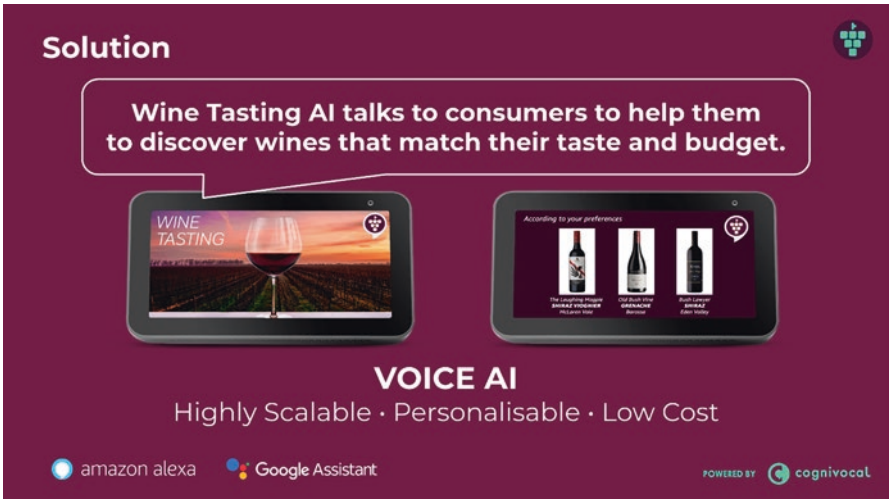

Fig. 4 Wine tasting AI solution

[23] Cognivocal. (2021, March 10). Retrieved from www.cognivocal.com, accessed February 12, 2021.

The main advantages for wineries are:

- Outstanding their wines from competition and increasing loyalty;
- Developing an engaging conversation with customers;
- Optimizing ROI from investments in digital media;
- Meeting customers' expectations regardless of their location or time zone;
- Reaching out to new consumers worldwide wherever they sell their wines.

Simultaneously, customers will also enjoy major benefits:

- Learning about different types of wines, wineries and wine regions;
- Having the opportunity to engage directly with wineries and winemakers;
- Ordering wines that match their taste directly from wineries;
- Booking directly wine tourism experiences (wine and food tasting, accommodation, adventure, etc.)

Benefits for Wine Tourism Operators, Tourists and Tourism Destinations

Given the COVID-19 unprecedented nature and the profound changes, companies will need to innovate and think differently about what the consumers in the "new normal" think, feel, say, and do, hance, voice is as a major business opportunity. The urgency to market is one of the major reasons why the digital channel has become such a crucial component of rapid revenue recovery for companies navigating an economic downturn. Voice technology helps companies expand the digital borders into the physical world to create more convenient and engaging experiences wherever the customers might be located, allowing two-way discussions with people in their homes or other locations convenient to them.

Voice AI represents a unique opportunity to connect and engage consumers directly to small wineries to help sell products and educate new consumers as well as promote tourism. Although the Australian wine industry is a $ 45 billion market, only $ 1 billion comes from Direct-to-Consumer (DTC) sales. While the average revenue per bottle from third-party websites is $5.74, the income per bottle for DTC is $15.85 (Wine Australia, 2019). Voice technology represents a unique opportunity for small wineries to increase profitability by diverting from traditional channels such as big retailers and wholesalers.

The world wine industry is facing enormous challenges such the global pandemic and also competition from other drinks such as spirits and low carb or non-alcoholic drinks (including beer and wine). There is also evidence of lack of engagement from younger consumers with wine and the vast majority of producers or small wineries can't afford large marketing budgets. That's why voice technology and its unprecedented ability to scale can be a game-changer for the industry as wineries can reach and talk to people, not only in Australia but anywhere in the world. Helping consumers to discover wineries, wine clubs, cellar doors, and to

experience wine tasting through voice interactions is an outstanding advantage when considering new technologies to promote wines.

Voice technology is affordable and allows people to accomplish tasks, have access to content and interact with technology intuitively, working equally well for everyone, including elderly and children. Nowadays, people can easily interact with voice assistants on their home devices or smartphones. By January 2019, 26% of Australians had access to a smart speaker at home, in the car or in wearables.[24] And in the USA, one-third of the adult population has a smart speaker in their home.[25] Voice AI is becoming ubiquitous, with over three billion people using voice-activated search and assistants worldwide, and it is predicted that it will be five billion in 2021. According to Google, 20% of all mobile queries are already voice-activated search. For small wineries looking to engage with consumers more deeply, Wine Tasting AI integrated with Alexa or Google will help them to build a direct relationship with customers, which will increase sales. In addition, Wine Tasting AI can be adaptable for different languages and markets allowing customers in different countries to order Australian wines. Customers can open a bottle of any wine and literally talk to their smartphones or home assistants about their preferences and Wine Tasting AI will immediately match them with wines and tourism experiences. It is therefore a "win-win-win" situation for both wineries, tourism operators and customers as voice technology enables anyone to engage in an easy way to talk and interact with rich digital content, anytime and anywhere.

Benefits from Participating in FOMENT 2020

The co-founders André Alcantara and Dyung Ngo have extensive experience in the Voice Tech industry. André is responsible for creative and strategic direction, user experience, marketing and stakeholder management. He has been developing creative and strategic campaigns with prestigious brands such as Jaguar, Pantene, Gillette, Microsoft and Samsung. Dyung Ngo is a conversational AI expert, responsible for managing technical architecture, software development, and stakeholder management. He has developed Alexa Apps on the Alexa, Google Assistant and Samsung Bixby platforms, including winning significant prizes in global challenges. He has built a community of over 530 members with the Melbourne Amazon Alexa meetup to help progress voice technology supported by Amazon.

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[24] Kinsella, B. (2019, March 19). *Australia Leaps Past U.S. in Smart Speaker Adoption, Google Home Establishes Dominant Market Share*. Voicebot.ai. Retrieved from https://voicebot.ai/2019/03/19/australia-leaps-past-u-s-in-smart-speaker-adoption-google-home-establishes-dominant-market-share/, accessed January 30, 2021.

[25] Kinsella, B. (2020, April 28). *Nearly 90 Million U.S. Adults Have Smart Speakers, Adoption Now Exceeds One-Third of Consumers*. Voicebot.ai. Retrieved from https://voicebot.ai/2020/04/28/nearly-90-million-u-s-adults-have-smart-speakers-adoption-now-exceeds-one-third-of-consumers/, accessed January 30, 2021.

CogniVocal co-founders started developing games across the big voice technology platforms, Amazon Alexa, Google Assistant and Samsung Bixby and have won significant prizes in global competitions. They have worked in areas such as social impact, more specifically youth mental health in collaboration with Monash University researchers to study the feasibility of voice technology in parenting programs, and also in sports establishing a partnership and launching with the National Basketball League (NBL) a voice App to remind fans to watch their team on TV and use voice to make purchasing tickets easier.

The next step for CogniVocal was to target the wine tourism industry. The company wanted to explore this vast opportunity to change the way people perceive and engage with a wine experience but also the way consumers decide what wine they want to drink and purchase and which experiences they want to add to their wine tasting such as pairing wine with food or visiting a winery/cellar door (Fig. 5).

CogniVocal has significantly improved its business model since participating in FOMENT. The company actively engaged with wine associations across several wine regions to present their solution. They also connected with small wineries that have a digital sales channel aiming to engage and sell directly to their customers. CogniVocal also participated in the FOMENT 2020 debate at the Spark Festival, 2020, defending that customer engagement is the most important part of the wine industry value chain, being one of the winners of the event debate.

CogiVocal is continuously looking for industry stakeholders to promote their innovative solution Wine Tasting AI and spread Voice Tech in the Australian and international wine tourism industries.

Fig. 5 CogniVocal interfaces (Examples)

Twenty Five Doors: "Making it really, really easy to find and create the best cellar door experiences"[26]

Business Model and Value Proposition

Many tourists have their favourite wines in mind and they want to organise holidays around the wine regions that can provide them with the best tasting experiences of their most loved wines. So, for example, they love the grape pinot noir and are travelling through the Barossa Region, where can they go in the days they have available? Can they also add some food tasting experiences as well as accommodation?

Twenty Five Doors knows that currently it is not easy for tourists to find wineries or navigate through the different wine regions trying to optimise their time in the places that are most relevant to their tastes. Twenty Five Doors is an Australian wine tourism platform developer creating personal connections in local wine tourism destinations. Its software has now trialled in four relevant Australian wine regions: Yarra Valley, Barossa Valley, Rutherglen & Macedon Ranges linking visitors with bookable experiences through a personalised itinerary creator. Unlike other itinerary builders, Twenty Five Doors software uses Artificial Intelligence algorithms to connect the right visitor with the right experience and includes a booking platform to facilitate all the transactions. The software increases revenue for local business operators by bringing the best customers directly to the front door and helps the local wine tourism organisations provide a best practice digital and in-person visitor experience.

Benefits for Wine Tourism Operators, Tourists and Tourism Destinations

A typical wine tourism region contains a mixture of businesses offering experiences to visitors with a range of interests. As a tourist, finding these experiences is a combination of word of mouth, internet researching and "good luck". As a business, a lot of time is spent dealing with "tyre kickers" and finding the best customer (not just any customer), which requires a lot of research time, and significant advertising spend in the right channels.

This situation creates a planning and wayfinding problem that increases as the wine region grows and becomes more popular. It also creates two challenges for local wine tourism organisations: (1) assisting visitors to maximise their trips, and

[26] Twenty Five Doors. (2021, March 10). Retrieved from www.twentyfivedoors.com, accessed February 12, 2021.

(2) distributing tourism dollars to maximise the benefit for all businesses, not just those with the largest marketing budgets.

Currently, this all happens through a combination of local business websites (many without online booking facilities), local region tourism websites that charge a membership or listing fee, global booking sites, such as expedia.com or booking.com, the Australian Tourism Data Warehouse (ATDW) that feeds listings into regional, state & national tourism websites and the global Online Travel Agency (OTA) network. The problem with the existing infrastructure is that it is focused on connecting individual experiences to a global network to deliver a "visitor in the future", rather than connecting that experience with an "in-real-life" visitor already in the region. COVID-19 has driven a domestic tourism boom in Australia, however, the limitations of the existing infrastructure and channels only make it harder for new, smaller and less well-known wine tourism businesses to enter the market and enjoy the visits from tourists looking for them.

Twenty Five Doors' (Fig. 6) unique selling proposition is a free, personalised and self-guided wine trail for every tourist in the wine region. The trails provide a low-commitment entry point for every single visitor to navigate the wine experience marketplace. Without the trails, the marketplace is less efficient because there are too many options, and wine evokes too many fears, that simply presenting the options is not enough. Therefore, Twenty Five Doors offers:

1. A free digital wine map for every wine region;
2. A marketplace of wine region experiences;
3. A unique and personal free wine trail for every tourist visiting the region;
4. Qualified visitors delivered to the cellar door;
5. Booking and managing every cellar door experience in one place;
6. Real-time, region-wide visitor data, intelligence & feedback.

The company provides wine regions with its technology for free, coupled with referral partner incentives, enabling the platform to tap into the existing wine regions

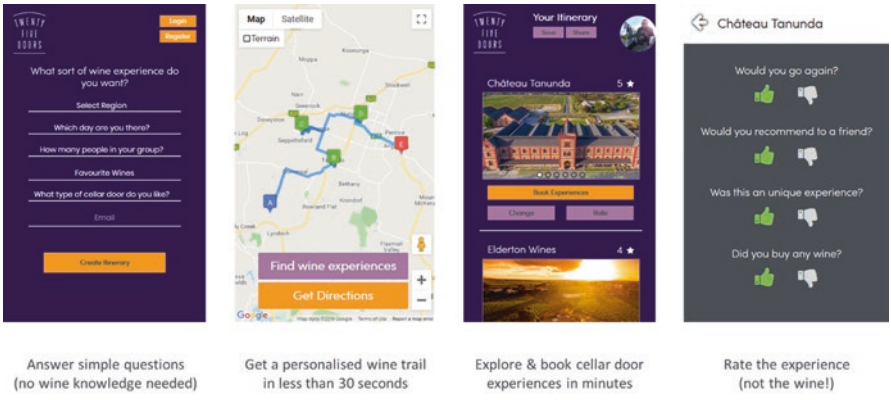

Fig. 6 Twenty Five Doors platform interface screens (examples)

traffic (estimated by Australian Grape & Wine to be 8.5 million tourists annually in Australia pre COVID-19), rather than attempting to generate experience bookings and members independently.

Wine region tourism bodies, winery industry bodies, accommodation providers, restaurants, cafes, wedding and conference venues are the key referral partners that promote visitors to use Twenty Five Doors' platform to find and book experiences through the marketplace. A unique URL is provided to each partner to embed in their website with the "call to action": "Create your personalised wine trail" and a unique Twenty Five Doors membership discount code for their customers. The wine region on-boarding process is very simple and self-managed by the wine region and wineries. A new wine region can be live in less than 2 weeks. Engaging regional tourism organisations as key stakeholders and partners in the Twenty Five Doors model is a central component to scaling the platform. The results of the company's pilot program conducted in 2018 have been extremely positive with the commitment from Yarra Valley, Rutherglen and Macedon Ranges.

The company believes that wine tourism tech is a growing market. Recently, CB Insights[27] identified over $400 million raised for everything from connected corks and bottles to algorithm-based recommendation features to better match personal tastes to wine. Of those identified by CB Insights, there was an obvious gap: wine tourism. Millennials are pushing for faster and real time "anywhere" platforms that allow them to book any experience where they want and when they want (so called "Dynamic Platforms"). While there are a handful of wine tourism players, none are providing a Service as a Software (SaaS) model for entire wine regions. Instead, the majority offer directories with an advertising or fee-for-service business model that have failed to prove the ROI for wineries and tourism operators.

Twenty Five Doors aims to provide dynamic and real time experiences that customers are looking for (Fig. 7). Especially after COVID-19, the importance of real time booking (and cancelling) became even more important than ever before. With its unique offering, the company is positioning itself to become one of the most relevant wine tourism platforms in Australia and overseas.

Benefits from Participating in FOMENT 2019

Twenty Five Doors was an active participant in FOMENT Pilot in 2019. Travelling from New South Wales to South Australia for 3 weeks, the CEO, Ross Maher, was highly committed to take the company to the next level of growth and make the most out of the connections and events provided by the program. Twenty Five Doors was one of the participants selected to be showcased at the International Federation for

[27] CBInsights (2017, December 12). *Drink Up: 50+ Wine Tech Startups In One Market Map*. Research Briefs. Retrieved from https://www.cbinsights.com/research/wine-tech-market-map/, accessed January 30, 2021.

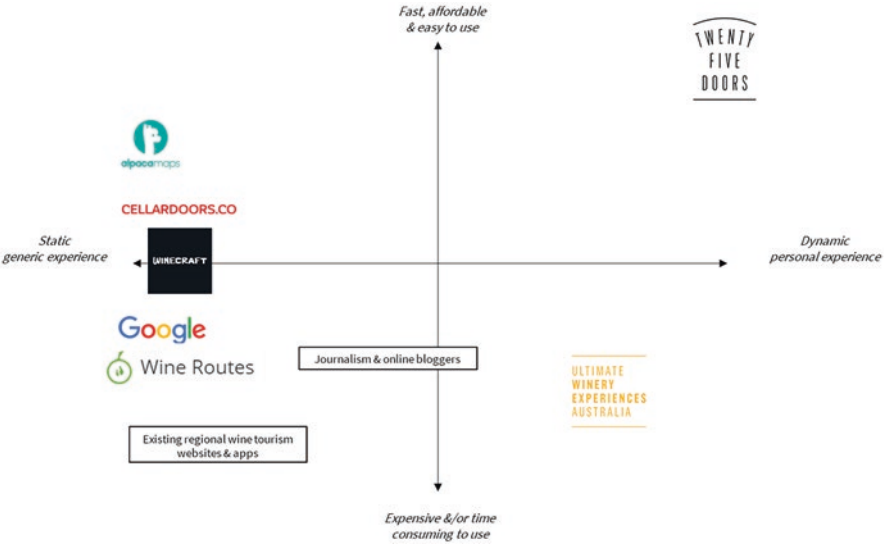

Fig. 7 Perceptual Map of Twenty Five Doors and Existing Competitors (based on the pilot study market research, 2018)

IT and Travel & Tourism (ITTT) conference (November 2019) organised by UniSA with the theme "Why Australia needs to be a tourism tech leader".

Throughout FOMENT Twenty Five Doors also established relevant partnerships with:

- The National Wine Centre of Australia, with a view to integrating Twenty Five Doors technology into existing touch screens and education processes increasing Australian winery engagement at the digital Visitor Information Centres for all Australian wineries and wine regions;
- The Australian Tourism Data Warehouse (ATDW), all tourism products listed on state tourism websites automatically are now listed on Twenty Five Doors. Wineries and other tourist attractions can choose to update either their ATDW listing, or through Twenty Five Doors directly (no double handling of data).

In addition, the company's business model has significantly changed as it started to scope and design version 2.0 of the platform, removing "friction" points identified during FOMENT and pivoting to provide tourism infrastructure (map & marketplace) and data to Australian and other global wine regions in an attempt to scale beyond Australia in the medium term.

Conclusion and Future Learnings

The importance of new technologies and innovation into the wine tourism industry has multiple positive results such as product differentiation, cost-reduction, process innovation, efficient marketing and distribution channels, as well promoting closer relationships with tourists through meaningful and customised customer engagement models (Sigala & Robinson, 2019a, b).

As local and international competition intensifies, wineries, wine destinations and tourism operators need to continuously innovate their products and services as well as their linked experiences which are critical for customers' satisfaction (Karagiannis & Metaxas, 2020). Therefore, technological advances are key to transform and innovate the wine tourism industry and the pace of this transformation will increase as technologies such as Artificial Intelligence, Blockchain and Virtual and Augmented reality reach the next level of development of their potential and quantum computing becomes a reality.

FOMENT is an example of how key stakeholders come together to contribute to initiate and then support technological advances driving innovation and new managerial approaches within wine tourism. The three case studies of FOMENT participants highlighted here underscore the importance of supporting the development of an ecosystem of companies that are investing in the development of these technologies and transforming the wine tourism industry to achieve economic, environmental and societal benefits. FOMENT has been able to show positive outcomes resulting from the application of a thought trough methodology and links to relevant hubs of national and international wine regions and wine destinations such as France, USA and New Zealand.

The next big challenge is to continue to scale FOMENT nationally and internationally with a suitable growth and partnership model. In a disturbed global market, due to the COVID-19 pandemic, the lessons from cooperation models in wine tourism should be strongly considered. It is therefore a goal of FOMENT to further "connect the dots" of the global wine tourism industry through the delivery of a large-scale global program. In addition, it also important for FOMENT to incorporate the next generation of technologies already being developed in the market. Industry 5.0 or the so called "Society 5.0" encompasses the human-machine interfaces that promote collaborative interactions between humans and machines through Bioengineering (e.g. digital identity), Bionics, Bioeconomy and Synthetic Biology. Industry 5.0 takes efficiency and productivity a step further by integrating the human element and making it the central decision maker. It is therefore no surprise that we think of a future where human senses will command a lot of actions as that is already happening in wine tourism when customers are checking into destinations via their digital print or the iris of the eye. Many more developments will occur in the next couple of years and tourists will be able to integrate with technology to live real time wine tourism experiences.

Finally, it is important to note once again that FOMENT's success to date relies significantly on a vast network of dedicated and talented individuals and

organisations that contribute to the continuous technological development of the Australian and international wine tourism industry. It is, therefore, FOMENT's vision to continue to grow this global community and to explore the most effective pathways to leverage and curate it successfully.

References

Airguides. (2021, March 10). Retrieved from www.airguides.com. Accessed 12 Feb 2021.

Allen, B. (2019, December 16). *New data shows importance of tourism to Australian wine industry*. *The Shout*. Retrieved from https://www.theshout.com.au/news/new-data-shows-importance-of-tourism-to-australian-wine-industry/. Accessed 7 Feb 2021.

Austrade. (2020). *Global sentiment monitor, tracking the world's perception of Australia after the bushfires*. Retrieved from https://www.austrade.gov.au/News/Publications. Accessed 9 Feb 2021.

Australian Grape & Wine. (2019). *Future-proofing the Australian wine sector.* Retrieved from https://www.agw.org.au/assets/submissions/AGW-Future-proofing-W.pdf. Accessed 9 Feb 2021.

Barth, J. (2020, March 19). Technology connects wineries and consumers through virtual wine tastings. *Forbes*. Retrieved from https://www.forbes.com/sites/jillbarth/2020/03/19/technology-connects-wineries-and-consumers-through-virtual-wine-tastings/?sh=9dcd6db594a1. Accessed 17 Mar 2021.

CBInsights. (2017, December 12). *Drink up: 50+ wine tech startups in one market map*. Research Briefs. Retrieved from https://www.cbinsights.com/research/wine-tech-market-map/. Accessed 30 Jan 2021.

Cognivocal. (2021, March 10). Retrieved from www.cognivocal.com. Accessed 12 Feb 2021.

Consultancy.com.au. (2020, March 15). *Australia risks falling behind in Industry 4.0 technologies*. Retrieved from https://www.consultancy.com.au/news/1760/australia-risks-falling-behind-in-industry-40-technologies. Accessed 7 Feb 2021.

Corner, S. (2020, February 2020). *Australian businesses unprepared for Industry 4.0, says KPMG*. IoT Australia. Retrieved from https://www.iotaustralia.org.au/2020/02/20/jot-studies/australian-businesses-unprepared-for-industry-4-0-says-kpmg/. Accessed 7 Feb 2021.

Dressler, M., & Paunovic, I. (2020). Converging and diverging business model innovation in regional intersectoral cooperation–exploring wine industry 4.0. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-04-2020-0142.

FOMENT. (2020a, June 30). *FOMENT 2020 launch | wine and tourism tech variety hour*. Video. YouTube. https://www.youtube.com/watch?v=6XPgMHEwAC0. Accessed 5 Feb 2021.

FOMENT. (2020b, October 14). *The Great Barossa debate|FOMENT 2020*. Video. YouTube. https://www.youtube.com/watch?v=F559TH6xnmc. Accessed 17 Mar 2021.

Getz, D. (2019). *Explore wine tourism: Management, development & destination*. Cognizant Llc.

Government of South Australia. (2019, July 23). *Boosting South Australia's wine and tourism industries*. Retrieved from https://www.premier.sa.gov.au/news/media-releases/news/boosting-south-australia-s-wine-and-tourism-industries. Accessed 17 Mar 2021.

Government of South Australia. (2021a, March). *Go2Gov.* Retrieved from https://fixe.org.au/accelerators/go2gov. Accessed 10 Feb 2021.

Government of South Australia. (2021b March). *Grants & Funding.* Retrieved from https://fixe.org.au/community/grants-funding/research-commercialisation-and-startup-fund. Accessed 10 Feb 2021.

Government of South Australia. (2021c, March). *New Entrepreneur Visa*. Retrieved from https://www.migration.sa.gov.au/visa-options/new-entrepreneur-visa. Accessed 18 Mar 2021.

Government of South Australia. (2021d, March). *South Australian Landing Pad*. Retrieved from https://invest.sa.gov.au/south-australian-landing-pad. Accessed 10 Feb 2021.

Halliday, J. (2020, May). *How to host a wine tasting at home*. Halliday. Retrieved from https://www.winecompanion.com.au/articles/news/how-to-host-a-wine-tasting-party-at-home#. Accessed 17 Mar 2021.

Hannan, K. (2020). *Increasing tourism to your cellar door – How wineries and websites can leverage from wine Australia's recent investment in the Australian Tourism Data Warehouse.* Retrieved from https://www.wineaustralia.com/whats-happening/events/webinar-increasing-tourism-to-your-cellar-door. Accessed 17 Mar 2021.

Karagiannis, D., & Metaxas, T. (2020). *Sustainable wine tourism development: Case studies from the Greek Region of Peloponnese*. MDPI.

Karantzavelou, V. (2019, November 28). IFITTTalk on "New technologies and Innovation in (Wine) Tourism". *Travel Daily News*. Retrieved from https://www.traveldailynews.com/post/ifitttalk-on-new-technologies-and-innovation-in-wine-tourism. Accessed 9 Feb 2021.

Kinsella, B. (2019, March 19). *Australia leaps Past U.S. in smart speaker adoption, google home establishes dominant market share*. Voicebot.ai. Retrieved from https://voicebot.ai/2019/03/19/australia-leaps-past-u-s-in-smart-speaker-adoption-google-home-establishes-dominant-market-share/. Accessed 30 Jan 2021.

Kinsella, B. (2020, April 28). *Nearly 90 Million U.S. Adults Have Smart Speakers, Adoption Now Exceeds One-Third of Consumers*. Voicebot.ai. Retrieved from https://voicebot.ai/2020/04/28/nearly-90-million-u-s-adults-have-smart-speakers-adoption-now-exceeds-one-third-of-consumers/. Accessed 30 Jan 2021.

Oxford. (2019). *Lexico*. s.v. "Foment". Retrieved from https://www.lexico.com/definition/foment. Accessed 21 Feb 2019.

Qesja, B., Crouch, R. & Quester, P. (2020). *Is it worth it? Product innovation and change of authenticity*. Global marketing conference at Seoul.

Sigala, M. (2020). Tourism and COVID-19: Impacts and implication for advancing and resetting industry and research. *Journal of Business Research, 117*, 312–321.

Sigala, M., & Robinson, R. (2019a). *Management and marketing of wine tourism business, theory, practice, and cases*. Palgrave Macmillan.

Sigala, M., & Robinson, R. (2019b). *Wine tourism destination management and marketing theory and cases*. Palgrave Macmillan.

Sigala, M., Rahimi, R., & Thelwall, M. (2019). *Big data and innovation in tourism, travel, and hospitality – Managerial approaches, techniques, and applications*. Springer.

Spark Festival. (2020, December 14). *FOMENT: Australia's wine and tourism revolution*. Video. YouTube. https://www.youtube.com/watch?v=W_ZVXlfvjMY. Accessed 17 Mar 2021.

Tauriello, G. (2019, November 21). *SouthStart wine technology session builds case for Australian wine-tech hub*. The Advertiser. Retrieved from www.adelaidenow.com.au/business/sa-business-journal/southstart-wine-technology-session-builds-case-for-australian-winetech-hub/news-story/9d8922e98799b51fe5a8bf32729f9d44. Accessed 29 Jan 2021.

The Lead South Australia. (2019, July 30). *South Australia's new wine and tourism accelerator Foment will open its doors to national and international startups alike*. Smart Company. Retrieved from https://www.smartcompany.com.au/startupsmart/news/foment-wine-tourism-accelerator/. Accessed 17 Mar 2021.

Tourism Australia. (2019). *Corporate plan 2019 to 2023*. Retrieved from https://www.tourism.australia.com/en/about/our-organisation/our-performance-and-reporting.html, 22 Feb 2021.

Tourism Australia. (2021*). Travel sentiment tracker: Market outputs for Australia, 20–24 January 2021*. Retrieved from https://www.tourism.australia.com/content/dam/digital/corporate/travel-sentiment-tracker.pdf. Accessed 22 Feb 2021.

Twenty Five Doors. (2021, March 10). Retrieved from www.twentyfivedoors.com. Accessed 12 Feb 2021.

University of South Australia, School of Marketing. (2014). *Australian Wine Industry – Cellar Door Research Study 2013*. Retrieved from http://www.marketingscience.info/wp-content/uploads/2016/07/Cellar-Door-Project-Stage-1.pdf. Accessed 17 Mar 2021.

Wine Australia. (2019). *The value of DTC – Results of the Cellar door and direct-to-consumer survey 2019*. Retrieved from https://www.wineaustralia.com/report-downloads/bff6eb15-4111-43f7-87d4-f3a9d4f9359b. Accessed 22 Feb 2021.

Wine Australia. (2020). *Wine Tourism Snapshots – Year ending September 20*. Retrieved from https://www.wineaustralia.com/report-downloads/30d65653-1fe5-452b-9406-95782f6a29b1. Accessed 22 Feb 2021.

WISA. (2019, July22–24). *WineTech trade exhibition*. Retrieved from https://www.wisa.org.au/events/winetech-trade-exhibition. Accessed 28 Jan 2021.

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Innovation, Collaboration and Wine Tourism in Canada's Okanagan Valley: The British Columbia Beverage Technology Access Centre

Michael V. Conlin and Wesley Peterson

Abstract Wine tourism is an important component of the wine industry in Canada's Okanagan Valley. This chapter discusses the role of the federally funded British Columbia Beverage Technology Access Centre in assisting small to medium enterprises in the development of their wine tourism business specifically and their sustainability in general. The chapter identifies and discusses the benefits and challenges faced by public organizations in collaborating with private sector operators. It also discusses the impact of the COVID-19 pandemic on the operation of wine tourism in the Valley and how the Centre has responded to this major impact. Finally, the chapter also discusses the interaction between Okanagan College, the Centre's primary sponsor, its faculty and students with the wine industry including the ways in which this interaction has benefitted wine tourism in the region.

Keywords Wine tourism · Innovation · Collaboration · Public-private partnerships · Tasting rooms · Applied research

Introduction

The Okanagan Valley, located in the south-central interior of the Canadian province of British Columbia, is home to Canada's second largest wine region, after the Niagara wine region in Ontario. It has long been a top tourism destination for both domestic and international travelers. Predictably, given the predominance of the wine industry in the region, wine tourism has become a major attraction for visitors and residents and has been a key element of the region's tourism activity for the past three decades (Conlin & Rouse, 2014; Conlin & Rice, 2018).

This chapter is essentially a case study about how the British Columbia Beverage Technology Access Centre (BCBTAC or Centre) works collaboratively with wineries in the Valley to assist them in developing their businesses and specifically, how

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to develop their wine tourism practices. This collaboration is aimed at making the region's wine industry more competitive and more successful including the strengthening and growth of its wine tourism initiatives.

The Centre's mission is broadly defined as building collaboration between the post-secondary educational system in the region, namely the publicly funded Okanagan College (OC), and the commercial fermented, distilled and brewed beverage industry in British Columbia, Canada. Specifically, this study will describe and discuss the role of the BCBTAC which is located on the Penticton, BC campus of OC.

The Centre is one of 60 technology access centres across Canada and one of only three such technology access centres in the Canadian province of British Columbia and only one of three such centres which focus on the beverage industry in Canada. The Centre's goal is to provide small and medium-sized businesses (SMEs) with support including applied research and collaborative activities all aimed at the creation and or improvement of the commercialization of their operations.

The Centre is an example of the type of cooperation between post-secondary institutions and industry sectors which have been the subject of research and discussion going back for many decades to the 1980's (Valentin, 2000). That research has, for the most part, focused on the critical elements of the types of agreements between post-secondary institutions and their industry partners. The research on these critical elements has been catalogued comprehensively by Valentin in a 2002 article published in Science and Public Policy and includes reference to articles dealing specifically with typologies, dimensions, motives and benefits, barriers and obstacles and measures of success (2002).

Science and Public Policy has published many of the most significant articles focusing on this form of cooperation; a helpful annotation of many of those important articles can be found in Valentin's 2002 paper. Specifically, a paper authored by Langford, et al., analyzes the nature of university-industry cooperation in Canada and concludes that the nature and strength of sectoral networks is critical to the success of these collaborations. Indeed, the authors argue that the strength of the networks are more critical to success than the specifically articulated policies developed by the sponsoring governmental agencies (Langford et al., 1997). The other papers annotated in Valentin's article also touch on topics which the Centre experiences including different time horizons used by the public and the private sectors (Roberts, 1997). Possibly one of the most important issues which the Centre faces has to do with intellectual property rights. Kneller discusses how this issue has been approached in Japan and concludes that formal processes for dealing with the issue are desirable but challenging to operationalize in that culture (Kneller, 1999). The Centre approaches this issue clearly by making it clear to clients and collaborators that it will not claim intellectual property rights.

Such findings are consistent with the development and growth of the Technology Access Centre Initiative described below. They are also consistent with the experience of the Centre to date in its collaboration with wine tourism providers in the Okanagan Valley. The primary focus of this discussion will be on the BCBTAC and its business model, how and why that model works and what the challenges are for

the young Centre. Specifically, the discussion will identify the methodologies, services and forms of collaboration which the Centre uses to engage with the wine tourism sector.

The BCBTAC was started in June 2019 following a rigorous application process by Okanagan College which involved a collaborative and collegial approach between the College's leadership and those Schools and Faculties with areas of specialization relevant to the beverage industry broadly. Most prominently, the College's Business and Natural Science units advised and participated in the application process.

The Centre has now been in operation for the past 18 months. Its primary catchment area is what is known as the BC Southern Interior Region of the province and particularly the Okanagan Valley and its surrounding environs. The bulk of the region's beverage industry is located in the narrow north/south swath of land bounded on the east by the Monashee Mountain Range and on the west by the Pacific Coastal Mountain Range. Okanagan Lake is the primary geographic feature of the region along with nine smaller lakes to the north and south along the Valley. As of 2016, the population of the region was 362,258; that number is quite likely significantly greater in 2020 given the level of growth the region has experienced.

It should be noted that for the past 7 months dating back to March 2020, the Centre has been impacted by the COVID-19 pandemic; those impacts will be analyzed in the Discussion part of this chapter.

The chapter is divided into five sections. Part I (Introduction) provides an overview of the objectives and components of the chapter. Part II (The Technology Access Centre Initiative in Canada) provides an overview of Canada's Technology Access Centre Initiative, the umbrella model and program in which the Centre operates within. Part III (The Okanagan Valley Wine Tourism Sector) describes the commercial and agricultural environment that forms the main catchment area for the Centre, namely the Okanagan Valley. Part IV (The British Columbia Beverage Technology Access Centre) describes and discusses the Centre including its business model, organization and connection with both the CCI and Okanagan College. The section will also identify and discuss the services available to the regional beverage industry as well as other innovative activities either delivered by the Centre or in collaboration with commercial, public sector and individual partners. Finally, Part V (Discussion) will assess the range of activities by the Centre, since its opening last year including an assessment of the challenges posed by the pandemic.

The Technology Access Centre Initiative in Canada

Canada's commitment to applied research and development is demonstrated by the Technology Access Centre program and is one of a number of grant programs which focus on linking the expertise and resources of colleges with SMEs in Canada. The programs objective according to the Natural Sciences and Engineering Research Council (NSERC) is:

> The objective of the…Program is to increase innovation at the community and/or regional level by enabling Canadian colleges to increase their capacity to work with local companies, particularly small and medium-sized enterprises (SMEs). It supports applied research and collaborations that facilitate commercialization, as well as technology transfer, adaptation and adoption of new technologies. (NSERC, n.d.)

These grant programs range from specifically commercial activities such as TACs such as the BCBTAC through to academically focused programs such as the Industrial Research Chairs for Colleges program.

The TAC grant funding program is a uniquely Canadian initiative which began in 2010. At that time, Canada's NSERC introduced the initiative to link the applied research and development activities of Canada's community colleges with the needs of regional and local SMEs specifically focusing on improved productivity and innovation.

Fundamentally, the concept envisioned that the expertise, technology and physical assets, including equipment and buildings, which Canadian colleges had could be made available to SMEs in a college's catchment through collaborative activities. The objective of the TAC grant program is:

> TAC Grants are intended to enhance the ability of companies, particularly small and medium-sized enterprises (SMEs), to become more productive and innovative by enabling them to readily access college expertise, technology and equipment. This access to college capabilities is intended to enhance the productivity, competitiveness and innovation of the participating SMEs. (NSERC)

From the start, the goal of the TAC program was to develop financially self-sustaining activities which would benefit both colleges and SMEs. The start-up financial support, which currently can be as much as Can$1.75 million over an initial five-year period, is based on the goal of TACs generating matching funding in the five-year period through commercially viable activities with SMEs. There is an expectation that after the initial five-year period, TACs will be financially self-supporting. However, the program does provide for additional funding if necessary and determined to be appropriate.

In 2019, the Canadian Federal Government provided approximately $85 million to the program which is a significant increase from the funding in 2015 which was just over $50 million. The growth in the amount of funding mirrors the growth of the program itself. In 2019, 14 new TACs were created and funded, a significant increase in the number of TACs and representing a comprehensive array of Centres across all provinces in Canada. As mentioned earlier, there are currently 60 Centres operating at community colleges across Canada.

The function of TACs is fundamentally based on collaboration with innovation systems which support productivity and innovation growth in SMEs locally and regionally. As such, TACs are expected to form partnerships with appropriate local public and private sectors organizations and institutions including but not limited to chambers of commerce, regional development agencies, business and trade associations and relevant commercial operations. The range of activities at TACs is determined by the local needs and requirements of SMEs and by the specific focus of the TAC. In the case of the BCBTAC, the focus is on the needs and requirements of

SMEs in the beverage industry in the region and specially fermented, distilled and brewed beverages. As listed in the Tech-Access Canada website, activities can include but are not limited to:

- focus on an area important to companies in their region;
- provide technical services (testing, equipment) to clients, generally by drawing on capabilities at the college or in their own facilities;
- conduct innovation projects with clients involving staff and students from their host institution;
- provide technical and management advice for clients' innovation and technology projects;
- Provide specialized training to clients;
- link SMEs with solution providers (referrals);
- provide services on a cost-recovery basis; and
- be a hub for the support of technology innovation in their region. (Tech-Access Canada)

The mix of support by TACs will differ depending on an individual TACs' focus but also on the level of development and maturation that the TACs' clients demonstrate.

TACs also provide a range of benefits to colleges hosting them. Again, the activities will vary depending on the focus of a particular TAC but according to the Tech-Access Canada website, they can include:

- access to an excellent training ground for students;
- a practical and convenient tool for faculty and staff researchers to gain insight into business issues;
- a portal for information exchange on the innovation and technology development processes ongoing within companies;
- a point of contact for some SMEs when seeking to access post-secondary capability; and
- a visible presence communicating the importance of the institution as an essential part of the region's innovation system. (Tech-Access Canada)

In general, the TAC grant program can be considered a success based on the growth in the number of TACs across Canada, the continued and growing financial support of Canada's Federal Government for the program and overall success rate for individual TACs based on their individualized success parameters.

The Okanagan Valley Wine Tourism Sector

As mentioned above, Canada has two major wine producing regions, namely the Niagara Peninsula in Ontario and the Okanagan Valley in British Columbia. In terms of size, Niagara is by far and away the larger of the two regions. Current estimates put wine production from the Niagara region at approximately 80% of total

Canadian wine production. As of 2017, the Okanagan Valley accounted for 96.35% of total British Columbia wine production (Bell, n.d.). Both regions are now serviced by TACs. The Canadian Food and Wine Institute and Innovation Centre at Niagara College has been in operation since 2014. The BCBTAC has, as stated above, been in operation for 18 months. Both TAC's work with appropriate SMEs in their catchment areas.

The Okanagan Valley has a rich tradition of agricultural production primarily associated with both stone fruit cultivation as well as growing apples. In the late nineteenth century, there was some wine production in the Valley but not at a sustainably commercial level. The general consensus during the latter half of the nineteenth century was that fruit cultivation was more compatible with the climatic conditions found in the Valley (Nichol, 1983, 128 & 136). Any wine production during this period usually consisted of low-quality fruit wine and fortified wines, notably sherry and port (Conlin & Rouse, 2014).

This perspective on grape cultivation and wine production changed in the mid-1930s when Grower's Wine Company was established. This development, in turn, was followed by the establishment of several other wineries throughout the 1930s through to the 1960s. This growth in grape cultivation and wine production also saw increasing corporate consolidation. As a result, by the late 1970's, most of the Valley's major wineries were owned by large corporations including Imperial Tobacco, Standard Brands and brewers including John Labatt and Carling O'Keefe (Hira & Gwenge, 2011, 12).

More recently, the wine industry in the Valley has changed from mass production of low-quality wines to a proliferation of smaller wineries which now produce high-quality wines. Importantly, changes to provincial laws and regulations pertaining to the wine industry now allow wineries in the Valley and across the province to sell directly to the public. This change came about, in part, to encourage wine tourism in the province and also as part of a general easing of the regulatory environment which the industry had been operating in from the 1930's. The move to high-quality wine also mirrored the change in wine consumption patterns that became evident in the 1990's and which now dominate much of the Valley's wine industry (Conlin & Rice, 2018; Conlin & Rouse, 2014).

Wine tourism has also become a major component of the wine industry in the Valley. This trend has been recognized many times by wine tourism industry (Matador, n.d.; Narcity, 2019). As recently as January 2021, a CNN Travel Report identified what it calls '21 blockbuster destinations' to visit in 2021 including Canada. In its discussion of Canada as a preferred tourism destination, the Report singles out Kelowna and its 'picturesque lakeside wine country.' (Van Emmerik, 2021)

Many if not most of the Valley's wineries offer services and products to tourists visiting the region. Some of the major wineries such as Mission Hills, Quail's Gate, and Burrowing Owl have major facilities which accommodate short-term day visitors and also in some cases, offer longer stay visitors a comprehensive wine tourism experience. There appears to be a trend toward the development of more comprehensive offerings by wineries of all sizes in the Valley and virtually all now offer

cellar-door sales at the very least. Several of the newer wineries such as the Frind Winery in West Kelowna and also established wineries such as Cedar Creek Wines in the south Kelowna have been developed with wine tourism as a major element of the wineries' overall product offerings. Not surprisingly, these developments generate significant issues which the wineries' and the Centre can collaborate on. Examples of this collaboration are discussed in the next section of this chapter.

No discussion of Okanagan Valley wine tourism would be complete with a reference to a unique feature of the region's sector, namely the two indigenous wineries located on aboriginal territory in the Valley; Nk'Mip Winery in Osoyoos at the south end of the Valley and Indigenous World Winery located in West Kelowna. Both wineries offer significant wine tourism experience to visitors and Nk'Mip also offers short-stay accommodation and an aboriginal museum as part of its winery complex. The Centre has ties with both wineries.

The British Columbia Beverage Technology Access Centre

The BCBTAC can best be viewed as a joint venture relationship between the Federal Government, via the Natural Sciences and Engineering Research Council (NSERC) and post-secondary education's applied research resources via Okanagan College. The seed capital from NSERC is matched (in cash and kind) from the College and the two parties share a vested interest in the support and development of the Centre. The ultimate goal is two-fold; first, to create a support infrastructure for a specific micro-economy (in this case, fermented beverages) and second, to create a financially self-sustaining Centre that is able to enhance College prestige and funding through capacity building and supplemental research.

In so much that the College becomes a Centre of Excellence for the beverage sector, the theory is that the success of the Centre will attract additional academic and industry talent, while also appealing to a broad range of domestic and international students. Raising the bar on talent and research is intended to have a positive impact on wine quality and ultimately international prestige for the Okanagan Valley wine region. The ultimate goal would be to elevate the region to the same level of world class wine and tourist demand as Bordeaux, Barossa or Napa. These regions benefit from similar centres of excellence such as the Australian Wine Research Institute and the Institute of Vine and Wine Science at the University of Bordeaux.

As a result, in order to succeed, the BCBTAC needs to be:

- customer service oriented;
- solution centric, and
- viewed as a neutral party for the sector.

These three elements are discussed below.

Customer Service Oriented

It is not uncommon for private industry to reach out to academia for assistance with commercial challenges. Universities and Colleges tend to have access to expensive research equipment, doctorally qualified faculty, and research facilities that are financially unobtainable for most private enterprise. That said, one of the largest challenges faced by industry in pursuing the academic channel, is where to start. Academic infrastructure can be awkward to navigate with multiple departments and fields of research which often overlap making finding the best research institution or partner, extremely difficult. The BCBTAC solves this problem by providing the College and the beverage sector with a single point of contact for a two-way flow of information and collaboration.

First, when industry is seeking assistance, they can reach out to the BCBTAC directly. If the Centre is not able to assist with the challenge itself, it will then seek to understand the issue, define the scope of work, ascertain the best Institution or researcher(s) for the work and establish the initial bridge contact to help move the project along. Servicing the sector is core to its existence and matching issues with the best available research is part of this scope. Deference will always be made to Okanagan College as the solution provider but being agnostic as to who ultimately resolves the challenge is critical. In this sense, the focus remains on the needs of the customer.

Second, with this continuous flow of contacts and information from industry, the Centre can collect data in areas of common concern for the wine sector including specific data and relevant information about wine tourism and its key place in the Valley's tourism industry. In doing so, it has the ability to aggregate common sector issues such as the development and management of touristic activity, water consumption, waste water management or disposal of 'spent' material which are by-products of fermentation. The data can be used proactively to secure funding for research with broad industry appeal or alternatively, the same data can be directed back into College academic programming to help reframe training and development of future students. The Centre aims to help the College produce the best available talent they can for the sector, and understanding these changing needs is imperative.

Finally, colleges are often the first point of contact for Federal and Provincial grants focused on applied research. The College's challenge is often finding industry partners with whom to engage to move these grants forward. By having a contact list of potential industry partners with previously defined issues, the Centre can act quickly and efficiently to engage with the private sector and improve the odds of successfully securing the grant. In this sense, the College can remain highly competitive amongst its peers and be a viewed as a proactive partner to the beverage sector. The bilateral exchange of information and data is key in servicing the College and wineries.

Prior to the declaration of the Covid-19 global pandemic, the Centre was working with a number of wineries on better monetizing tourist traffic to their retail tasting rooms. The traditional model often saw busloads of tourists show up, sometimes

unannounced, who then navigate their way to an already crowded stand up wine bar, and wait patiently for a winery ambassador to pour a nominal amount of wine in their glass with limited background information about what they were about to consume. The model was based on "quantity" of tourists rather than "quality" of interactions. This worked fine for many wineries where they were set up for bus traffic and high throughput, but the lack of interaction and customer service did little to sell the products or connect with the consumer.

BC BTAC had been tasked with working with wineries on shifting the model from high volume low interaction to lower volume, high touch. The desire was to shift the tasting room experience to a more hands on, experiential learning opportunity where the focus became the wine, the terroir and the story of the winery. The end goal was to increase bottle sales per visit, sell the loyalty program to higher value customers, create brand evangelists and ultimately increase share of wallet. The primary concern was whether consumers would move to a more full-service, advanced booking model if other wineries in the valley did not follow suit.

The declaration of the pandemic changed this positioning overnight. Travel restrictions meant that the busloads of tourists would be replaced by online bookings due to limited tasting room occupancy. Traditional lower-yield outlets for wine sales, such as bars and restaurants would have to be replaced by online sales, loyalty programs and direct selling on site. The focus shifted quickly to a high service, high touch model to secure profitable traffic. With this shift, the focus of BC BTAC and the College shifted as well, to training and development of well educated, high quality sales people for the wineries. While it is too early to tell, initial signs indicate that this shift has proven financially beneficial for many of the wineries in the valley.

Solution Centric

Whether the incoming project is grant-funded or pay-for-service, the BCBTAC needs to be focused on options and solutions for the client. It is not enough to make introductions or help secure grants; the Centre must help move the industry along. Once the project is defined and secured, the Centre can directly offer analytical, commercial, and sensory support in addition to a wealth of experienced faculty and staff throughout the College. Engaging a broader depth of research and experience than one may get through external consulting agencies helps build credibility for the relationship with the College and helps secure the relationship between academia and the private sector.

Given the variety of projects the BCBTAC entertains from the wine sector alone, this diversity in approach and experience is critical. Projects can range from simple analytical work through to more complex projects such as the tracking of ester loss during the course of fermentation. Being able to access marketing experts on the College's faculty as well as chemical engineers, molecular biologists and sensory specialists allows the Center to support complex projects which often opens the door to greater creativity and more varied solutions to the commercial challenges.

The goal is a solution or solutions to every problem, or at the very least, a more complete understanding of the barriers being faced.

When it comes to providing solutions though, the Centre doesn't always need to rely on the College's faculty. What makes the BCBTAC truly unique is its access to students. Where appropriate and available, it takes every opportunity to engage students in projects and research. In addition to providing a fresh insight on challenges and issues, many students can also assist in helping small business understand how to access new markets using technology or social platforms.

By example, access to the Millennial market for wineries is an active field of study. Tapping into this new and lucrative market with brands and products is difficult unless you know how to really access the target audience. In securing the student placement on the projects, the College can provide a unique perspective, while also providing work experiential learning, directly applicable to a future field of study. The projects can be integrated into class assignments or be directed studies outside of the normal scope of the curriculum. The goal is to engage students into the wine sector early and expose them to challenges faced by their potential employers. The opinions and solutions they possess can be of tremendous value to the College and the client.

The Centre is currently working closely with the College and the industry to evaluate, build and implement new programming for the recovery of the tourism sector across the province. In a post pandemic environment, it is fair to say that every level of tourism, from flights to auto rentals to accommodations, will be impacted by a steep decline in traffic and demand. Most forecasts indicate that demand won't recover to pre-Covid levels for the next 3–5 years.

As an industry-focused organization, the Centre plays a key role in aggregating demand for support from the wine sector and feeding it back in to the College. The data and information is used to help determine immediate needs for support, future programming and possible re-training opportunities for those tourist-sector employees impacted by layoffs or redundancies. The Centre, for example, engages students in surveys and data collection from wineries and look to provide volunteer opportunities so that they can look to develop personal relationships with future employers.

Neutral Party

Ultimately, the BCBTAC must remain agnostic to clients, issues and solutions and align the best available resources to assist with the challenge. There is no pure profit motive for BCBTAC, notwithstanding the investment from the Government and the College. While a primary metric for success is reaching a point of financial sustainability or 'self-funding', the goal of the Centre is not to create a proverbial 'cash cow' for the College or a return on investment for NSERC. In this sense, referring challenges to other colleges, universities or even other Tech Access Centres is encouraged. In fact, Tech Access Canada, (the non-profit association that supports

the TAC network) has an internal platform for such challenges called "Jump Ball". The Jump Ball function can be used when a client issue is out of the scope for the initially contacted TAC and referring to other national TACs with a more suitable skill set may be the best approach. In this sense, TAC's can be seen as adding the most value to the client needs without the need for owning the project or the client itself.

One of the most significant selling points in marketing the services of BCBTAC is that the College makes no claim on Intellectual Property from its research. This sets it apart from universities and other institutions where IP is often negotiated up front, prior to the onset of research. Should there be any significant findings or discoveries during the course of research, the IP remains with the client, not with BCBTAC or the College. The simplicity of this model opens the door to a broader stream of opportunities, as industry is happy not to have to relinquish a financial position in its innovation, and BTAC is not bound by conflicts of interest as a result of competing investments in other products or services.

Discussion

Challenges with the Model

Conceptually, the TAC model works well for many sectors. Perhaps that is why there are 60 TACs across the country, ranging from renewable energy using wind and solar, to a national bee diagnostic centre for the recovery of honey bees. But operating a business (Tech Access Centre) within a business (College) is not without its own challenges.

First and foremost, colleges do not typically move at the speed of industry and this can be a significant frustration for incoming clients. Demands for results 'yesterday' can often be met with frustration when clients are advised results may take weeks to months. Setting and managing expectations is critical as the TAC may have to navigate various layers of bureaucracy to secure people, funding or equipment that is not 'on demand' through the TAC.

Next, there may also be significant challenges with respect to reporting lines and accountability. When dealing with faculty and students, it is imperative to set timelines and deliverable expectations, or projects may take a back seat to instructional coursework, administrative tasks or other duties and outside work. These dotted-line reporting structures mean demands for results have to be kept in check with other priority tasks of staff and faculty and regular check-ins are required to ensure that projects aren't slipping or delays in accessing equipment or even reagents are unreasonably withheld.

In addition, NSERC requires that TAC's not compete with existing private enterprises and this is the case with the BCBTAC. Where products or services are offered by competing labs or other businesses, the Centre has a clear requirement that they

not overlap on services, unless such services are in short supply, or unless these services are differentiated on the basis of technical equipment or expertise. The non-compete restriction ultimately means that the Centre ca not compete on the basis of price and must continually adjust and refine its business model to fill holes in the market that are not being serviced. This can make budgeting and forecasting demanding and even more of a challenge as external market forces may wipe out a line of business overnight.

Practically this means constantly innovating on service design, product offerings and pricing, and always having to look forward to new/different demands being requested by the sector, or by regulatory bodies. One such example in the local market is nutritional analysis and caloric content labeling for wine. The European Union has mandated that wine contain nutritional labelling by 2022. In the Canadian market, there is currently no such labelling requirement for alcoholic products. Looking forward, there are few participants providing nutritional labelling services for wineries, but given the demands for export of BC wines, there could be a significant need for such services in the next 12–18 months. BTAC is currently adjusting its equipment and Standard Operating Procedures to address what it predicts to be a heavy demand for such services in the foreseeable future, but like all things with business, it is risky.

Lastly, not all challenges have ready solutions. Despite best efforts, access to grants, funding, research, faculty and students, some challenges just don't have a simple answer or path forward. Being up front and honest with clients is critical and they, and the Centre, should not be discouraged by further roadblocks. If anything, they should be expected.

So How Does This Play Out in a Practical Sense?

There is a saying in the beverage industry that "the cases hide the sins", and for years, many wineries have been so focused on moving cases of wine that they've lost sight of the costs related to distribution and improvements they could make to recover eroding margins. Volume seemed to be all that mattered. However, Covid-19 has changed that.

Within days of the pandemic being declared, the wineries saw their tasting rooms closed, sales access to restaurants and bars terminated and their overall revenues cut by half or more. While panic set in for some, others took the opportunity to re-evaluate their business, their business models and access to their customers. What they quickly uncovered was that demand for wine hadn't dried up; only some of the traditional methods of distribution had. Within a few weeks, BCBTAC was approached by multiple wineries looking for assistance reviewing their distribution models, cost reductions and how best to access new customers with new innovations.

Providing Direct Assistance

It is common for wineries to engage directly with BCBTAC for pay-for-service assistance. With a host of modern equipment and highly qualified staff, the Centre offers a better value and quicker turnaround than moving products across the country or to other countries for testing. It is the Centre's mandate to support the beverage sector in this fashion, and it will ultimately lead to a more robust and professional set of services for the Okanagan Valley, thereby raising the bar for the market as a whole.

One of the common pay-for-service requests received from wineries during the pandemic has been for nutritional content analysis. There is not a requirement for such analysis in Canada at this point in time. However, several wineries have been looking to compete with the competitive growth of hard seltzers which are flooding the beverage market and which compete primarily on the basis of caloric content. The sense they had was that volume to volume, they were similar in caloric content to many of these spirit-based beverages. To this end, the Centre has aided several wineries with everything from nutritional labeling, through to sourcing co-packers to move their product into cans. This type of packaging innovation will support future endeavors to be accessible to the Millennial market segment and be 'relevant' at other occasions such as camping, hiking or days at the beach.

Assistance Through Faculty & Students

As mentioned previously, the Centre prioritizes the engagement of faculty and students when and where it is feasible. Faculty often have decades of industry experience to blend with their teaching and can impart a lot of structure to projects with real-world application.

Shortly after the pandemic was declared, a small group of wineries approached BCBTAC to review their collective transport and warehousing charges. They felt there were too many touchpoints, each incurring cost and ultimately the network was costly and inefficient. After some review and discussions, we engaged with a faculty member with expertise and logistics, as well as with students enrolled in similar courses. The Centre was able to secure funding to pay the students for work outside the program and work with human resources to secure a slot of paid time off for the faculty member. This project is ongoing and focused on a CO-OP distribution model for shared distribution costs.

Referrals to Other TAC's & Universities

When projects are clearly outside of the scope of the Centre's expertise, but still within our mandate of assisting the sector, as discussed above, it will take the opportunity to outsource the work to other TAC's or universities. For example, a

winery client approached the Centre looking for solutions to bentonite disposal. Bentonite is a fine clay powder used in fining wine. While it is effective in this role, it tends to form a gooey clay mass when it binds with other compounds in solution. Disposing of it is difficult as it tends to be difficult to remove from tanks and wreak havoc on plumbing by clogging lines. When approached about the work, the Centre was excited at the opportunity to assist but quickly realized that the equipment and expertise for the project was outside its capabilities, both within the TAC, as well as within the College. However, the Centre has been able to reach out through the TAC network and find expertise in waste water management. This project is ongoing and has been referred onwards to another TAC with the capability to resolve this issue.

Funding & Grants

Lastly, one of the biggest attributes of the BCBTAC model is accessing funds and grants for any number of projects. Funding exists through Tech Access Canada for small bespoke projects, and much larger grants are provided through the College for follow on research and innovation work. Each project is evaluated and scrutinized at various levels, but the opportunities are numerous for those willing to commit the time and patience to engage. In its first 18 months of operation, we have secured 20 funded grants to the industry, across all sectors.

Conclusion

The Technology Access Centre concept provides a distinctive interface to facilitate industry and academic collaboration. By leveraging latent assets at Colleges across the country, with multi-disciplinary professionals at those same institutions, industry partners can turn internal challenges in to market-ready products and solutions without the requirement for significant expenditures in assets or manpower. The initial monetary investment from NSERC and the College should be recouped over time by a flourishing micro-economy and a recovery of the initial funding through sector profitability and corresponding tax dollars. These same tax dollars can then be re-invested into new TAC's, new funds and grants to the support the sector or back into a specific TAC to further enhance the opportunity for innovation and research overall.

The BCBTAC is an excellent example of how this concept begins and grows in its initial start-up phase, notwithstanding the expected challenges inherent in the commercial and academic environments but also the challenges of a 'once in a century' world health crisis. To date over its first 18 months of operations, the BCBTAC has demonstrated that with appropriate policies, funding and effective management, it will continue to grow in a manner consistent with the overall goals of the TAC grant program in Canada.

References

Conlin, M. V., & Rice, A. (2018). The future of wine tourism in the Okanagan Valley: A Delphi method survey. In M. Sigala & R. Robinson (Eds.), *Managing and marketing wine tourism and destinations*. Channel View.

Conlin, M. V., & Rouse, J. (2014). From Merlot to Nk'Mip: Wine, tourism and identity in the Okanagan Valley. In M. Harvey, L. White, & W. Frost (Eds.), *Wine and identity: Branding, heritage, terrior*. Channel View.

Hira, A., & Bwenge, A. (2011). *American association of wine economists* (Working Paper No. 89). The Wine Industry in British Columbia: Issues and Potential.

Kneller, R. (1999). Intellectual property rights and university-industry technology transfer in Japan. *Science and Public Policy, 26*(2), 113–124.

Langford, C. H., Langford, M. W., & Douglas Burch, R. (1997). The 'well-stirred reactor': Evolution of industry-government-university relations in Canada. *Science and Public Policy, 24*(1), 21–27.

Matador Network. (n.d.). *The 7 most exciting places to travel to drink wine in 2019*. Retrieved February 22, 2021, from https://matadornetwork.com/read/wine-destinations-2019/?hootPostID=d3cec42f05c41f38e6d1048eabc1343c

Narcity Media. (2019, March 27). *Canada has one of the best wine regions in the entire world*. Retrieved February 22, 2021, from https://www.narcity.com/en-ca/news/vancouver/canada-has-one-of-the-best-wine-regions-in-the-entire-world

Natural Sciences and Engineering Research Council of Canada. (n.d.). *College and community innovation program – Technology access centres grants*. Retrieved February 22, 2021, from https://www.nserc-crsng.gc.ca/Professors-Professeurs/RPP-PP/TACECAT_eng.asp

Nichol, A. E. (1983). *Wines and vines of British Columbia*. Bottesini Press.

Robert A. Bell's Wines of Canada, R. (n.d.). Retrieved February 22, 2021, from http://www.winesofcanada.com/

Roberts, G. K. (1997). Dealing with issues at the academic-industrial interface in interwar Britain: University College London and Imperial Chemical Industries. *Science and Public Policy, 24*(1), 29–35.

Valentin, E. M. M. (2000). University-industry cooperation: A framework of benefits and obstacles. *Industry and Higher Education, 14*(3), 165–172.

Valentin, E. M. M. (2002). A theoretical review of co-operative relationships between firms and universities. *Science and Public Policy, 29*(1), 37–46.

Van Emmerik, K. (2021, January 4). Global News. *CNN Travel lists Kelowna as a post-pandemic place to visit*. Retrieved February 22, 2021, from https://globalnews.ca/news/7555115/cnn-travel-lists-kelowna-place-to-visit/

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Business Awards and Wine Tourism: A Source, Spur and Transfer of Innovation

Marianna Sigala and Dimitrios Stergiou

Abstract Business awards have become very popular in the wine tourism sector and in the economy in general. However, although the literature recognizes awards as a critical factor supporting innovation, we still know little about the mechanisms through which awards can support and boost the firm innovation performance and capabilities. To address this gap, this study interviewed managers of cellar doors that had been award winners of the Great Wine Capitals, Adelaide, to get their perceptions and/or experiences on how their achieved award had influence internal and external factors supporting innovation. Findings revealed that the business awards energise and mobilise three internal (employees, financial resources, organizational culture) and five external (customers, past award winners, suppliers, award judges and suppliers) factors assisting companies to boost their innovation performance and capabilities. The findings provide numerous implications for industry and theory alike.

Keywords Awards · Innovation performance · Innovation capability · Benefits · Wine tourism · Gamification · Open innovation

Introduction

Business awards have been established in the corporate world as a great tool to motivate both organisations and employees ((Ichniowski & Shaw, 2003), as well as drive market reputation, sales and turnover (Jones et al., 2014). However, despite the anecdotal arguments about the benefits of business awards for corporate winners, there is a lack of literature investigating their impact on business performance

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and innovation (Jones et al., 2014). Most of the literature has mainly focused on studying the impact of internal awards on employee motivation and performance Neckermann et al. (2009), ignoring the impact of awards conferred on an organization by an external body. In reviewing the limited literature, Zhang et al. (2014) concluded that the connection between business awards and firm performance is empirically inconclusive, partially because of the limitations of existing innovation measures, which tend to ignore the effectiveness of innovation programs.

Business awards have been for long been well established in the tourism industry (usually conferred by tourism governmental agencies, destination organisations and/or tourism industry bodies and associations (Keller, 2006). The wine tourism industry is not an exception from this trend. Business awards in the wine (tourism) industry sector have been established at a local, national and even international level and they are awarded by industry associations/clusters, governmental agencies and/or industry consortia. For example: the Wine Industry Suppliers Association (WISA) annual awards include an award category in wine tourism (https://www.wisa.org.au/wine-industry-impact-awards); the Wine Travel Awards (https://winetravelawards.com/#about-wta) have been established through a an international consortium of wine (tourism) stakeholders including Wines of Greece, VinItaly, Cite due Vin, etc. The annual awards conferred by the Great Wine Capitals (which is a network including governmental agencies, research centers, universities and private sector organisations) at provided at an international level but also local (capital) level (https://www.greatwinecapitals.com/best-of-wine-tourism/about-the-awards/).

However, although the tourism literature has recognized the role of business awards as a major influencer of organizational innovation (Pechlaner et al., 2010; Zehrer et al., 2013), the tourism research has also failed so far to examine and explain the mechanisms and the ways in which the business awards can fuel and support innovation in tourism.

This study aimed to address this literature gap by collecting more insight into the ways in which business awards can boost organizational innovation with the wine tourism sector. To achieve that, the study has collected primary data from nine managers of cellar doors that have won at least one annual award by the Adelaide Great Wine Capitals. Interview findings reveal several ways in which business awards can fuel business innovation by strengthening the internal and external innovation resources that firms can have available. The chapter concludes by providing several implications for theory and practice.

Benefits of Business Awards: A Literature Review

Defining Business Awards

As there is no universally accepted definition of awards, Neckermann et al. (2009) identified four unifying components consisting awards: the publicity value for the winners, the vague evaluation criteria, the unenforceability of awards and their

tournament character. There is plenty of literature providing evidence of the psychological and motivational effects of awards by identifying and incentivizing desired behaviour (Gavrila et al., 2005). By specifying, appraising and communicating their award criteria, the awards create and establish role models, distribute information about successful and desirable behaviour and encourage long-term commitment on award winning performance (Frey & Neckermann, 2008).

Benefits of Business Awards for Firms

The majority of the literature has paid attention and examined the impact of internal awards conferenced on employees to celebrate and motivate outstanding performance (Gavrila et al., 2005; Neckermann et al., 2009). There is a lack of research looking at the business impact of awards on an organization by an external body (Jones et al., 2014; Modd & Matanda, 2006), despite their increasing presence and recognition in global industries. The few studies looking at the impact of business awards on organisations focus on: (1) specific types of awards (e.g. quality awards such as Safari et al., 2020; Corredor & Goñi, 2010 or green technology awards such as Lai et al., 2022); and (2) the awards impact on business performance measured solely by hard metrics (e.g. turnover, increased sales) (Zhang et al., 2014), ignoring the soft benefits that are difficult to measure and take longer to materialize. However, several researchers advocated numerous benefits of business awards for organisations that are not always financially measurable and easily observable. Hence, apart from improved financial performance and increased sales/turnover, other benefits may include (Jones et al., 2014; Wilson, 2004; Zahorsky, 2012) have:

- Attraction of more qualified talent for vacancies
- Employee motivation, morale and performance: e.g. lower staff turnover, higher productivity, higher employee entrepreneurship and creativity, increased employee engagement
- Higher customer satisfaction and loyalty
- Firm credibility and stock market value
- Increased publicity, public relations and customer awareness

Despite the wide presence of business awards in the global tourism industry, there is a lack of studies investigating the benefits of these awards at various levels, i.e. company, industry, destination (local or national).

Innovation Benefits

It is widely agreed that business awards can play a critical role in supporting and fueling innovation (Bernier et al., 2015). The importance of business awards for supporting innovation is even greater for the small and medium enterprises (SMEs),

which traditionally lack and/or have less resources that bigger firms to innovate (Wessner, 2007). In recognizing the latter, Desouza (2012) described how the competitions and awards initiative called Challenge.gov developed by the USA government has been used to spur innovation specifically amongst start-ups and SMEs.

However, most of the arguments aiming to connect business awards and innovation are theoretical and/or lack empirical evidence (Lai et al., 2022). The few studies investigating the impact of business awards on innovation even provide inconclusive evidence (Zhang et al., 2014) partially owing to the limitations of existing innovation measures, which tend to ignore the effectiveness of innovation programs. The findings of the Zhang et al. (2014) study have shown that award winners are not only financially more successful but they also enjoy an indirect economic benefit through better R & D execution and costs. However, the study did not offer any insights on how awards can improve R & D processes and efficiency.

Moreover, although the very few past studies looking at the business benefits of awards have not particularly paid attention to their potential impact on firm innovation, their identified business benefits (see above) provide some hints on how business awards can possibility support and fuel firm innovation. For example, the following business benefits can empower award winning companies to boost their innovation performance: the attraction, retention and motivation of more talented staff can be a great resource to enable innovation; the incentivization of employee creativity can also boost innovation; and/or the increased access to financial resources that can also be used for funding innovation projects.

The tourism literature (Pechlaner et al., 2010; Zehrer et al., 2013) has also recognized the business awards as a major influencer of organizational innovation, but it provides no empirical evidence, insight and explanations about the mechanisms and the ways in which business awards can fuel and support innovation in tourism.

Overall, it becomes evident that there is a lack in the literature and of empirical insights in terms of how business awards can spur and fuel innovation. The results of such study can have real world impact and implications not only for award providing bodies (e.g. how to design and operate the awards) but also for companies entering and/or entering business awards, award winners and how their behaviour and use of award recognition can be used to boost innovation at firm and industry level. The latter is particularly important for industries like tourism and wine tourism that is dominated by SMEs which traditionally lack resources to support innovation.

Research Methodology

Study Aims, Data Collection and Analysis Methods

The study aimed to investigate and provide in-depth industry insights on how business awards can support firm innovation within the wine tourism context. To that end, past award winners of the annual Great Wine Capital Awards, Adelaide, have

been identified and approached to provide information. Overall, nice cellar door managers and marketing directors have agreed to participate in the study. Their cellar doors have been past award winners in the years 2019, 2020 and/or 2021. Four of these cellar doors have been award winners of multiple years (3 cellar doors were winners in 2019 and 2020 and one cellar door winner in 2020 and 2021). The interviewees were asked to provide their perceptions on whether they have experienced and/or become aware of any influence of the cellar door business award on the firm innovation performance. In specifically, the interview protocol aimed to boost a dialogue with the managers about the innovation impact of the business award around the following two themes:

– Influence of the business award on any internal factors influencing innovation, e.g. human resources, organizational culture, financial resources;
– Influence of the business award on any external factors influencing innovation, e.g. customers and/or any other external partners

The semi-structured interviews were conducted in person or in zoom and each one lasted for about 1 h. The interviews were transcribed and the textual data went through a thematic analysis, open and causation coding, as well as categorization in the process (Belk et al., 2013).

Study Context: Great Wine Capital Awards, Adelaide

The Great Wine Capitals is a network of major global cities in both the northern and southern hemispheres that it also encompasses the so-called 'Old' and 'New' worlds of wine. Members of this network are wineries, cellar doors, governmental organisations, destination management organisations, industries bodies and research organisations/universities all related to wine (tourism). The members of the network share a key economic and cultural asset namely their internationally renowned wine regions.

The network is founded in 1999 and since then, it has developed several projects, initiatives and programs with the objective of achieving excellence in tourism, business services and education within the global alliance of its renowned wine regions. One of this programs is the annual 'Best Of Wine Tourism' Awards (https://www.greatwinecapitals.com/best-of-wine-tourism/about-the-awards/). This highly reputable international competition is designed to reward the wineries in each member city and wine region that have distinguished themselves in terms of the excellence of their facilities in various categories from art and culture to sustainable wine tourism, and delivering quality experiences to the public. The awards first take place at a local level, i.e. at the various wine capitals that are part of the network, and then at a global network level. Specifically, the winners of the local awards go into the running to win an International Best of Wine Tourism Award. The Best of Wine Tourism Awards include awards for the following categories:

- accommodation
- architecture and landscape
- art and culture
- innovative wine tourism experience
- sustainable wine tourism practices
- wine tourism restaurant
- wine tourism services

The winners of the awards get global recognition with numerous online and offline publications, press releases, a publicized award ceremony. Publicity is generated at a wine capital local and national level as well as at an international level. In addition, award winners get the opportunity to benchmark with overseas offerings and competitors.

Adelaide is member of the international network representing Australia as a major wine capital in whose proximity are numerous internally well-known wine regions including Barossa, McLaren Vale, Adelaide Hills and Clare Valley. In addition, the above benefits, the Adelaide. The Best of Wine Tourism Award is implemented annually in the Adelaide network in accordance to the guidelines and rules of the global network (https://adelaidegreatwinecapital.com/awards).

Analysis and Discussion of the Findings

Business Awards and Internal Factors Influencing Innovation

Findings about the interviewees' perceptions and experiences about the impact of the business awards on internal factors that can influence business innovation clustered around the following key themes/resources: financial resources; human resources; and organizational culture.

In terms of financial resources, all interviewees agreed that they have experienced and noticed an increased cellar door visitation of customers due to the publicity generated through the business award. Interviewees could not comment on whether wine sales have been impacted by the award, as wine sales is a more complex issues affected by many other and more critical factors. In addition, four interviewees mentioned that they were not sure and/or they were questionable whether the increased visitation is also related to increased spent per guest, as they got the perception that many of the attracted customers only visited the cellar door *"… because they heard or read the news on the press without any commitment to consumer more or show a brand preference or loyalty"* and/or *"..because they wanted to check out and experience themselves what is so special leading to the award"*. Additional income generated due to the award can be used by companies to finance future innovation projects. However, only two interviewees mentioned that they felt more confident to undertake and/or continue specific innovation projects that they had in mind, because of the evidence they had that after the award they are

experiencing an increased visitation and so, a potential *'increased revenue turnover'*, *'the promise of the continuation of future streams of visitors'* and/or the *'a promised better financial condition in the future'*. As one interviewee said, *'innovation is a risky process, with no guaranteed success and long waiting times to get any return on investment'*. In this vein, the financial benefits perceived to be gained due to the award are seen by the managers as a good financial back-up and additional resources to pursue innovation. It is also worth mentioning that one interviewee believed that the achievement of a business award in two continuous years has increased the credibility of his company in the financial market, political sphere and local industry, which was evident in the company securing a financial loan, playing a major and important role in a local industry body at its wine region (wine and vine association) but also in a national industry body. As he mentioned *'business awards reflect an organizations' commitment to excellent and continuous development'* and this is important in order to be perceived and treated as professional and credible in the market; *'… this might not be translated in financial hard benefits, but it can be exploited to achieve better performance'*.

Interviewees were more positive and affirmative about the award impacts on their current but also future employees' attitude, morale, performance and commitment. All of them mentioned that the achievement of the award was also celebrated internally in a 'private' event organized to thank staff and celebrate the *'… results of hard work'*. All interviewees provided several statements providing evidence of how the announcement of the award has influenced their staff. For example, interviewees reported that they could see that employees felt more '*happy at work'*, *"more motivated and confident in what they are doing"*, "*more certain that they are in the right place to develop a career', 'we experience lower labour turnover than other cellar doors in our aera'*. One interviewee also mentioned that '*we are one of the few wine companies that we always get numerous applications from good talented people whenever we advertise a position; this is a good evidence that people want to work for us and develop their career, as they know that we are committed to continuous business excellence and development'*. Another interviewee stated that *'..the award was a confirmation for us that we are in the right track and we should continue the strategy and plans we have set and implement for years now*'. Staff confidence, commitment, love for their job, staff creativity and attraction of talent are widely reported as important factors for supporting firm innovation.

Three interviewees talked about the learning and 'training' effects that the award had for their employees. As one interviewee stated *"… completing the award nomination and going through the award criteria was a good learning exercise for all of us. It gave us a benchmark to assess our practices and reflect on what we are doing and why we are doing it; it gave us ideas on how to improve further*". However, when asked whether they had received any specific feedback on their application, two interviewees mentioned that the feedback was minimum and that they would prefer and find it more beneficial if more constructive comments were received by the judges. One interviewee also proposed that for them it would have been better if award evaluations included company visits by the judges; the latter would have allowed both judges and staff to clarify issues, learn from each other and provide more insights.

All interviewees agreed that the achievement of the award has helped them to better communicate and/or *'…reinforce the company's culture and commitment'* to excellence, continuous innovation and/or outstanding performance within their organisation. As one interviewee mentioned the award is *"… a tangible evidence we can give to our staff about the company's goals and visions, and that we are all responsible for contributing to this but also part in celebrating our results'*. One interviewee mentioned that *'… the award may create some stress for employee to outperform all the time, specifically because customers now expect more because of the award; but on the other hand, it shows to them that if their personal goals do not align with what the award represents, they should probably not work for us anymore'*. Although this statement may sound somewhat 'hard', it does show how business awards can be used as a hard element for communicating and boosting organizational culture and values, and which can also act as an organizational glue for bringing together employees to work towards common goals and standards.

Business Awards and External Factors Influencing Innovation

Interviewees' feedback about the impact of the business awards on external factors influencing firm innovation was focused around the impact of the following external stakeholders: customers; past award winners; award judges' feedback; suppliers.

Customers' pressures and expectations to receive outstanding service/offerings according to the achieved award was the most important and stressing factor mentioned by all interviewees that intensified the efforts of all staff and the management to not only perform to the award promised standards but even to exceed them. As one interviewee mentioned *"..once you are in the 'award game', it is difficult to get away; you always want more and you always want to prove to your customers that you are able to achieve more and better'*. This also explains the fact that many interviewees (as well as other wineries not included in the study's sample) have achieved business awards multiple times and in sequential years. As another interviewee mentioned *".. not achieving an award one year is considered as a failure for us"*.

Many interviewees also mentioned the pressure, inspiration and competitive pressures created by past award winners. For examples, 4 interviewees mentioned that past winners have been for them their ideal company to become driving their strategy formulation and daily efforts. Six interviewees have also reported that (irrespective of their award submission), they always look at the business ideas and business or operational model of award winners, because they can get great ideas on how to improve their practices and offerings, as well as get inspired to *'over exceed them'*, *'not to reinvent the wheel'* and '*create a break through offering'*. One interviewee has also mentioned that they also look and benchmark themselves with award winners in other industries. Another interviewee advocated that the promotion of award winners creates competitive forces for them but also other firms to follow suit. Hence, the past award winners have a multidimensional effect call it

jealousy, competitiveness, inspiration, mimicking. Business awards are a type of a 'gamification' application, i.e. competition, to boost innovation by motivating companies to 'play the game'/enter the competition and strive to always win it.

Four interviewees mentioned the award judges' feedback as instrumental and constructive to improve their practices, better think of their business models and to re-apply with a better submission for the award the following year. Two interviewees noted though that the judges' feedback was minimum and it would had been better if judges visited their property, spending time and mentoring them while doing the assessment. As one interviewee mentioned *'… by observing, talking to people and having a first hand experience of the provided service, you can get a better idea of what you are judging, and who is behind the papers and the writing describing in the papers of the award submission'*.

Lastly, two interviewees mentioned a positive experience that they had from suppliers. Following their business award and publicity, they had received few calls from various suppliers (e.g. supporting organic viticulture, providers of local food) making them aware of their products and how they can help them improve their sustainability and impact/contribution to the local community. Suppliers are also a critical factor assisting firms to improve practices and boost innovation.

Overall, the impact of the business awards to boost innovation via the influence of various external factors also supports the numerous arguments and needs for organisations to engage open innovation. Innovation should not and does not happen within closed doors within R & D departments. Important inputs, resources, ideas and effort can also come from external stakeholders and partners. In this vein, it seems that business awards also help and support companies to build an ecosystem for co-creating innovation and boosting their innovation performance.

Finally, it becomes evident that the business awards can boost the innovation performance and capability of the winners in the following ways: (1) micro (firm level) and macro (industry, ecosystem level) innovation benefits; and (2) innovation supported by hard (profits, sales) and soft (prestige, image, awareness, credibility, employee confidence and creativity, talent attraction) benefits.

Conclusions and Implications for Future Research

Despite the increased wide spread of business award, research has paid less attention on their impact on boosting and supporting business innovation. There are few studies investigating the impact of business awards on business performance, but even their findings are inconclusive. This study aimed to address this gap, by investigating the perceptions of award winning cellar door managers' about the impact of the business awards on their firms' innovation. The findings revealed that the business awards mobilise and energise three internal and five external factors that help companies improve their innovation performance and strengthen their innovation capabilities.

The research findings provide useful practical and theoretical implications. From an industry perspective, the findings provide useful insights on how to better design the criteria and category of the awards and the judging system and process (e.g. incorporate field trips, mentoring and more constructive feedback). From a theory perspective, the study provides various ideas and directions for future research.

Findings were collected from managers representing cellar doors that have achieved a business award. Hence, the findings are biased towards the perceptions of solely the 'winners'. Future research should also investigate the perceptions of non winners as well as of companies that have not entered the competition. Hence, the results need to be refined and validated by obtaining as well as compare the perceptions of companies that 'play as well as do not play the game'. It is also important to conduct future studies that will directly compare the innovation performance and capabilities of award and no award winners. In a similar vein, research should also compare the innovation performance and capability of wine regions that operate wine awards to those of wine regions not operating wine awards. The latter is important, because the findings revealed that the business awards have: (1) a spill-over innovation effect from firm to firm (i.e. firms look at award winners and wish to mimic and/or outperform them); as well as (2) an innovation acceleration effect within the firms (i.e. once the firms enter the game and they are within their game, they experience a continuously increasing motivation and need to always win the game). Consequently, future research can hypothetise and test whether wine regions operating business awards benefit from such 'in game' spill-over and acceleration innovation boosting effects and so, they can outperform wine regions that do not operate business awards. In other words, future studies should look at various ways to conduct research aiming to unravel the relation of business awards with innovation at both macro (industry) level and firm level.

References

Belk, R. W., Fischer, E., & Kozinets, R. (2013). *Qualitative consumer and marketing research*. Sage.

Bernier, L., Hafsi, T., & Deschamps, C. (2015). Environmental determinants of public sector innovation: A study of innovation awards in Canada. *Public Management Review, 17*(6), 834–856.

Corredor, P., & Goñi, S. (2010). Quality awards and performance: Is there a relationship? *The TQM Journal, 22*(5), 529–538.

Desouza, K. C. (2012). *Challenge gov: Using competitions and awards to spur innovation*. IBM Center for the Business of Government. Retrieved October 17, 2012.

Frey, B., & Neckermann, S. (2008). Awards: A view from psychological economics. *Journal of Psychorerlogy, 216*(4), 198–208.

Gavrila, C., Caulkins, J., Feichtinger, G., Tragler, G., & Hartl, R. (2005). Managing the reputation of an award to motivate performance. *Mathematical Methods of Operations Research, 61*, 1–22.

Ichniowski, C., & Shaw, K. (2003). Beyond incentive pay: Insiders' estimates of the value of complementary human resource management practices. *Journal of Economic Perspectives, 17*(1), 155–180.

Jones, P., Scherle, J., Pickernell, D., Packham, G., Skinner, H., & Peisl, T. (2014). Fool's gold? The value of business awards to small businesses. *The International Journal of Entrepreneurship and Innovation, 15*(2), 89–100.

Keller, P. (2006). Towards an innovation-orientated tourism policy. In B. Walder, K. Weiermair, & A. Sancho Perez (Eds.), *Innovation and product development in tourism* (pp. 55–70). ESV Verlag.

Lai, H., Wang, F., & Guo, C. (2022). Can environmental awards stimulate corporate green technology innovation? Evidence from Chinese listed companies. *Environmental Science and Pollution Research, 29*(10), 14856–14870.

Modd, B., & Matanda, M. J. (2006, December). *The link between participating in business awards programs and organisational performance*. In Australian and New Zealand marketing academy (ANZMAC) conference (pp. 4–6).

Neckermann, S., Cueni, R., & Frey, B. (2009). *What is an award worth? An econometric assessment of the impact of awards on employee performance* (IEW Working Paper No 411). University of Zurich.

Pechlaner, H., Reuter, C., & Zehrer, A. (2010). Innovation awards in the German tourism. *Innovation and Entrepreneurship: Strategies and Processes for Success in Tourism, XIV*(1), 81–96.

Safari, H., Razghandi, E., Fathi, M. R., Cruz-Machado, V., & do Rosário Cabrita, M. (2020). *The effectiveness of quality awards on the company's performance–the case of Iran's national quality awards*. An International Journal.

Wessner, C. (2007). *Government programs to encourage innovation by start-ups and SMEs: The role of US innovation awards. Handbook of research on entrepreneurship policy* (pp. 172–185). Edward Elgar.

Wilson, J. P. (2004). *An examination of the economic benefits of ISO 9000 and the Baldrige award to manufacturing firms*. University unpublished PhD Dissertation,of Pittsburgh, PA.

Zahorsky, D. (2012). *The American Business Awards: The value of corporate awards*. http://www.stevieawards.com/pubs/general/72_194_8831.cfm. Accessed 21 May 2021.

Zehrer, A., Pechlaner, H., & Reuter, C. (2013). Innovativeness in tourism: The perception of innovation awards participants. *Journal of Tourism, 14*(1), 11–30.

Zhang, G. P., Yu, J., & Xia, Y. (2014). The payback of effective innovation programs: Empirical evidence from firms that have won innovation awards. *Production and Operations Management, 23*(8), 1401–1420.

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From Winemaking to Wine Tourism: A Business Model Innovation. The Role of Value in Business Model Trajectory

Émilie Ruiz and Romain Gandia

Abstract In the past decade, the wine industry has gradually moved towards wine tourism by developing new business models to remain competitive and better meet current consumers' needs. However, in such a highly competitive industry, impacted by an important historical heritage, strong social practices and an ethnic culture, strategic diversification can be complex. This chapter seeks to better understand how diversifying into wine tourism can lead winemakers to a Business Model Innovation (BMI), studying more particularly the role of values in the strategic trajectories of winemakers BMs. Studying the case of a family firm, La Maison Guigal, we show how a winemaker can gradually transform its historical business model into a true portfolio of connected business models where wine tourism is based on a local ecosystem delivering the firm's historical, cultural, social and economic values. Our qualitative data also reveals the interdependent relationship between these values and their role in the strategic trajectory. We thus contribute both to the literature on the wine industry and to research on business model dynamic.

Keywords Value · Winemaker · Wine tourism · Business model · Trajectory

Introduction

As a cultural industry, the wine industry is strongly rooted in a set of historical and symbolic values that play a key role in strategic formulation and evolutionary trajectories (Alsos et al., 2014). As consumers no longer focus only on the wine, but also look for experiences and activities around wine (Quadri-Felitti & Fiore, 2012), winemakers are now seeking to diversify into peripheral service activities, such as wine tourism, to enhance the consumption experience and deliver more value to customers. Wine tourism is 'simultaneously a form of consumer behavior, a strategy by which destinations develop and market wine-related attractions and imagery, and

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a marketing opportunity for wineries to educate, and to sell their products, directly to consumers.' (Getz & Brown, 2006: 147). Wine tourism leads the wine industry to various types of innovation, especially technological innovation, for instance relying on artificial intelligence or blockchain (e.g. Unurlu, 2021). It involves tourism agencies (i.e., the destinations), consumers and above all wine producers (Getz, 2000).

Requiring new resources and competences (Haller, 2019a, b), wine producers need to rely on a local ecosystem that will provide these resources, skills and activities necessary to develop innovative offers, designed to embellish the original product: wine (Santos et al., 2021). In France, these initiatives are multiplying in the major wine-producing regions such as Bordeaux, Burgundy, Alsace, the Loire, Provence, and Languedoc-Roussillon and, to a lesser extent, the Rhône Valley. In a few decades, the wine industry and the profession of winemaker have thus evolved towards the integration of new areas of activity, implying a complete management of the value chain, from the production of grapes to the production of the experience with consumers. From the winemaker's perspective, wine tourism particularly leads to innovation that are not technological, but that are more related to 'process, new marketing methods, new organizational methods in business practices, workplace organization or external relations.' (Oslo Manual, 2005).

For winemakers, not only making wine but also develop in wine tourism is not without difficulties and challenges, resulting in a "gap between what wine tourists want and what tourism suppliers deliver" (Quadri-Felitti & Fiore, 2012: 11). Indeed, for winemakers, diversifying into wine tourism is not necessarily natural as they are rooted into the agricultural world, strongly dependent on traditions, heritage, terroirs and symbolic rituals around wine (Vrontis et al., 2016; Thanh & Kirova, 2018). This results in tensions between economic, historical, social and cultural values that can challenge the conception and development of the wine tourism activity. Thus, while the literature focused on the consumer perspective (Quadri-Felitti & Fiore, 2012), the business model (BM) approach seems relevant to better understand how to adapt to consumer expectations in terms of wine tourism. Indeed, it is recognized that a diversification strategy, such as opening to wine tourism for a winemaker, has an influence on the architecture of existing business models. Some operations lead to the development of business model portfolios, while others modify the core structure of the business model, through the development of a multi-sided architecture (Gandia & Parmentier, 2017).

These evolutionary BM trajectories can thus be difficult to master and current research does not address radical evolutions such as the transition from a simple business model to the creation of a strong local ecosystem, while, in the case of the wine industry, this calls for new competences and resources (Haller, 2019a, b). Moreover, the role of values is generally neglected, except in certain specific industries such as the social economy and in the work on social business models (Yunus et al., 2010). Thus, in the case of a highly cultural and ritualized industry such as the wine industry, the role of values and the tensions resulting from the conflicts between different types of values can have an influence on the evolutionary trajectory of a winemaking business model opening to wine tourism. The objective of this

research is precisely to show that, for winemakers, diversifying into wine tourism leads to a Business Model innovation. More precisely, this chapter aims to study the key role of values in the business model trajectory from winemaking to wine tourism.

To do so, we study the case of La Maison Guigal, the biggest Côte Rotie winemaker of the Northern Rhône Valley, one of the most important wine-producing regions in France, but lagging behind in the development of wine tourism. Our findings suggest that a winemaker opening to wine tourism face 3 challenges (developing a portfolio BM combining a product-oriented BM (winemaking) and a service-oriented BM (wine tourism), orchestrating a multi-sided BM (wine tourism) and co-create a wine tourism ecosystem to diversify). It also points out that the combination of economic and historical values (related to strategy) and social and cultural values (related to marketing) must be balanced, respecting an equation over the time. Finally, we suggest that the heritage is core for the ecosystem built for wine tourism.

Theoretical Background

The Key Role of Value Within the Wine Industry

The wine industry is rooted in a European culture and history, particularly in France, which places it at the forefront of cultural industries (Alsos et al., 2014). Unlike other food products, wine enjoys a particular aura of consumption, strongly associated with heritage and authenticity (Frost et al., 2020). Beyond its economic approach, wine is thus characterized by social (sharing, conviviality), historical (heritage) and cultural (gastronomy, tasting, terroir, region, etc.) values, which play a key role in its consumption and marketing (see Table 1).

In a current context of globalization and increased competitiveness, winemakers must renew themselves and reinvent the way wine is sold and consumed (Haller, 2019a, b). Most of them then diversify into wine tourism in order to provide an experiential offer and activities around wine, thus responding to new consumer needs (Quadri-Felitti & Fiore, 2012). The objective is to make wine an almost magical product, which must transcend the value and qualities of a terroir (specific place of origin) in historical, cultural and tourism context (Picard et al., 2018). However, the strategic diversification into wine tourism implies profound changes in the winemaker‘s profession, which is not without difficulty. Moreover, the intrinsic values of the wine world can create strong tensions during this trajectory. While a very large number of studies analyze the values associated with wine tasting, a very few studies makes the link with strategic behavior (Dressler, 2017). In this perspective, recent research (e.g. Frost et al., 2020) calls for a closer look at the role of values in the strategic activity of the wine tourism, while the literature on wine tourism mainly focuses on a consumer perspective (Quadri-Felitti & Fiore, 2012). More precisely, the approach of wine tourism rethinks the evolution of the winemaker’s business model (Brannon & Wiklund, 2014).

Table 1 Main values of the wine industry

Economic value	As a food product, the wine industry is necessarily based on an economic market logic (Alsos et al., 2014). The economic value of wine is essentially dictated by the price, but also by the speculation that affects certain very high profile wines.
Social value	Wine is a product of sharing, socialization and conviviality that generates a form of social value (Dressler, 2017). In the case of wine tourism, this value is exacerbated because tourism itself is a vector of social value (Altinay et al., 2016).
Historical value	The historical approach to wine can be understood through the notion of heritage, which represents the material and immaterial elements of the past and their use in the present (Timothy & Boyd, 2003). There are different types of heritage such as industrial, family, territorial, ethnic, etc. The wine industry necessarily possesses a heritage for each wine-maker exercising their activity over the years and generations (Vrontis et al., 2016).
Cultural value	The cultural approach to wine is intimately linked to three main types of knowledge: knowledge of the geography of wine (provenance, origin, and terroir), knowledge of wine making/production and knowledge of wine tasting (Howland, 2014). The combination of this knowledge coupled with an ethnic lifestyle provides a wine culture that may differ across continents, countries, or even regions. Wine culture then consists of ritual and symbolism, which creates codes in a social dynamic. This is why cultural and social values are often linked.

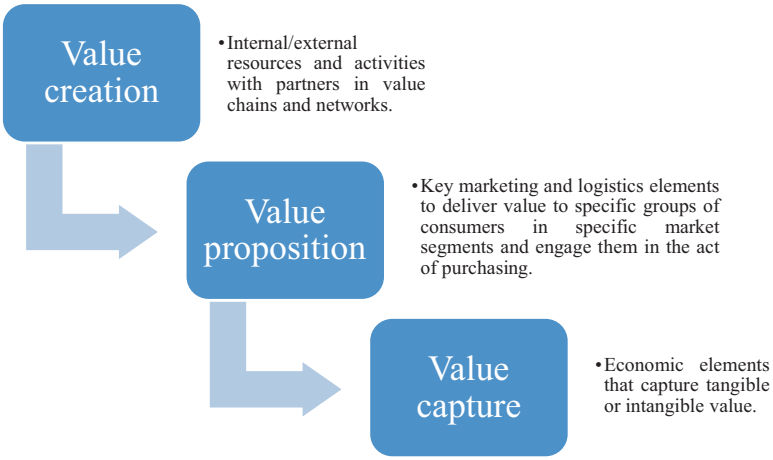

Fig. 1 BM key components

Business Model Trajectory for Supporting Diversification

A BM is a cognitive model for designing and formalizing corporate strategy (Baden-Fuller & Morgan, 2010). It describes (see Fig. 1) how a firm creates, delivers, and captures value (Teece, 2018). Strategically, a BM highlights how firms can adjust their strategic decisions to become more responsive and agile (Winterhalter et al., 2016), take more effective advantage of technology and market opportunities

(Teece, 2010), and better organize or reorganize their resources and activities within their value chains and networks (Appleyard & Chesbrough, 2017).

In 2005, Osterwalder et al. proposed to operationalize BM with the "business model canvas", a template that concretely describes the corporate strategy:

- **Key partners:** Who are your key partners?
- **Key activities:** What are the activities you perform every day to deliver your value proposition?
- **Value proposition:** What is the value you deliver to your customer?
- **Customer relationships:** What relationship does each customer segment expect you to establish and maintain?
- **Customer segments:** Who are your customers?
- **Cost structure:** What are the important costs you make to deliver the value proposition?
- **Revenue streams:** How do customers reward you for the value you provide to them?

Teece (2010) suggests that firms not focus only on a single BM but diversify. According to the author, if they focus on a single BM, firms will not be able to evolve and adapt quickly enough in the event of a deep change in the technological and/or economic context. The literature on BM (e.g. Sabatier et al., 2010; Aversa et al., 2017; Gandia & Parmentier, 2020) thus shows that when firms want to diversify, they can develop another BM, multi-sided or not, which will take place into a BM portfolio. For firms, a BM portfolio consists of investing "in at least two ways of creating and/or monetizing value" (Aversa et al., 2017: 49), in order to meet consumers and market needs (Sabatier et al., 2010). It also creates synergies and connections between the BMs in order to generate the revenues (Gandia & Parmentier, 2020). These synergies mainly rely on the pooling of resources and competences and must be evaluated with relevant KPIs (Aversa et al., 2017). However, a BM portfolio also carries with it the need to engage in BM innovation, which has associated difficulties (Chesbrough, 2010). Building a BM portfolio can be time-consuming and costly, as it calls upon the firm to develop new resources and competences, sometimes far from the company's historical heritage. All these BM evolutions are described as business model innovation (e.g. Chesbrough, 2010; Schneider & Spieth, 2013), that is 'the reconfiguration of existing BMs' (Massa & Tucci, 2013: 424).

In the case of the wine industry, the development of one or more new BM focused on wine tourism often demonstrates a portfolio logic that is very complex to implement for winemakers. Indeed, values and traditions can cause strong tensions with the development of a new service-oriented BM. The role of values in strategic diversification, and especially in the development of new BM, has already been partially addressed in certain new economies such as the social and solidarity economy. Some rare research (e.g. Spieth et al., 2019; Yunus et al., 2010) show how the equation between economic, social and environmental values influences the design of the business model. Values can indeed play an important role in the evolution strategies of actors, notably through diversification and the creation of new BMs.

However, these studies do not focus on more mature industries such as wine or tourism and do not adopt a dynamic view of strategic trajectory. The literature on wine tourism mainly focuses on tourists' perspective (Quadri-Felitti & Fiore, 2012). The strategic perspective is mainly focused on value chain management and competitiveness (Frost et al., 2020) but does not really address neither the business model innovation that winemakers must adopt, nor the role of values in this trajectory.

Methods

To answer these limits, we studied La Maison Guigal, which has been able to impose itself both as a winemaker but also as an emblematic and influential actor of the wine tourism.

Case Study Context: La Maison Guigal

A Historical Winery

La Maison Guigal, founded in 1946 by Étienne Guigal and formally known as *Établissements Guigal*, is a winery in Ampuis (located in the Northern Rhône region in France, near Lyon), famous as the cradle of Côte-Rôtie. The winery, which produces wines from appellations across the Northern and Southern Rhône area, is especially known for its Côte-Rôtie wines. In 1924, when he was only 14 years of age, Étienne started to work for Vidal Fleury (an older Côte-Rôtie winery still in business, owned by La Maison Guigal since 1984). Fifteen years later, building on the knowledge and know-how he acquired in his former experience, he decided to set up his own winery. Since 1961, when Etienne became blind, La Maison Guigal has been managed by his son, Marcel.

In the early 1980s the firm gained exposure to the international market when Robert M. Parker, Jr., a famous wine critic, wrote about La Maison Guigal and three of its wines: La Mouline, La Landonne and La Turque. These three single-vineyard wines (known as the 'La La's') are internationally renowned. In 2007, the release of the 2003 vintage of La Maison Guigal's 'La La's' wines set the record for most expensive release of any Rhône wine ($800). Later, Parker (2005) said, "In the past 26 years I have spent visiting wineries and vignerons, I have never seen a producer so fanatical about quality as Marcel Guigal". This fame supported the winery's international expansion, representing about 50% of its current sales (mainly to the U.S. market).

Under Marcel Guigal, the firm also expanded as a result of acquisitions of both buildings and wineries. In 1995 La Maison Guigal acquired Le Château d'Ampuis, a historic site on the banks of the Rhône (see Fig. 2). During the 2000s, La Maison

Fig. 2 Le Château d'Ampuis. (Source: https://www.guigal.com/images/bandeau-château.jpg)

Fig. 3 La Maison Guigal vineyards. (Source: https://www.guigal.com/fr/domaine.php)

Guigal made more winery acquisitions; these acquisitions were key to its strategy, as it allowed the firm to expand into the Northern Rhône Valley territory. In 2001 La Maison Guigal took over the former Jean-Louis Grippat estate and the Domaine de Vallouit, and in 2006 the firm purchased the Domaine de Bonserine. All these strategic acquisitions allowed the firm to consolidate its position within not only the Côte-Rôtie appellation but also other Northern Rhône Valley appellations, such as Hermitage, Saint-Joseph and Crozes-Hermitage. Currently, La Maison Guigal's domaine (see Fig. 3) consists of several prestigious vineyards, such as Côte-Rôtie, Condrieu, Hermitage, Châteauneuf-du-Pape, Saint-Joseph and Crozes-Hermitage.

The firm is still managed by Marcel Guigal, with extensive involvement from his son Philippe and daughter-in-law Eve. Unlike most of the main French wineries in France, La Maison Guigal remains a small family firm, with only ten employees at the headquarters, despite its international renown. This organizational configuration aligns with its family firm values and identity, facilitating the employees' autonomy and versatility across the two main activities of the firm: winemaking and cooperage.

At La Maison Guigal, winemaking relies on ancestral gestures and artisanal techniques alongside modern tools. The maturation of wine happens in "the silence, the freshness and the darkness" of the cellars, within oak barrels. As La Maison Guigal's promotional materials state, "aromas, structures, flavors, every nuance is

studied … . This is how long months of tasting are necessary to finally see excellence express itself and create an intense and authentic emotion". Moreover, starting in 2003 the winery's constant quest to develop skills and knowledge and master the entire process of production led La Maison Guigal to develop a new activity: cooperage (*la tonnellerie*), a traditional and ancestral technique that has enabled the firm to master an additional technical asset related to winemaking. Located in Le Château d'Ampuis, the cooper shapes and assembles wine barrels and heats the rooms. La Maison Guigal makes approximately 800 new barrels to satisfy the annual demand of the domaine.

Le Caveau du Château, a New Destination for Wine Tourism in the Rhône Valley

In 2020, in addition to its activities of winemaking and cooperage, La Maison Guigal opened a new site dedicated to wine tourism in Ampuis, Le Caveau du Château, which aims to offer visitors an experience combining wine, culture, history and ephemeral gastronomy. Le Caveau du Château is organizationally separate from the firm's winemaking activity, relying on a five-person team: a director, a manager, a commercial developer, and two wine tourism developers.

Passionate about winemaking and eager to accommodate its customers and others who want to know more about Guigal's history and more generally about Côte-Rôtie and wines, La Maison Guigal has always taken the time to share its offerings with people, whether regular customers, tourists or wine lovers, during free cellar visits. However, considering this small family firm is the main Côte-Rôtie winemaker, people had to book in advance to be received. Over time, it became difficult for the firm to satisfy the growing demand. Thus, about 8 years ago, firm executives decided to build an open cellar dedicated to this activity. After years of planning and work, Le Caveau du Château opened in January 2020 in a historic building (see Fig. 4), Le Clos Joly. Built in 1892 and owned by Les Demoiselles Joly, and bought by the Vidal family at the beginning of the twentieth century, this place was later used as the grape-pickers' home and sheltered vats for the vinification of Côte-Rôtie. The Guigal Family acquired this property when they bought the Vidal-Fleury house in the 1980s. It was natural for the family to choose this building, which still bears the traces of Etienne Guigal's first plantations, as the site of Le Caveau du Château when it was conceived.

Le Caveau du Château is the only space dedicated to wine tourism in the Northern Rhône Valley. It hosts three main activities: a tasting cellar, a museum and an event space.

– Le Caveau du Château allows anyone to visit the cellar and enjoy the tasting area. In a large tasting room, visitors can taste four great wines of the Northern Rhône Valley: La Maison Guigal, Le Château de Nalys, La Maison Vidal-Fleury and Domaine de Bonserine. Most of the Northern Rhône Valley wines are also

Fig. 4 La Caveau du Château. (Source: https://www.lecaveauduchâteau.com/)

available for sale. In addition to the tasting, visitors can have an immersive experience in the cellars to discover the daily life and history of winemakers. Visitors can also discover and visit the vineyard across the "dizzying slopes" of Côte-Rôtie.

– Truly passionate about winemaking, the Guigal family owns many tools and objects related to winemaking, some quite old. Le Caveau du Château thus hosts a museographic space, which presents numerous objects tracing the history of viticulture, oenology and cooperage over the centuries. This museum tour highlights and allows visitors to discover a collection of antique treasures illustrating the service of wine throughout the ages. More than 500 objects from the Guigal family's personal collection are displayed. The firm aims to not only display tools and objects related to winemaking and share a passion but also transmit knowledge about winemaking heritage and history to as many people as it could. To be as precise as possible, the family engaged the patronage of the Musée de Saint-Romain-en-Gal-Vienne, a well-known museum specializing in Roman archaeology.
– In terms of events, Le Maison Guigal created Le Caveau du Château as a place for gathering. It includes a 130-square-meter seminar room, called the 'Oenology' room. Le Caveau du Château also organizes events around wine, as well as cultural and artistic events, such as readings, theater pieces, live music shows and so on, in partnership with the Vienne Theater, the Vienne-Condrieu Agglomeration Tourist Office, local artists and gastronomy chefs.

La Masion Guigal has thus evolved over time and its history has been marked by various events of strategic importance (see Fig. 5).

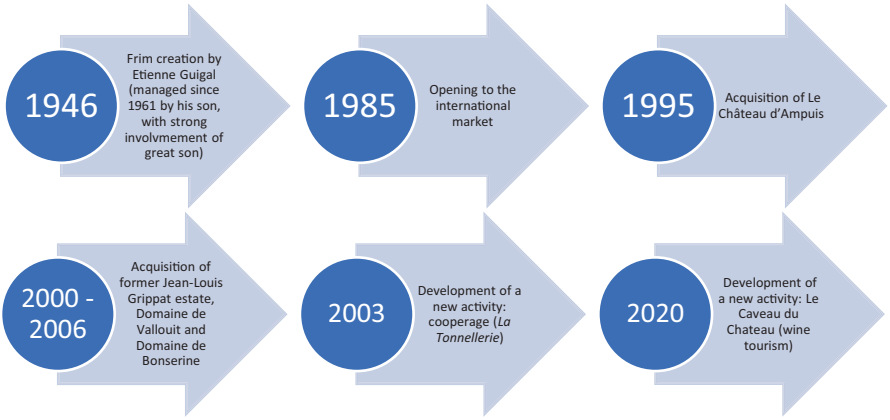

Fig. 5 Temporal development of LMG

Table 2 Interviews

Date	Firm	Interviewee
17/07/2020	Lyon Winetour/Les enfants du Rhône (former La Maison Guigal employee)	Director
03/08/2020	Inter Rhône	Wine tourism manager
05/11/2020	La Maison Guigal	Director of communication and marketing
25/01/2021	La Maison Guigal	Director of E. Guigal
25/01/2021	La Maison Guigal	Director of communication and marketing

Data Collection and Analysis

We collected our data through multiple sources. Semi-structured interviews (see Table 2) obtained by visiting LMG headquarters and Le Caveau du Château constituted the primary source of data, augmented by a range of secondary data, allowing us to better understand the evolution of LMG Business Model and to study the role of values on the BM trajectory. All the interviews have been fully transcribed. The analysis of data is currently under process.

Findings

Challenges in Opening to Wine Tourism

First, our findings identify the differences between product (winemaking) and service (wine tourism) BM (see Table 3). These differences point out 3 challenges for LMG when diversifying into wine tourism.

Table 3 BMs of La Maison Guigal

BM	Winemaking	Wine tourism
Key partners	Employees of Guigal, suppliers (distribution, both national and international).	Employees of Le Caveau du Château, tourism partners (Tourism Office, Museum, restaurants, shops, etc.).
Key activities	Wine making, cooperage, wine sales and tasting.	Wine tasting, cellar door visiting, museum tour visiting, specific events organized with tourism partners.
Value proposition	Wines (Côte-Rotie, Côte du Rhône, Condrieu, Ermitage, Saint-Joseph).	Wine tourism and experience.
Customer relationships	Customers expect high quality wines, with an affordable entry-level. Through distribution network (department store) or directly to the cellar door.	Tourists expect experiencing Guigal's history and activities around wine making. Through social network and directly to the open place (Le Caveau du Château).
Customer segments	People who love wine, whatever is the level of knowledge, habits, etc.	People who love culture, antiquity, heritage (local and tourists).
Cost structure	Vineyards, buildings and equipment to make wine.	Building (Le Caveau du Château).
Revenue streams	Tangible value (financial).	Intangible value (reputation, image, loyalty, etc.)

Table 4 Main resources of La Maison Guigal

Internal resources	External resources
Vineyards.	Leader position on the wine market.
Buildings (e.g. Le Château d'Ampuis, Le Caveau du Château, etc.)	Network of partners/ecosystem.
Equipment and tools for winemaking.	Community of brand lovers.
Human Resources (10 employees for the holding, 135 employees for all the entities).	
Reputation.	
Trademarks and domains.	
Knowledge, skills and expertise.	

Challenge 1: Developing a Portfolio BM Combining a Product-Oriented BM (Winemaking) and a Service-Oriented BM (Wine Tourism)

> Diversifying into wine tourism was quite challenging for us, we had to learn a lot from the beginning because making wine and making tourism is not the same thing at all. (Director, La Maison Guigal, 2021)

La Maison Guigal is a leader on the winemaking market. Especially thanks to internal resources (see Table 4) owned and mastered over decades, the firm knows how to organize in order to create, deliver and capture value when making wine. For example, thanks to past acquisitions, La Maison Guigal owns prestigious vineyards

that allow the firm to access the best raw material (i.e., grapes) to produce the best wine possible. In contrast, in developing a wine tourism activity La Maison Guigal has a great deal to learn; though the firm is a leader in the winemaking industry, it is a new player in the wine tourism industry.

Diversifying into wine tourism thus leads La Maison Guigal to manage two different BMs:

– The winemaking BM, product-oriented. Value creation, delivery and capture relate to the product (finding the right vineyard, using ancestral know-how and specific tools, etc.).
– The wine tourism BM, service-oriented. Unlike winemaking, for wine tourism, value creation, delivery and capture rely on customer service, which involves developing a network of various partners, as well as knowledge about local and cultural heritage.

In other words, the firm had to manage a BM portfolio (see Fig. 6), whereas before it was focusing on a single BM.

As explained by both Philippe and Eve Guigal, diversifying into wine tourism turned them back into beginners, and they needed help to learn and not make mistakes in seeking to practice a trade that is not theirs. In line with this, the firm had to accept to take a huge risk. A failure in wine tourism would have impacted its position as a winemaking leader.

> It is not because we know how to make great wines that we will succeed in wine tourism. We need to be aware of that and accept the need to learn new things because we don't know how to do them. (Director, La Maison Guigal, 2021)

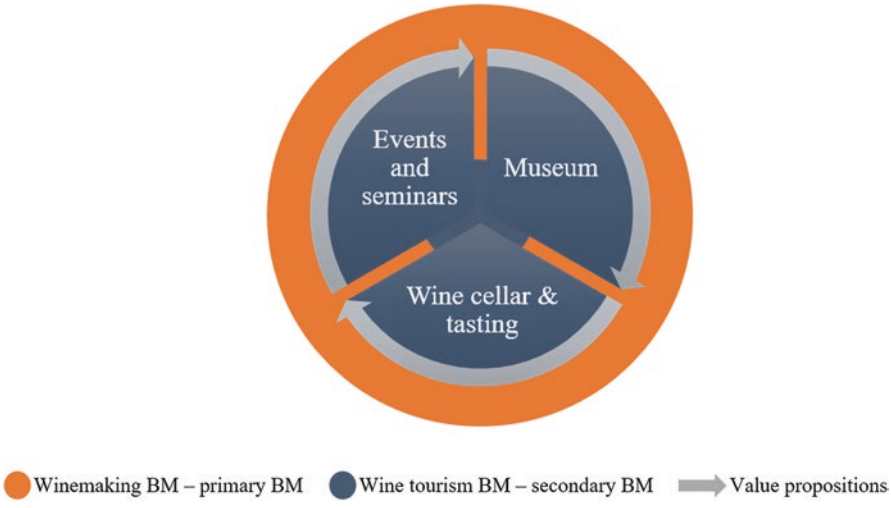

Fig. 6 La Maison Guigal BM Portfolio. Winemaking BM – primary BM Wine tourism BM – secondary BM Value propositions

Then the firm had to work out how to create a connection between its two BMs. Although wine is, of course, the connection between winemaking and wine tourism, as seen above, the two BMs do not target the same consumers. La Maison Guigal had thus to build bridges and create coherence between those two activities in order to create the connection required to diversify in the long term, in the hope that its two business models would feed each other. In line with this, La Maison Guigal now has to manage many more resources, both internal and external, in order to succeed in both winemaking and wine tourism.

Finally, the firm had to organize its value proposition (the way it creates, delivers and captures value) in order to prioritize activities and link the BMs. In the case of La Maison Guigal, Le Caveau du Château, at the core of the wine tourism BM, was originally created to host visitors to the cellar and for wine tasting. Visitors know the name Guigal and the reputation of the product, and these factors are the main reason they visit Le Caveau du Château. As products are for sale there, wine tasting and cellar visit activities deeply support the connection between the business models, allowing La Maison Guigal to create synergies between its BMs.

Challenge 2: Orchestrating a Multi-sided BM (Wine Tourism)

> With Le Caveau du Château, we developed different activities for locals, tourists, firms, etc.; we need to open to various new partners and to manage all of this coherently. (Director of communication and marketing, 2020)

To focus on its new wine tourism BM, La Maison Guigal has had to move away from its historic activity. As mentioned previously, the original motivation in building Le Caveau du Château was to keep offering free visits to the cellar and wine tasting in a free space with a dedicated team. During project development, the firm decided to open a museum and an event section too. With this expansive project, it aims to become a key destination for wine tourism. La Maison Guigal continues to generate new activities to develop its offering. All these wine tourism activities, whether in place or to be developed, call for a multilevel strategy.

Le Caveau du Château can be thought of as a free open place. No appointment is necessary, except for specific requests; anyone can access the rooms, be received by the team and so on. Moreover, each activity addresses different customer groups. The value proposition thus differs considerably depending on the activities, leading La Maison Guigal to implement a multifaceted business model for wine tourism. Herein, we identify three complementary groups, or facets:

– Side 1: The primary facet, *experiences and tasting*, pertains to cellar visits and wine tasting. As explained previously, this facet was the main motivation for building Le Caveau du Château, the core of this business model. This facet is internally managed; La Maison Guigal owns all the resources required (e.g., the building to receive visitors, the team to organize tastings, products to be tested) and aims to attract wine lovers, whether locals or tourists.

– Side 2: The *Museum of Le Château*, one of La Maison Guigal's secondary facets, has required that the firm work with external partners, namely Musée de Saint-Romain-en-Gal-Vienne and the Rhône department administration. This space immerses the visitor in the history of the vineyards and winegrowers of the Northern Rhone Valley throughout the ages. Presenting the Guigal family's personal collection, the aim here is to promote traditions and landscape elements related to wine, and to share winemaking testimonials. For example, visitors can see an ancestral pickaxe and oenochoe, cooper's tools, Roman coins, grape-pickers' hoods, antique amphora and so on. La Maison Guigal's aim here is to immerse wine lovers in its cultural heritage.
– Side 3: As another facet, *events* require the firm to work with partners too. In addition to the seminar room, targeting firms, collectivities and unions, the event activity aims to target local wine and culture lovers with specific events. For example, La Maison Guigal plans to organize a reading of a book dedicated to wine in partnership with one of the main independent bookstores of Vienne and the author of the book. Here, La Maison Guigal aims to attract wine and culture lovers, mostly local people.

Whereas the winemaking business model involves a linear value chain which the firm has mastered, the wine tourism business model relies much more on organizing activities and working with unfamiliar partners. This calls upon the firm to learn how to work not only with controlled resources and specific partners, but in a more open way.

Challenge 3: Respecting Organizational Identity in a BM Innovation Strategy

> Regarding the history of our winery, we can't do everything, such as digital. We are a family firm and we want it to be clear when people come to Le Caveau du Château. (Director of communication and marketing, 2021)

Even though La Maison Guigal is open to new activities and new partners, it still must remain true to its traditional and family values and identity. In France, especially in territories such as the Northern Rhône Valley, domains have belonged to families for several generations. In the case of La Maison Guigal, opening Le Caveau du Château had to reflect the values of the firm, such as authenticity, family, and respect for the land and tradition. Yet the firm has also been approached by digital platforms offering to promote it and its wines. The decision to not invest in a digital strategy to promote wine or wine tourism illustrates the concept of path dependency, whereby current decisions dependent on prior decisions or experiences.

Although the place is new, the family wanted to keep the trees planted by Etienne Guigal in his youth. In addition, visitors can observe two wine presses from the eighteenth century, displayed to pay homage to the traditional values and tools used by all the Guigal generations. To strengthen the coherence between this new business model and the firms' values, Eve Guigal, in charge of the Le Caveau du Château

with her husband Philippe, plans to make the place even more familial. The next step is to make it even more child friendly by, for example, creating a guide adapted to young visitors to help them discover wine and its heritage. The firm is also looking for local producers to organize familial tastings with regional fruit juices for children and wine tasting for parents. From a strategic point of view, an equilibrium between La Maison Guigal's values and its business model innovation must be maintained to define the development and innovation trajectory of the business model portfolio. This could not happen without an alignment between the firm's values, its identity and the innovation BM.

Challenge 4: Co-create a Wine Tourism Ecosystem to Diversify

> Another challenge was to build the ecosystem we need to do wine tourism, because until recently, nothing existed. (Director, La Maison Guigal, 2021)

Unlike other French territories such as Bordeaux and Alsace, the Northern Rhône Valley territory has only recently adopted wine tourism, for two main reasons. First, considering the Côte-Rôtie territory specifically, this late adoption can be explained by sales of Côte-Rôtie wines, which have recently increased (+11% from 2015 to 2018) in the absence of any wine tourism strategy. Second, all of the 34 wineries in the area are family firms. Using traditional processes, tools and know-how, most of them considered themselves wine-makers, not wine-sellers. Before La Maison Guigal built Le Caveau du Château, no individual initiatives on the Côte-Rôtie territory had invested in wine tourism, which is surprising for a territory so well-known by wine lovers. For example, a small domain from the Côte-Rôtie territory explained that it tried to set up more organized cellar visits to promote its wines, but sales did not increase with this effort. Until recently, the only collective event has been Le Marché aux Vins d'Ampuis (a wine market), which each year attracts thousands of visitors. However, this event only promotes wine sales. The only other activity available within the Northern Rhône Valley area was a Segway tour through the vineyards. Thus, despite the reputation of the Côte-Rôtie area and its winemakers, nothing happened in terms of tourism.

However, as explained by Inter Rhône, a collective of professionals from the wine industry and wine trade in the Rhone Valley, competition from other French wine areas made it necessary to develop the territory. Beyond the revenues coming from wine sales, wine tourism opens a new market and gives rise to new partnerships around wine, with positive consequences for tourism. However, in the absence of any infrastructure in the Northern Rhône Valley, La Maison Guigal faced the challenge of building the right network to begin wine tourism within the area, involving local and institutional partners. With its own network and the support of the Vienne-Condrieu Agglomeration Tourism Office (the main tourism office near Ampuis), La Maison Guigal has been able to start developing wine tourism at a larger scale. In some industries, being the only one on a market can be profitable; for the wine industry, it can be a hindrance. As explained by La Maison Guigal, even

though its resources and reputation allow the firm to invest in such a project, the lack of support from public partners and the lack of action from other domains meant it had to start from scratch to introduce wine tourism in the Côte-Rôtie area. With its determination and its reputation, La Maison Guigal has succeeded in building the foundations of a local wine tourism ecosystem, as is required to support the development of the activity within the area.

The structure of a wine tourism offer in the Côte-Rôtie territory has supported the integration of the area to La Vallée de la Gastronomie too, a French regional brand combining three French areas (Auvergne-Rhône-Alpes, Bourgogne-Franche-Comté and Provence-Alpes-Côte d'Azur) that seeks to develop food and wine tourism. In addition, La Maison Guigal participated in Le Fascinant Week-end, a four-day event gathering 31 wine tourism destinations in France, organized by Vignobles et Découvertes, an organization which has been managing labels for high-potential sectors in the wine industry for more than 10 years. However, in spite of this, the tourism industry has been affected by the COVID-19 pandemic, as has Le Caveau du Château.[1] La Maison Guigal continues to work with institutional partners to develop wine tourism within the Northern Rhône Valley area, and plans to develop new activities.

The Key Role of Values to Succeed in Combining Winemaking and Wine Tourism

Value Interdependence and Hierarchy in Strategic Storytelling

Our findings suggest that economic and historical values are the strongest in the strategic discourse. The notion of heritage is extremely important in the history of LMG and its evolution over the years. As LMG is a family business, this value is core to the firm's identity, both internally and externally, for customers and partners. This, although put into perspective with respect to economic constraints and objectives, must always be aligned with the history of the domain and its values. Beyond the strategical key role of economic and historical values, which are strongly interdependent, social and cultural values are more closely embodied in the experiential offer delivered to customers. LMG uses its material heritage and its infrastructures (cellar, wine house) to propose a discovery of its local wine history and wine tasting.

[1] Le Caveau du Château opened in January 2020. In March, due to the COVID-19 pandemic, France went into lockdown for almost 2 months.

Value Equation in Business Model Trajectory

Even though La Maison Guigal is open to new activities and new partners, it still must remain true to its traditional and family values and identity. In France, especially in territories such as the Northern Rhône Valley, domains have belonged to families for several generations. In the case of La Maison Guigal, opening Le Caveau du Château had to reflect the values of the firm, such as authenticity, family, and respect for the land and tradition. Yet the firm has also been approached by digital platforms offering to promote it and its wines. The decision to not invest in a digital strategy to promote wine or wine tourism illustrates the concept of path dependency, whereby current decisions dependent on prior decisions or experiences. To strengthen the coherence between this new business model and the firms' values, Eve and Philippe Guigal plan to make the place even more familial. The next step is to make it even more child friendly by, for example, creating a guide adapted to young visitors to help them discover wine and its heritage. The firm is also looking for local producers to organize familial tastings with regional fruit juices for children and wine tasting for parents.

Heritage Preservation for the Local Ecosystem

The preservation of heritage by rehabilitating a wine museum is a new lever for local tourism, which is built in partnership with other actors of the ecosystem. Thus, beyond the strategy of LMG itself, it is the whole ecosystem that seeks a sustainable economic dynamic through tourism and the management of the wine heritage. This historical value of the heritage is open and shared with all the actors of the ecosystem who find an economic interest. The tour operator Lyon Winetour is thus an ambassador for the region and local heritage through its tourism offer and the next openness of Les Enfants du Rhône, a wine bar that will propose wine tourism experiences to consumers. Beyond this economic perspective, historical cities, such as Vienne, become partners of LMG for developing a regional tourist itineraries, linking wine and antiquity. This heritage preservation thus goes beyond the economic perspective and seems key to the whole wine tourism ecosystem around LMG.

Conclusion

Our research aims to study the business model innovation involved by the diversification into wine tourism for a winemaker. More precisely, we study the key role role of values in the BM trajectory, from winemaking to wine tourism to better understand this innovation. Our findings suggest that a winemaker opening to wine tourism face 3 challenges (developing a portfolio BM combining a product-oriented BM (winemaking) and a service-oriented BM (wine tourism), orchestrating a multisided BM (wine tourism) and co-create a wine tourism ecosystem to diversify). It

also points out that the combination of economic and historical values (related to strategy) and social and cultural values (related to marketing) must be balanced, respecting an equation over the time. Finally, we suggest that the heritage is core for the ecosystem built for wine tourism. Overall, it is particularly interesting to point out that wine tourism not only involves technological innovation, but also BMI. In the case of winemakers diversifying into wine tourism, innovation is not only a lever for technological output, but also leads winemakers to tap into their social, cultural, historical, etc. values to renew their business models.

This raises contributions to both wine tourism literature and BM literature. First, by studying wine tourism under the scope of firms' perspective, our paper overcomes the limits identified by Quadri-Felitti and Fiore (2012). The authors point out that wine tourism, while there is a gap between consumers' needs and market offer, mainly focuses on a consumer perspective. Also, as suggested by Frost et al. (2020), we study the role of values in the strategic activity of the wine tourism. Second, we contribute to the BM literature. We are in line with the current recommendations for a better understanding of the dynamics of BM evolution (Massa et al., 2017). We therefore contribute to the literature by showing how the values influence the trajectory of the BM (Spieth et al., 2019). In other words, we study values as a core antecedent of the strategical decisions strategy.

References

Alsos, G. A., Eide, D., & Madsen, E. L. (2014). *Handbook of research on innovation in tourism industries* (p. 384). Edward Elgar Publishing Ltd.

Altinay, L., Sigala, M., & Waligo, V. (2016). Social value creation through tourism enterprise. *Tourism Management, 54*, 404–417.

Appleyard, M. M., & Chesbrough, H. W. (2017). The dynamics of open strategy: From adoption to reversion. *Long Range Planning, 50*(3), 310–321.

Aversa, P., Haefliger, S., & Reza, D. G. (2017). Building a winning business model portfolio. *MIT Sloan Management Review, 58*(4), 49–54.

Baden-Fuller, C., & Morgan, M. S. (2010). Business models as models. *Long Range Planning, 43*(2–3), 156–171.

Brannon, D. L., & Wiklund, J. (2014). Tourism and business model innovation: The case of US wine makers. In *Handbook of research on innovation in tourism industries*. Edward Elgar Publishing.

Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. *Long Range Planning, 43*(2–3), 354–363.

Dressler, M. (2017). Strategic profiling and the value of wine & tourism initiatives: Exploring strategic grouping of German wineries. *International Journal of Wine Business Research, 29*(4), 484–502.

Frost, W., Frost, J., Strickland, P., & Maguire, J. S. (2020). Seeking a competitive advantage in wine tourism: Heritage and storytelling at the cellar-door. *International Journal of Hospitality Management, 87*, 102460.

Gandia, R., & Parmentier, G. (2017). Optimizing value creation and value capture with a digital multi-sided business model. *Strategic Change, 26*(4), 323–331.

Gandia, R., & Parmentier, G. (2020). Managing open innovation through digital boundary control: The case of multi-sided platforms in the collaborative economy. *Journal of Innovation Economics Management, 2*, 159–180.

Getz, D. (2000). *Explore wine tourism: Management, development, destinations*. Cognizant.
Getz, D., & Brown, G. (2006). Critical success factors for wine tourism regions: A demand analysis. *Tourism Management, 27*, 146–158.
Haller, C. (2019a). https://theconversation.com/oenotourisme-la-course-mondiale-a-linnovation-120234. Accessed 9 Mar 2021.
Haller, C. (2019b). https://theconversation.com/loenotourisme-nouvelle-frontiere-de-la-viticulture-francaise-115880. Accessed 9 Mar 2021.
Howland, P. (2014). *Social, cultural and economic impacts of wine in New Zealand*. Routledge.
Manual, O. (2005). *Proposed guidelines for collecting and interpreting technological innovation data*. Statistical Office of the European Communities.
Massa, L., & Tucci, C. L. (2013). Business model innovation. *The Oxford Handbook of Innovation Management, 20*(18), 420–441.
Massa, L., Tucci, C. L., & Afuah, A. (2017). A critical assessment of business model research. *Academy of Management Annals, 11*(1), 73–104.
Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying business models: Origins, present, and future of the concept. *Communications of the Association for Information Systems, 16*(1), 1.
Parker, R. (2005). *The World's greatest Wine Estates*. Simon & Schuster.
Picard, D., Moreira, C. N., & Loloum, T. (2018). Wine magic: Consumer culture, tourism, and terroir. *Journal of Anthropological Research, 75*(4), 526–540.
Quadri-Felitti, D., & Fiore, A. M. (2012). Experience economy constructs as a framework for understanding wine tourism. *Journal of Vacation Marketing, 18*(1), 3–15.
Sabatier, V., Mangematin, V., & Rousselle, T. (2010). From recipe to dinner: Business model portfolios in the European biopharmaceutical industry. *Long Range Planning, 43*(2–3), 431–447.
Santos, V., Ramos, P., Sousa, B., & Valeri, M. (2021). Towards a framework for the global wine tourism system. *Journal of Organizational Change Management*. Online.
Schneider, S., & Spieth, P. (2013). Business model innovation: Towards an integrated future research agenda. *International Journal of Innovation Management, 17*(01), 1340001.
Spieth, P., Schneider, S., Clauß, T., & Eichenberg, D. (2019). Value drivers of social businesses: A business model perspective. *Long Range Planning, 52*(3), 427–444.
Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning, 43*(2), 172–194.
Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning, 51*(1), 40–49.
Thanh, T. V., & Kirova, V. (2018). Wine tourism experience: A netnography study. *Journal of Business Research, 83*, 30–37.
Timothy, D. J., & Boyd, S. W. (2003). *Heritage tourism*. Pearson Education.
Unurlu, Ç. (2021). The integration of the blockchain technology into wine tourism. In *Blockchain technology and applications for digital marketing* (pp. 186–209). IGI Global.
Vrontis, D., Bresciani, S., & Giacosa, E. (2016). Tradition and innovation in Italian wine family businesses. *British Food Journal, 118*(8), 1883–1897.
Winterhalter, S., Zeschky, M. B., & Gassmann, O. (2016). Managing dual business models in emerging markets: An ambidexterity perspective. *R&D Management, 46*(3), 464–479.
Yunus, M., Moingeon, B., & Lehmann-Ortega, L. (2010). Building social business models: Lessons from the Grameen experience. *Long Range Planning, 43*(2–3), 308–325.

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“Fishing” for Winemaking Perfection in Cloudy Waters...Underwater Wineries: Innovation Genius or Another Marketing Trick? Implications on Wine & Food Tourism

Dimitris Karagiannis and Theodore Metaxas

Abstract This chapter examines innovative initiatives and technological applications in food & wine tourism, as essential factors for achieving competitiveness and commercial success. To achieve this, the chapter analyses various pioneering, mainly European cases of underwater wineries. Special attention is paid on Gaia Winery and its underwater cellar, which uses underwater wine making for producing “Assyrtiko”, the indigenous grape variety from Santorini, Greece. Gaia is the first and still the only Greek wine maker producing wine underwater; Assyrtiko is produced and aged for 5 years after being submerged in the Aegean archipelagos at a depth of 25 m. The chapter starts by discussing the concept of “Aquaoir”, or “water terroir”, as a new underwater wine ageing process based on shipwreck wine preservation cases found worldwide. The chapter debates the role of underwater wineries and ageing, as an excellent alternative way of preserving wines, and as another imaginative marketing technique for developing wine tourism. To that end, the chapter discusses the implications of underwater wine making on innovating wine & food experiences (combined with marine tourism activities referred to as “Wine aqua tourism”). The role of technology in both wine making and wine aqua tourism processes are also analyzed. The chapter concludes by estimating the positive impact of innovation into the food & wine tourism related businesses and providing suggestions for policy makers to use wine aqua tourism as a way for boosting regional tourism development.

Keywords Aquaoir · Underwater wine tourism · Wine Aquatourism underwater wineries · Innovation · Technology · Greece · Entrepreneurship · Policy making · Regional development

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Introduction

This chapter highlights the role of innovation, sustainability and technological applications in wine and food related enterprises, such as the wineries, and their potential developmental contribution to wine related underwater tourism or *wine aquatourism*. Innovation, sustainability and technology introduction have been recognized as key elements to increased competitiveness and business survival; hence, they play a prominent role in an emergence of wine producers in the international market. Wineries that invest in such areas usually increase their competitiveness (Gilinsky et al., 2008). We will study cases of underwater wineries around the world and their efforts for underwater wine tourism development, focusing on Greece and the GAIA winery in Santorini, and its wine "Submerged Thalassitis". It is the first and only successful commercial wine in Greece that is aged for 5 years in the Aegean Sea, at a depth of 25 m.

We will examine the new concept of "Aquaoir", or "water terroir", as new innovative wine ageing process and its implications on wine tourism experience. We will also examine how wine tourism experiences are designed around this "new" underwater wine product by leading wineries around the world. We will search the potential contribution of wine aquatourism on the creation of unique tourism experiences, while enhancing the tourist experience through transformational learning and self-development. We will investigate how we could promote wine aquatourism for destination branding, regional economic development, and will consider examine the future challenges and opportunities deriving from these new wine aquatourism products and services.

Finally, we shall study the consequences of these practices regarding sustainability issues, technology applications, and tourism development motivation. This study could assist in improved understanding of underwater wineries as an excellent alternative way of maturing wines. Additionally, it presents an opportunity for a new wine aquatourism evolution when combined with wine and marine tourism, while examining whether underwater wine aging is just another imaginative marketing technique for selling wine, as accused by its critics. With this paper we hope to highlight, for the first time, wine aquatourism as an innovative oenogastronomic tourism niche market, able to create unique and memorable tourism experiences. Secondly, we will try show how wine aquatourism sustainable development could be used to facilitate the appreciation and the preservation of the world's oceans, necessary to our survival as a species. These observations might be useful for Destination Marketing Organizations, and local governments, contributing to sustainable tourism development, regional branding, and entrepreneurial stimulation.

Innovation, Underwater Wine Making and Wine Tourism: Theory and Practice

Nowadays, unique experiences are a mandatory element of any tourism offering, because what attracts wine tourists to wine destinations is not just good quality of wine and wine tasting (Kim & Bohn, 2015). Instead, research has shown that wine

and the wine tourist's satisfaction and positive future intentions are generated when the wine experience includes experimentally distinctive and extraordinary activities (Vo-Thanh & Kirova, 2018), and memorable and authentic wine experiences (Haller et al., 2020). These interactive customer engaging activities should trigger not only behavioral and sensorial customer engagement, but they should enable customers to re-think of themselves, their identities and their connections with the place helping them rediscover and develop themselves further (Joy et al., 2018). So it is believed that wine experience under these conditions can facilitate transformational learning and self-development through high level cognitive and spiritual engagement, which in turn can generate customer loyalty, attachment to the winery and wine destination, as culture and wine combined can create transformative wine experience (Sigala, 2019b).

The Innovative Method of "Submerged Wines" and Ancient Greeks

It all started in ancient Greece. The submerged grape wine from the Greek island of Chios was famed in antiquity, distributed from the eastern Aegean to the elites in Rome, including the Caesar. It was made from grapes submerged in baskets in the Mediterranean before the crush, a 2500-year-old technique for flavoring and washing the grapes loading it with umami. Greeks used to soak the grapes in straw baskets to remove the waxy bloom that develops on grape skin. This method allowed them to sun-dry grapes faster before crushing them in terracotta amphorae.

Underwater Wine Making: Why Do Some Wineries Mature Wines Under the Sea?

Recently, the inspiration for underwater wine making was sparked again by the excellent condition of 168 champagne bottles discovered in a nineteenth century shipwreck in the Baltic Sea. In fact, over the years, some producers from different countries have begun to experiment in ageing wines on the seabed. This ageing process created unique organoleptic characteristics on the wine, known as *"Aquaoir",* a water or ocean "terroir". Many experts say that "it is not necessarily better or worse than the classic cellar method, but just different" (Paraskevopoulos GAIA wineries interview, 2020). Some wineries consider it an excellent, alternative way of ageing and preserving their wines. To many, it sounds like a clever, imaginative marketing trick. The idea is based on the diversity offered by the humid marine environment where conditions are almost ideal for proper storage and wine maturation. The reasons winemakers turn to the sea initially can range from just to find cheap, extra storing space, to the search of innovative winemaking, and marketing. The majority of winemakers choose to try underwater ageing because they believe

the ocean has unique features such as constant temperature and pressure, lack of light, relative lack of oxygen and a vibration and noise absent with mild underwater tide movements that could have a positive impact on wines (Klosse, 2013).

"Aquaoir" in Underwater Ageing

Many wineries, such as Mira, in Napa USA, which has been experimenting with underwater wine ageing for several years, claim that seawater submersion causes wines to take a "divergent ageing path" and taste different to their land-based counterparts, creating a unique "Aquaoir". Some argue that "Aquaoir" is not an option like terroir formed by soil characteristics in conventional wines, but an inevitable consequence due to the absence of oxygen in the sea. Specialist believe that if they can apply what they learned from underwater wine ageing, on traditional wine ageing on land, it could have the potential to revolutionize how the entire wine industry thinks about wine ageing. It could also create unique experiences on wine tourists and wine enthusiasts while increasing profits for wineries, because these rare wines besides unique are also expensive.

"Wine Aquatourism": Underwater Wine Making, Wine Tourism & Marine Tourism

'***Aquatourism***' is a challenging and exciting field for the tourism sector. Earth's oceans have been proposed as alternative options for tourism exploitation, as approximately 70% of the earth's surface is covered by water (Bitterman, 2014). Recreational diving has developed extensively over the years, attracting millions of participants around the world, serving as a driving force of tourism development (Bitterman et al., 2009; Nevo & Breitstein, 1999). Diving tourism has become a significant factor in the economy of many countries and there are coastal villages and cities whose main source of income derives from marine tourism (Richardson, 2003). Specifically, it has been shown that divers visiting submerged sites spend more time and money in a region than tourists visiting artifacts displayed in 'dry footed' museums. Statistics from PADI (Professional Association of Diving Instructors) show that 80% of qualified open water divers have a college education, and can be counted as members of the higher income groups with the means to spend more money on their travels than the average tourist (PADI, 2021). In addition underwater tourism also opens up numerous opportunities for recreation, cultural enrichment and sustainable development, besides opportunities for research and education. So, it is our claim that "wine aquatourism," a combination of marine and wine tourism can provide unique, unforgettable land and underwater experience to everyone, anytime, anywhere around the world. Specifically, submerged food and

wine cultural heritage, combined with marine tourism enjoyment could provide long-term opportunities for cultural and recreational tourism, and can contribute significantly to regional development and destination branding when combined with regular wine tourism. They could ensure the protection and preservation of the underwater cultural heritage, while promising a sustainable financial return. Studies of some heritage sites on land Moore (2014), have shown that for every euro spent at a heritage site itself, up to 12 euros may be spent on related activities around the site (Gražulevičiūtė, 2006). This effect was particularly obvious in the sector of tourism (transport, accommodation, food, guides, souvenirs, etc.). Additionally, it stimulates local pride and increases the consideration for local heritage.

At the UNESCO (2001) convention, cultural heritage was defined as *"all traces of human existence that lie or once lie under water for at least 100 years and have a cultural or historical character"*. This includes submerged temples, cities, lakes, fish traps and others sites as well as ancient shipwrecks loaded with wine clay amphorae or glass bottles. It is estimated that 3 million ancient shipwreck sites lie under the world's oceans, and at least 150 sunken cities and ports in the Mediterranean. The link between local culture, and underwater wine related tourism or (***wine aqua-tourism***) is fundamental for sustainable tourism development since at the same convention it was shown that 37% of global tourism has a cultural motivation. Submerged sites, including wine related ones**,** are appealing cultural attractions to tourists, and if managed properly, they could be made accessible to tourists without threatening natural habitat. Dive trails are a much appreciated way of showing underwater cultural heritage to divers, including wine related activates. They can improve the attraction of specific sites and give a greater tourism variety to a destination.

Worldwide, national authorities have endeavored to create official dive trails in order to foster greater visibility and enjoyment of underwater cultural heritage, while increasing marine tourism. This trend is of special importance for areas bordering the ocean, like most wine producing regions of the southern European countries, but also Australia and the Americas. It can greatly enhance their tourist attractiveness through the promotion of submerged wine related tourism activities combined with their submerged archaeological sites. However, in order to be attractive for marine tourism, the location of a dive trail or site is often crucial. Shallow warm water sites, such as those in the Mediterranean, tend to be more appealing to divers than remote or deep cold water sites. Many such underwater sites are located close to the coast, making it relatively easy for dive clubs to organize visits to both submerged heritage sites and close by vineyards and wineries.

Technology in Wine Aqua Tourism

The importance of the new technologies and innovation into wine SMEs could have multiple and positive influences, such as cost reduction, product differentiation, process innovation, and improvements of managerial organization (Taplin &

Breckenridge, 2008). Technology and advanced IT application play a crucial role in both wine making process and successful tourism operation. IT infrastructure could be used for improving experience tourism related optimization when applied in a holistic information technology conceptual approach. In case of tourism and innovative technology applications we shall point that there are two main categories:

- **Innovative diving equipment** include underwater swimming movers, electric monofins, sea scooters, bikes and submarines, mini diving (bottles) and floating respiratory systems.
- **IT technology equipment** that enhance tourism experience include hand watch dive computers, mini submarine robots and cameras for divers, non-divers and handicap visitors, virtual reality tour guide systems (for land and underwater use). Augmented Diving systems allow divers non-divers and handicap visitors to have a virtual guide of the underwater wine tour or an archaeological site.

Wineries that practice underwater aging and wine aquatourism exploit technology in order to tackle the Covid-19 pandemic effects, keep contact with people, entertain them while in quarantine and continue to sell wines or repeat businesses. For instance the Crusoe Treasures underwater winery in Spain offers virtual tasting; covid free (people are at home), with the assistance of technology.

Underwater Wineries Around the World

In 2003, one of the first wine producers to experiment with underwater ageing, Raúl Pérez in Spain, decided to age wine at the bottom of the Atlantic in a nearby bay at a depth of 150 m for 60 days. Since then, a handful of leading wine producers around the world have experimented with underwater wine ageing:

1. GAIA, Santorini, Greece, (https://gaiawines.gr)
2. Enrique Mendoza Winery, Alicante, Spain, (www.bodegasmendoza.com)
3. La Bodega Submarina de Canarias, Spain, (https://bodegasmonje.com)
4. Luis Perez Winery, Andalucía, Spain, (http://bodegasluisperez.com)
5. Bajoelagua Factory ‘Crusoe Treasure’, Bilbao, Spain, (www.bajoelaguafactory.com)
6. Castroy Magna Winery, La Palma, Canary Islands, Spain, (https://bodegasfernandocastro.es)
7. Espelt Viticultors, Girona, Catalunya, Spain, (https://espeltviticultors.com)
8. Enoteca Bisson, Italy, (https://www.bissonvini.it)
9. Château Champs des Soeurs and Abbaye Sainte Eugenie, Languedoc, France, (https://www.champdessoeurs.fr)
10. Chateau Larrivet-Haut-Brion, Pessac-Léognan, France, (https://www.larrivethautbrion.fr)
11. Edivo Vina, Croatia, (https://www.edivovina.hr)
12. Mira Winery, Napa Valley, USA, (https://miranapa.com)

Representative Cases

Among all wineries mentioned producing underwater wines, there are three cases which stand out for their innovative wine tourism services.

Case 1: La Bodega Submarina de Canarias, Spain: Underwater wine tasting in submarine.

La Bodega Submarina has developed aquatourism services offering diving experiences paired with food and wine tastings. Participants realize comparative wine tastings with the same wines aged on land vs the sea. The innovation involves technological mediation once these tastings take place in a uniquely idyllic environment underwater, deep in the sea. The visitors enjoy the wines from the filigree of the submarine, gazing at the seabed. This underwater boating amplifies the experience making it unique and memorable. Visitors have the opportunity to be toured and learn by experts about the marine life, corals and the reef, thus raising environmental awareness.

Case 2: Edivo Vina, Croatia: "Dive & pick your underwater wine amphorae from the sea"

Edivo Vina is located in Drae on the Pelješac Peninsula and has boosted its wine tourism with its new one-of-a-kind underwater winery. Grapes harvested from vineyards around Drae are aged for 3 months on land. The connection to the ancient times and history is that the wine made is transferred to specially made amphorae or clay jugs, based on the ones used in ancient Greece. The wine is tightly sealed inside the amphorae, which are then placed inside padlocked cages and lowered into the sea and stored for 1–2 years. These practices revive a winemaking tradition of storing thousands of years old, combining it with modern technology such as systems for visual monitoring and recording weather and underwater conditions and temperatures, while locating the cages of submarine wines during the maturation process. The Croatian winery offers diving tours to their underwater caves. It also operates a wine bar, where visitors can learn even more about the history of the region and its connection to winemaking tradition and culture. Visitors are invited to dive and get special tours into the vineyard's underwater caves alongside certified staff while enjoying the Mediterranean seabed, choosing their own wines amphorae to bring back to the surface to enjoy or take home. The design of the tour and the holistic participation of the visitors in the process with all senses amplify the experience. The uniqueness of such memories is achieved in a varied and innovative way such as the actual diving while enjoying the view of the Croatian wine scape scenery on land, but also the breathtaking Adriatic seabed. It is achieved through the empowering process of giving the opportunity to wine enthusiasts to choose their own amphorae underwater. They encourage them to interact with experts at a wine bar on land overlooking the Mali Stone bay and hear the stories of the region and the local wine culture. Finally by taking home the submerged wine amphorae full of stuck corals and the reef patina on it, they take home with them a peace of the living

Croatian culture which constitutes a tangible proof of the unique experience and unforgettable moments.

Case 3: Bajoelagua Factory 'Crusoe Treasure', Bilbao, Spain: "Covid free, memorable and authentic underwater wine tourism experience from home, through virtual tasting".

Crusoe Treasure is located near Bilbao and has been one of the founding members of underwater wineries and at the forefront of the aqua tourism movement, organizing wine tourism activities while hosting visitors from all over the world. It offers wine tastings on land or aboard their boat, duet comparative tastings of land and underwater matures wines, and memorable cruises to the Atlantic ocean enjoying the spectacular scenery of the Bay of Plentzia. Recently the company organized personalized and interactive virtual wine tastings and underwater wine tours from home with the assistance of technology, adapting to the current Covid-19 quarantine. These virtual interactive tasting tours of 40 min are offered from the comfort of the "virtual tourists' home", in Spanish and English. They are totally personalized, either alone or accompanied, once they can be realized hand in hand with a person from the founding team through images and videos stories. The winery promises unique emotions, live memorable and authentic experience while enjoying a bottle of Crusoe Treasure's underwater aged wine. The company claims that the wine expertise of the participants doesn't matter. The virtual tastings are designed in such a way for each user so that at the end of the session, he feels that this experience has bring them closer to the Crusoe wine culture, philosophy and history of the place. It is achieved through the experience of enjoying and chatting about wine while virtually touring the underwater winery at the bottom of the Atlantic Ocean, coronavirus safe, at a time of his choice and from the comfort of his home! All the potential "virtual wine tourism visitor" has to do, is to order his favorite underwater wine from Crusoe's online shop ahead in advance. Then he needs a computer or tablet with internet connection and register in the Crusoe Treasure Club, enjoying all future member benefits such as updates and discounts. Once the wine has been received the customer can send to the winery a message arranging when he wishes to hold a virtual tasting and a date is arranged for the experience. During the Covid-19 alarm, the virtual tastings are offered by Crusoe free of charge.

The Role of Innovation in Wine Customer Purchase Behavior and in Tourism Experiences

During the last decades, many studies focus on factors effecting customer wine purchase behavior and preferences. As demonstrated by Sogari et al. (2016), wine consumers appreciate attributes such as tradition, authenticity, grape variety, (Lerro et al., 2019; Pomarici et al., 2017; Cohen, 2009), vintage, producers (Schäufele & Hamm, 2017), and previous experience with the product (Chrysochou et al., 2012).

Other studies have shown that consumers evaluate as important strict agricultural, oenological practices and regulations (such as PDO and PGI) (Costanigro et al., 2019). Finally, the majority or research indicates that "price" stands out as the single most important attribute effecting wine purchase behavior (Lockshin & Corsi, 2012; Duarte et al., 2010). Research revealed that sustainable and innovative wine attributes, such as sustainable certification, organic, and eco-labelled, are also preferred by consumers who are willing to pay more for these wines (Schmit et al., 2012). Even though innovation is considered a desirable attribute in wine tourism, a European study out of Italy, found that innovative wine attributes had negative evaluations by consumers in terms of preferences. A possible explanation was the unwillingness of European consumers to accept "innovation" in a traditional product such as local wines (Sogari et al., 2016). In these cases, "traditional" was perceived by consumers as quality associated with product authenticity and it was judged more important than innovation. It indicated that innovation is not a panacea for success in wine tourism industry and wine consumption, and under certain conditions, it could negatively affect consumers' purchasing preferences. In food and wine tourism, the creation of unique and memorable experiences is considered fundamental for any contemporary experimental tourism environment, and the complete involvement of all human senses is considered essential. In this context the design of holistic experimental tourism approaches should involve tourism services and products which incorporate and highlight their physical, credence, and cultural attributes in order to positively affect the experience and customer's wine purchase behaviour (Sogn-Grundvag et al., 2014). For successful tourism destination development, the literature emphasizes the need for innovation at a multidimensional level creating newness in the visitors' tourism experience and competitive advantages in order to differentiate and attract new markets (Rodríguez et al., 2014; Souto, 2015). Innovation is also important because it is a way to renew interest among existing tourists, promoting loyalty, increasing repeated visits and future purchases. There are several strategies to create destination newness through experience development. One could be small steps of incremental innovations, which may improve the experience for existing visitors leading. Others are the creation of totally new tourism attractions that could attract new visitors. According to Gardiner and Scott (2018) the most radical form of innovation is considered the "Transformational" which is the creation of new experiences for the attraction of new markets. Many tourism destination managers around the world support such strategies to promote radical transformational innovation practices in the destination experience, proposing the introduction of new innovative experiences that do not preexist in the destination. In such a strategy, given the shocking disruption that transformational innovation might cause, destination tourism managers and lawmakers should take caution that this radical approach might cause unexpected turbulence which might disorganize the destination operation for a while. Such changes might require organisational restructuring and operational flexibility along with the systematic creation of new soft and hard infrastructure, and services that will eventually support and facilitate the desired changes. Simultaneously, such innovative approaches could also require new skills by the local workforce that the destination does not

possess. So careful planning should take place in order to organize the process and protect the destination from the undesired side effects often caused by radical change during transformation. However, scholars agree that such radical practices of "Transformational" innovation in the end could have beneficial effects potentially on the destination's competitiveness, enabling a place to attract new markets (Brooker & Joppe, 2014). In this line of thought, wine aqua tourism development could be beneficial to a traditional wine tourism destination by the introduction of a radical transformational innovation developmental approach that would introduce new attractions and services to a destination tourism portfolio, attracting new markets, revitalizing the destination with new products and services, offering new competitive advantages(Gardiner & Scott, 2018).

Another type of innovation worth mentioning in wine tourism development is social innovation. We can define "transformative social innovation" as a "*process of change in social relations, involving new ways of doing, organizing, framing and/or knowing, which challenge, alter and/or replace established (dominant) institutions in a specific socio-material context*" (Haxeltine et al., 2013). The social innovation introduced by a destination or a company does not need to be new to the world but it should be at least "new" to the beneficiaries it targets. For instance, in tourism and corporate marketing, social innovation could occur when firms tell a story about their business, products & services in such an effective way that could change people's perceptions and consuming behaviour towards a product, service or brand (Moulaert et al., 2013). Storytelling can be a powerful strategic business tool in wine tourism as well, because, in most cases it is through the stories that a brand or a destination effects how we decide and how we feel about it. Such content could help wineries and destinations build a strong relationship with their visitors ensuring brand loyalty. They are extremely efficient especially when they can leave up to the expectations that the stories promised. Nowadays, where technology dominates destinations' promotional strategy, effective and creative storytelling can be facilitated by social sharing, social media marketing, and content marketing effecting and changing of how customers see things (Van der Have & Rubalcaba, 2016). In wine tourism an effective way to implement social innovation could be the use of storytelling techniques as well. Such practices could link wines, wine places and unique tourism experiences, with local cultural heritage (Sigala, 2019a). According to Bosangit et al. (2015), telling stories about the origin of local food specialties, wine, and cooking methods, should be the focus of food service providers and destination managers because storytelling appeals to emotions. It could also enhance visitors' experiences, while strengthening social bonds with a place that may trigger desirable imaginary return to memorable times (Swanson & Timothy, 2012). This could be priceless for any wine tourism destination once stimulating feelings in such way could motivate tourists to make a trip to a destination and realize future purchases. In case of GAIA winery, as Dr. Paraskevopoulos stated, Submerged Thalassitis has been proven a great example of successful story telling tool for his company besides an expellant innovative wine. It has proved that its fame blends cognitively the brand of GAIA, with the turquoise blue of the Mediterranean Sea, the cosmopolitan brio of Santorini Island, the classic Greek culture and the crisp Assyrtico wine taste.

It achieves these mental associations in such harmonic way that it could affect a visitor's wine experience, evaluation process, and even his perception stimulating sales. Francis and Williamson (2015) suggest that, if such mechanisms of social innovation elements as storytelling are paired with the promotion of the physical, credence, and cultural attributes of products and services, that could influence and shape consumer's behaviour and preference allowing visitors of a destination to immerse themselves in unique tourism experiences (literally in the case of aqua tourism) and learn from these experiences but also from the history and the local culture of the destination. This could lead to self-improvement and self-development (Sigala, 2019a). This notion is supported by Gustafson et al. (2016) in his research which indicates that wine tourists' appreciation is a multi-dimensional aspect of wine tourist's offerings. It takes into consideration that many of the wine tourists try to seek more holistic transformative tourism experiences that could enable them to develop a better sense of themselves, while engaging them spiritually, and cognitively ending up giving them a purpose and a new meaning in their life.

The Case of GAIA Winery

GAIA Wines introduced the concept of submerged wine ageing in 2009 for the first time in Greece. It initiated its own innovative project by sinking 450 bottles of Thalassitis at sea off Santorini in order to age them, but also willing to explore the limits and potential of this grape variety (Figs. 1, 2 and 3). Contrary with other wineries worldwide that age wines successfully underwater, GAIA does not focus on wine tourism extensively, even though it is based in Santorini, the leading Greek tourism island and one of the best tourism destinations worldwide. Instead, it is

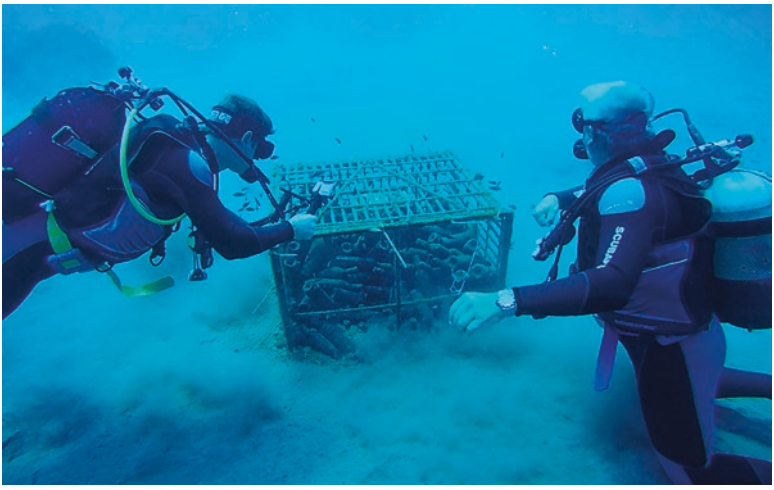

Fig. 1 Photos from the "submerged Thallasitis", GAIA wines

Fig. 2 Photos from the "submerged Thallasitis", GAIA wines

Fig. 3 Photos from the "submerged Thallasitis", GAIA wines

dedicated to wine production perfection. As Dr. Paraskevopoulos (co-owner and oenologist) stated during his interview, in the case of GAIA, "Submerged Thalassitis' contributed to the story telling of the winery sustainably and its impact on marketing is much greater for GAIA than what anybody can imagine" proving the importance and the role that storytelling as a marketing technique, has for a wine company both commercially but potentially in wine tourism development. The submerged Thalassitis and other underwater wine aging practices such as the usage of clay pots and amphorae (in Croatia and Spain wineries) communicate the history of a place, a connection with ancient cultural heritage, wine making techniques, and rituals

such as Greek and Roman symposia. Artifacts such as clay pots and amphorae were used in the past, but are also used today in underwater wine aging. Such practice revives ancient rituals contributing to the uniqueness of the experience while offering a sense of authenticity to the story (Sigala, 2019a). As a consequence a product or a company (GAIA) could achieve recognition and perceived quality. In this theoretical context, GAIA is engaged in social and transformational innovation by developing a neoteristic product, while creating a successful promotional storytelling that combines submerged Thalassitis with the revival of an ancient Greek winemaking technique of sea water grape immersion and local cultural heritage. The case of GAIA shows the potential that wineries producing submerged wines could have if they combine innovative wine products and services with wine aquatourism**.** By doing so they could produce focused activities designed to create experimentally distinctive, memorable and authentic wine experiences which would lead to customer satisfaction and loyalty. By engaging visitors through interactive activities, wineries that practice underwater wine aging (such as GAIA) and have exploited wine aquatourism, could trigger not only behavioral and sensorial customer engagement, but also augment extraordinary experiences which eventually they will enable them to rethink of themselves, their identity and their connection with the place, creating desired loyalty as Sigala suggests (2019b). In this sense, wine aquatourism could make wineries such as GAIA attractive destinations, offering newness and unique experience that could help any person visiting spiritually transform, learn and eventually self-improve.

What Is the Use of "Submerged Thalassitis" for GAIA Wines?

According to owner Dr. Giannis Paraskevopoulos, in order to stand out as a successful business, you need "a good storyteller". This is basically the fundamental role of submerged Thalassitis for GAIA but not only that. The purpose of the submerged Thalassitis underwater initiative was also to determine the ageing capabilities of Assyrtiko variety, testing its strength under different conditions. The underwater ageing study became part of a greater experiment of the winery that would help GAIA determine the optimum amount of O_2 that must pass into the wine producing results for each wine's oxygen needs, and determine capping permeability specification for optimum results. Another important parameter of submerged Thalassitis was its marketing success for a reintroduction of GAIA to the "forgotten" local Greek market. The submerged Thalassitis and Assyrtiko variety besides spearheading GAIA's exports globally, opening new markets; it was also a brilliant new product in financial terms, reaching over 200 euros per bottle. As Dr. Paraskevopoulos stated, "*even if we were charging 1000€ per bottle, we would still sell out once all production is presold before it hits the ship deck"*.

The case of submerged Thalassitis verifies the theory that while creating a unique or differentiated product in a sustainable manner, one which customers perceive as innovative or of higher quality in some way important to them, it can allow a

company to charge a premium price for its product or service (Hill & Jones, 2010). It also shows that innovation is crucial for wine related businesses, as it could benefit it financially and lead to constant development, new products, capacity growth, and extroversion, while contributing to oenogastronomic tourism and local development, (Karagiannis & Metaxas, 2019). As Paraskevopoulos confesses, the huge benefit for GAIA was the tremendous impact of the marketing success, which attracted the attention of markets and world class media attention, such as BBC, strengthening GAIA's image worldwide, while attracting wine enthusiasts and wine tourists worldwide. Additionally, this success contributes to the profitability and sustainability of the company and the creation of strong global branding, while it also provides the necessary funding for further wine development research.

Does the Creation of "Submerged Thalassitis" Encourage Wine Tourism?

Contrary to other wineries worldwide that age wines underwater, GAIA does not focus on wine tourism. Instead, as stated, it is dedicated to wine production perfection. At GAIA, even though the submerged Thalassitis initiative and the breathtaking beauty of Santorini have boosted the interest of wine enthusiasts and tourism visitation, specialized tours regarding submerged and land aged Thalassitis are offered only though comparative tastings. GAIA winery is officially certified as "visited winery" participating in organized thematic wine tours both in Santorini and Nemea. The truth is that GAIA has not fully exploited its tourism potential boosted by the submerged Thalassitis "legend" but chose to stay focused on wine making. It has not created yet specialized wine tourism activities that would focus and highlight the submerged Thalassitis initiative, such as diving tours to the underwater cellar as other wineries practice in Spain, Italy, Croatia and elsewhere. As Dr. Paraskevopoulos said, there are future plans for such initiatives only for a specialized audience, such as wine and hospitality experts or industry influencers, in a form of motivation incentives for professionals. He worries that developing further the tourism aspects could consume precious energy, personnel and assets, distracting the company from its main goal which is to make great wines and improving them year after year. Regarding their participation in wine clusters and thematic tourism wine roads, previous studies have shown that wineries' success can be facilitated through cooperation and through an ongoing effort for long-term sustainability, as described by Villanueva and Moscovici (2016), Karagiannis and Metaxas (2020). Research suggests that there is a positive correlation between networking and the propensity to eco-innovate vertical and horizontal collaboration within the supply chain, which accelerates the adoption of ecological innovations (Alonso & Liu, 2012). A great suggestion for GAIA's tourism stimulus would be to join an underwater wine and cultural tourism cluster, as it has participated with its Nemea winery in the "Wine Roads of Peloponnese" initiative, and contribute to development the

underwater wine tourism services offered in the region. A remarkable recreational diving effort combined with archeological touring has already taken place nearby, in Alonissos and Methoni where GAIA could benefit by participating. A consortium of public institutions and private companies from Greece and Italy, with the cooperation of the European Commission, through the EU project "Underwater Cultural Route in Classical Antiquity", have created an innovative touristic cultural product named "Dive In History", linking together common underwater archaeological heritage and shared cultural values. Potentially, GAIA could join the cluster and create world-class underwater wine tourism experiences.

The Future of Underwater Wine Tourism: Research Implications, Industry Challenges and Opportunities, Policy Recommendations

In this paper we claimed that underwater wine, wineries and wine aqua tourism are not just about marketing, but an innovative best practice based on historic and scientific facts that can help wineries and regions to develop sustainable wine tourism. This can be achieved by designing innovative quality tourism products and services based on the creation and augmented of unique and transformative wine experiences for potential visitors. Experiences that would embed the natural (land and sea) cultural, human and physical resources of a place through its food and the wine terroir/aquaoir, able to inspire the wine tourists to engage emotionally, spiritually and mentally (Sigala, 2019b). This process will allow participants to reconnect with nature and local culture, by observing, experiencing, learning and finally self-reflecting on cultural values, previous experiences and knowledge on an endless self-improving, cognitive loop. In that way the consumption of culture (such as wine) and the immersion in themselves, facilitated by this unique experience, augmented by the participation of all human senses that only food can uniquely stimulate, will help visitors improve, self-develop and evolve.

The ageing of wines under the sea combined with marine tourism activities, such as diving, can be an interesting diversified alternative to wine tourism initiatives for wineries and territories. There are wineries that offer wine related underwater tours which allow travelers to combine their enthusiasm for wine and gastronomy while enjoying the sea. These innovative tourism orientation practices are perfectly suited for coastal enterprises, regions and countries such as Greece. The desire of guests to access knowledge about the wine and wineries, characterizes wine tourists as this engaged educational service is an important part of the winery experience (Charters & Ali-Knight, 2002). Studies show that supplemental products and services are required for wine tourism development, such as recreational opportunities, wine tasting, educational services, customer service, and knowledgeable winery staff, in addition to the core product of the wine itself (Gilinsky et al., 2008). Thus, a lot of wineries offer a complete package of activities such as seminars, diving lessons,

diving to the actual underwater wine cellars, cruises, traditional meals on boat or at the winery's tasting rooms or bars, comparative tastings between submerged wines and their land counterparts and a combination of many other related oenogastronomic activities. Recently in Bilbao, the first global underwater wine tourism conference was organized for experts, winemakers, researchers, sommeliers, restaurateurs and hoteliers and other related professionals in order to share knowledge regarding submerged wines and sustainable marine tourism development. Underwater wine heritage can be a strong factor for rural development as well. Combined wine related activities, on land and in the wineries, when linked to the local market, could be a crucial stimulus in the rejuvenation of a regions' tourism industry. The design of land and underwater wine tourism activities should be part of a holistic sustainable developmental planning approach envisaged for the regions, the cities and the coastal zones, in order to assure a better safeguard for their cultural heritage and natural resources.

The combination of wine and marine tourism could enrich the tourism product of a region contributing to place branding, while it would sensitize participants for the underwater environment highlighting sea cultural treasures and also promote marine sustainability**.**

The protection and public display of underwater cultural heritage, including underwater wine tourism, can have an important cultural, recreational and educational impact on the local community. At the same time, the UNESCO, 2001 convention stated that no public access should be allowed if there is a risk of threatening the integrity and preservation of the underwater cultural heritage concerned, while control mechanisms should be established and respected. This guarantees the protection and preservation of the heritage that is on display on site. Many of these issues can be avoided if the responsible authorities actively manage their underwater cultural heritage. One possibility is to control site access by legislating responsibility and passing guardianship of submerged archaeological sites to authorized dive clubs. The Clubs could guarantee, by contract, the control of the integrity of the site and monitor it regularly with certified personnel such as underwater archaeologists.

The overview of the literature and the case studies analyzed reveal the multicomplexity of the factors determining the potential successful merging of wine and underwater tourism development. There are great obstacles regarding underwater wine cellar licensing around the world that hinder the progress of this method and the promotion of its benefits. The next step that governments should take is to be harmonized with other leading state European legislation that allow underwater cellars in specific areas of the seabed for such uses, as in the case of Spain. The Spanish model included a reciprocal motivation of investors and it was obliged the wineries to create with their underwater cellars, technical reefs with eco-friendly methods that would benefit the marine ecosystem as in the case of Crusoe winery.

In Greece some positive steps have been taken during the last few years. Recent legislation assists diving tourism development, such as underwater museums and diving parks, within the parameters of Law 3409/2005 (A′273), and shipwrecks are being exploited for the first time. Specifically, Greece opened its first underwater

archeological museum on August 2020 as collaboration between the Ministry of Culture, the Region of Thessaly and the Municipality of Alonissos. Visitors will be able to dive and admire the exhibits of the famous fifth century BC amphora wreck, at the bottom of the islet of Peristera in Alonissos, at a depth of 28 m. The famous shipwreck was a merchant ship, which sank there around 425 BC, loaded with 3000–4000 clay amphorae, ancient storage devices which in this case were being used to transport wine. Visitors and non-diving tourists will be able to stay on land and experience a virtual 'diving' tour with the use of the technology of augmented reality at the Public Information and Awareness Center. The Greek authorities plan to make more diving parks and ancient shipwreck sites accessible to scuba-diving tourists including the new diving parks in Ormos Tyros, a sea area of 1,7 sq. kilometers in Arcadia and Apokoronos, a coastal area of 60 kilometers in Crete. The management of the diving parks is assigned to local municipalities. Wineries such as GAIA could exploit this wine aqua tourism opportunity merging their underwater wine initiatives with cultural and recreational diving activities.

Conclusions & Recommendations

Even though experts say that space travel is known as the final frontier, the near future of travel seems to be underwater. Underwater tourism is becoming more popular while the opening of the ocean to travelers, offers them a chance to explore the marine world that covers 70% of our planet. According to Scubanomics there is a nice market of approximately 6–7 million active scuba divers in the world, plus 20–30 million snorkeling enthusiasts worldwide, while the Professional Association of Diving Instructors (PADI) has issued 28 million diver certifications globally since 1967 (Kieran, 2019). If the future of travel seems to be underwater, then food and wine tourism industry could benefit substantially from wine aquatourism. Wine aquatourism could be a real developmental opportunity for coastal and wine-producing countries around the world like Greece. Food and wine tourism sustainable development, if paired with marine tourism successfully, could encourage local development and contribute to the extension of tourism seasonality, creating new jobs while contributing to the environmental awareness of visitors and locals. However, there is still ground to be covered that our paper brings to attention for first time. The conditions for the establishment of underwater exploitation, such as wine cellars in the sea and tourism related activities and infrastructure interventions are still yet to be determined and legislated. Finally, each country or region interested in combined wine and marine tourism activities should invest on well-trained and educated staff to improve the wine tourism experience and incorporate innovative cutting edge technology in order to promote safety, customer satisfaction, and create unique, memorable experience for all stakeholders in a sustainable manner (Quan & Wang, 2004).

In conclusion, underwater wine ageing inspired by ancient Greek grape seawater immersion practices, may have started as a wine making and as a wine marketing

technique, but it could certainly evolve as a great opportunity for sustainable underwater wine tourism development, offering newness to a destination and excitement to participants while attracting new markets. As wine aqua tourism becomes more innovative and grows in popularity, stakeholders have a chance to ensure that new attractions are not only developed sustainably but also will educate travelers while raising awareness of the marine world. Thus, wine aqua tourism could help participating wine tourists improve as personalities through the creation of unique and transformative wine experiences. If done in a sustainable manner, wine aqua tourism just might contribute in saving our oceans while offering joy. With so many historical, natural and artistic attractions under the seas, if combined successfully with local cultural aspects, such as gastronomy, it will be up to government's lawmakers and communities to ensure that sites are safely managed in a sustainable manner with the guidance of the academic experts and scientists.

If the development of wine aqua tourism, besides appreciation for unique wine tourism experiences, can show to the world how vital the sustainable management of the planet's oceans are to our survival as a species, then this new form of oenogastronomic tourism will have been proven that underwater wineries is a genius innovation that can help the planet.

References

Alonso, A. D., & Liu, Y. (2012). Old wine region, new concept and sustainable development: Winery entrepreneurs' perceived benefits from wine tourism on Spain's Canary Islands. *Journal of Sustainable Tourism, 20*(7), 991–1009.

Bitterman, N. (2014). Aquatourism: Submerged tourism, a developing area. *Current Issues in Tourism, 17*(9), 772–782.

Bitterman, N., Ofir, E., & Ratner, N. (2009). Recreational diving: Re-evaluation of task, environment, and equipment definitions. *European Journal of Sport Sciences, 9*(5), 321–328.

Bosangit, C., Hibbert, S., & McCabe, S. (2015). If I was going to die I should at least be having fun: Travel blogs, meaning and tourist experience. *Annals of Tourism Research, 55*, 1–14.

Brooker, E., & Joppe, M. (2014). Developing a tourism innovation typology: Leveraging liminal insights. *Journal of Travel Research, 53*(4), 500–508.

Charters, S., & Ali-Knight, J. (2002). Who is the wine tourist? *Tourism Management, 23*(3), 311–319.

Chrysochou, P., Krystallis Krontalis, A., Mocanu, A., & Lewis, R. L. (2012). Generation Y preferences towards wine: An exploratory study of the US market applying the best-worst scaling. *British Food Journal, 114*(4), 516–528.

Cohen, E. (2009). Applying best-worst scaling to wine marketing. *International Journal of Wine Business Research, 21*, 8–23.

Costanigro, M., Scozzafava, G., & Casini, L. (2019). Vertical differentiation via multi-tier geographical indications and the consumer perception of quality: The case of Chianti wines. *Food Policy, 83*, 246–259.

Duarte, F., Madeira, J., & Barreira, M. M. (2010). Wine purchase and consumption in Portugal – an exploratory analysis of young adults' motives/attitudes and purchase attributes. *Ciencia E Tecnica Vitivinicola, 25*, 63–73.

Francis, L., & Williamson, P. (2015). Application of consumer sensory science in wine research. *Australian Journal Grapeand Wine Research, 21*, 554–567.

Gardiner, S., & Scott, N. (2018). Destination innovation matrix: A framework for new tourism experience and market development. *Journal of Destination Marketing & Management, 10*, 122–131.

Gilinsky, A., Santini, C., Lazzeretti, L., & Eyler, R. (2008). Desperately seeking serendipity: Exploring the impact of country location on innovation in the wine industry. *International Journal of Wine Business Research, 20*(4), 302–332.

Gražulevičiūtė, I. (2006). Cultural heritage in the context of sustainable development. *Environmental Research, Engineering & Management, 3*(37), 74–79.

Gustafson, C. R., Lybbert, T., & Summer, D. A. (2016). Consumer sorting and hedonic valuation of wine attributes: Exploiting data from a field experiment. *Agricultural Economics, 47*, 91–103.

Haller, C., Hess-Misslin, I., & Méreaux, J.-P. (2020). Aesthetics and conviviality as key factors in a successful wine tourism experience. *International Journal of Wine Business Research, 33*(2), 176–196.

Haxeltine, A. Wittmayer, J., Avelino, F., Kemp, R., Weaver, P., Backhaus, J.,& O'Riordan, T. (2013, November). Transformative social innovation: A sustainability transitions perspective on social innovation. In: *Paper presented at NESTA social innovation research conference*, (pp.14–15). http://www.scribd.com/doc/191799102/Transformative-social-innovations-A-sustainability-transition-perspective-on-social-innovation

Hill, C. W., & Jones, G. R. (2010). *Strategic management: An integrated approach* (9thed. ed.). South-Western Cengage Learning.

Joy, A., Belk, R. W., Charters, S., Wang, J. J. F., & Pena, C. (2018). Performance theory and consumer engagement: Wine–tourism experiences in South Africa and India. In *Consumer culture theory*, (pp. 163–187). Emerald Publishing Limited.

Karagiannis, D., & Metaxas, T. (2019). Innovation in wine tourism businesses: 'Turning ashes to gold'. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 345–363). Palgrave Macmillan.

Karagiannis, D., & Metaxas, T. (2020). Sustainable wine tourism development: Case studies from the Greek region of Peloponnese. *Sustainability, 12*(12), 5223.

Kieran D. (2019, July). *The size of The Scuba Diving Industry.* Retrieved from https://medium.com/scubanomics/the-size-of-the-scuba-diving-industry-573b8ac44c7c. Accessed on 15 Mar 2020.

Kim, H., & Bonn, M. A. (2015). The moderating effects of overall and organic wine knowledge on consumer behavioral intention. *Scandinavian Journal of Hospitality and Tourism, 15*(3), 295–310.

Klosse, P. R. (2013). Umami in wine. *Research in Hospitality Management, 2*, 1–2.

Lerro, M., Vecchio, R., Nazzaro, C., & Pomarici, E. (2019). The growing (good) bubbles:Insights into US consumers of sparkling wine. *British Food Journal, 122*(8), 2371–2384.

Lockshin, L., & Corsi, A. M. (2012). Consumer behaviour for wine 2.0: A review since 2003 and future directions. *Wine Economics and Policy, 1*, 2–23.

Moore, I. (2014). Cultural and creative industries concept – A historical perspective. *Procedia – Social and Behavioral Sciences, 110*, 738–746.

Moulaert, F., Maccallum, D., Mehmood, A., & Hamdouch, A. (2013). *The international handbook on social innovation*. Edward Elgar Publishing.

Nevo, B., & Breitstein, S. (1999). *Psychological and behavioral aspect of diving*. Best Publishing Co.

PADI. (2021, January). *2021 worldwide corporate statistics data for 2015–2020.* Retrieved from https://www.padi.com/english/common/ padi/statistics/1.asp. Accessed on 15 Mar 2020.

Paraskevopoulos, G. (2020, 14 Mar). Interview. Conducted by Dimitris Karagiannis.

Pomarici, E., Lerro, M., Chrysochou, P., Vecchio, R., & Krystallis, A. (2017). One size does (obviously not) fit all: Using product attributes for wine market segmentation. *Wine Economics and Policy, 6*, 98–106.

Quan, S., & Wang, N. (2004). Towards a structural model of the tourist experience: An illustration from food experiences in tourism. *Tourism Management, 25*, 297–305.

Richardson, D. (2003). Recreational diving. In A. O. Brubakk & T. S. Neuman (Eds.), *Physiology and medicine of diving* (pp. 45–55). Saunders.

Rodríguez, I., Williams, A. M., & Hall, C. M. (2014). Tourism innovation policy: Implementation and outcomes. *Annals of Tourism Research, 49*, 76–93.
Schäufele, I., & Hamm, U. (2017). Consumers' perceptions, preferences and willingness-to-pay for wine with sustainability characteristics. *Journal of Cleaner Production, 147*, 379–394.
Schmit, T. M., Rickard, B. J., & Taber, J. (2012). Consumer valuation of environmentally friendly production practices in wines, considering asymmetric information and sensory effects. *Journal of Agricultural Economics, 64*, 483–504.
Sigala, M. (2019a). The synergy of wine and culture: The case of Ariousios wine, Greece. In M. Sigala & R. Robinson (Eds.), *Management and marketing of wine tourism business* (pp. 295–312). Palgrave Macmillan.
Sigala, M. (2019b). Scarecrows: An art exhibition at Domaine Sigalas inspiring transformational wine tourism experiences. In M. Sigala & R. Robinson (Eds.), *Management and marketing of wine tourism business* (pp. 313–343). Palgrave Macmillan.
Sogn-Grundvag, G., Larsen, T. A., & Young, J. A. (2014). Product differentiation with credence attributes and private labels: The case of whitefish in UK supermarkets. *Journal of Agricultural Economics, 65*(2), 368–382.
Sogari, G., Mora, C., & Menozzi, D. (2016). Factors driving sustainable choice: the case of wine. *British Food Journal, 118*(3), 632–646.
Souto, J. E. (2015). Business model innovation and business concept innovation as the context of incremental innovation and radical innovation. *Tourism Management, 51*, 142–155.
Swanson, K. K., & Timothy, D. (2012). Souvenirs: Icons of meaning, commercialization and commoditization. *Tourism Management, 33*(3), 489–499.
Taplin, I. M., & Breckenridge, R. S. (2008). Large firms, legitimation and industry identity: The growth of the North Carolina wine industry. *The Social Science Journal, 45*, 352–360.
Thanh, T. V., & Kirova, V. (2018). Wine tourism experience: A netnography study. *Journal of Business Research, 83*, 30–37.
UNESCO. (2001). The benefit of the protection of underwater cultural heritage for sustainable growth, tourism and urban. In: *Development Convention on the Protection of the Underwater Cultural Heritage*, UNESCO.
Van der Have, R. P., & Rubalcaba, L. (2016). Social innovation research: An emerging area of innovation studies? *Research Policy, 45*(9), 1923–1935.
Villanueva, E. C., & Moscovici, D. (2016). Sustainable wine tourism development in burgeoning regions: Lessons from New Jersey and Connecticut. *International Journal of Economics and Business Research, 12*, 313–333.

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Phygital Innovations for Wine Tourism During the COVID-19 Pandemic: The Case of the Jurançon Wine Cooperative in South West France

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Abstract The objective of this chapter is to analyse the innovations adopted by the Jurançon Wine Cooperative (South West France) during the COVID-2019 pandemic in 2020/2021) and show how innovation helped maintain its tourist activity. The Jurançon Wine Cooperative is an SME at the forefront in terms of technological innovation and sustainable strategy and it is the 6th largest company in France in terms of the number of visitors per year (270,000). Wine tourism players in France are more inclined to develop physical innovations related to local heritage than digital tools. Consequently, the implementation of "phygital" (i.e. both physical and digital) innovations in the wine tourism sector, as well as the analysis of a "phygital experience" for tourists, appears to have not yet been analysed. This chapter covers the outcomes of a case study method over a period of 1 year (2020) with the Jurançon Wine Cooperative. This was carried by out by a mix of focus groups interviews and observations with winegrowers, and analysis of secondary documents. The first results reveal that the COVID-19 crisis, which appeared in France in March 2020, accelerated the implementation of digital innovations in order to maintain wine tourist activity. However, it slowed down the implementation of a sustainable approach due to operational constraints. Conceptually, the results are twofold: firstly, innovations implemented by the Jurançon Wine Cooperative to develop its wine tourism strategy are physical, digital and partnership-based, which can be described as "phygital". For example, physical innovations relate to a visit of the vineyards by small train or a pop-up store. Digital initiatives include videos for tourists arriving by bus and visiting the cooperative, or the development of JC's website for tourists. Secondly, a wine tourism experience for tourists can be defined as "phygital" as contributes to creating a new way for tourists to experience wine tourism in a dual physical and virtual world. This "phygital" tourism experience is a radical change for wine tourists, and constitutes a new experiential model. Our recommendation to wine tourism professionals is to set up a similar "phygital strategy" to

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encourage more tourists to be able have a richer experience during their visit. However, it is strongly recommended that a balance between "physical" vs. "digital" strategies is maintained, because of the importance of the human contact in the wine sector.

Keywords Phygital · Physical · Digital · Jurançon wine cooperative · Wine tourism · COVID-19

Introduction

Two major structural factors have an impact in the wine sector: environmental sensitivity (Magalios et al., 2019) and the emergence of new producer countries (Chauveau, 2019). Wine tourism, faced with these two changes, wine tourism has emerged as a source of innovation and value creation. It appears potentially as a solution for sustainability (Rejalot, 2019). However, since March 2020, a third factor, has shaken up the tourism sector – and in particular wine tourism (Whiteland, 2020) – with an immense overall impact (Seraphin and Dosquet, 2020): the COVID-19 crisis. Travel restrictions have heavily influenced global tourist behaviour and digitalisation has become inevitable, even if it does not offer the whole of the consumer's unique experience of a product or service (Sigala, 2020; Boutaud, 2019; Lignon-Darmaillac, 2019).

The objective of this chapter is to analyse the innovations implemented by the Jurançon Wine Cooperative, in South West France, during the COVID-2019 pandemic in order to maintain its tourist activity. To do this, two questions are addressed:

Q1: How can the innovations put in place by the Jurançon Wine Cooperative during the COVID-19 crisis in 2020/2021 be described and better understood?
Q2: What are the dimensions of this new tourist experience?

France was selected as a case study context for three major reasons. (1) France is recognised as one of the world's leading players in the wine market (second largest producer and second largest consumer of wine in the world, CNIV, 2019). (2) Wine is an integral part of its culture (Lignon-Darmaillac, 2019; Bisson et al., 2002) and it is a leading destination in terms of world tourism (1st world tourist destination for the number of arrivals, UNWTO, 2019). (3) Wine tourism in France is said to be one way of avoiding the 'Loi Evin', a law which strictly regulates advertising of alcohol in France (Fontan, 2019).

The case of the Jurançon Wine Cooperative is particularly interesting for three reasons. This cooperative is a 20 million euro SME which is at the forefront of its sector in terms of sustainable tourism and technological innovation; it is the 6th largest company in France in terms of the number of visitors (270,000 visitors per year), and in 2019 was certified "France Savoir Faire d'Excellence"; it promotes its sustainable development policy (HEV approach: High Environmental Value) to tourists visiting its vineyard (www.cavedejurancon.com).

Based on a case study approach mixing observations and focus groups of winegrowers and interviews with the Managing Director of the Jurançon Wine Cooperative, results show that the innovations they created to maintain its tourism activity are both "physical", "digital" and "partnership-based".

The main contribution of their chapter is to conceptualise the innovations implemented by the Jurançon Wine Cooperative as being "phygital", i.e. the combination of "physical" and "digital" innovations.

The chapter is structured as follows. First we present, the theoretical background: wine tourism co-creation experiences through technological innovations (and phygital innovations), the importance of sustainability to reform wine tourism, the need for stakeholder involvement at the local level to develop a wine tourism strategy. Then, we outline of the chosen methodology (case study) and then, we present the results in the form of five themes. The chapter concludes by presenting the main contributions of this study, i.e. the definition of "phygital" innovations and "phygital experience" in wine tourism.

Theoretical Background

Wine Tourism Co-creation Experiences Through Technological Innovations

Digital Technology and the Use of Digital Techniques

Sigala and Haller (2019) show that innovative tools, particularly digital ones, make it possible to make consumers the co-creators of their tourism experiences, taking them from a passive to a proactive status.

The advantage of digitalisation is all the more appreciable as the experience proposed concerns a complex (Guintcheva & Lagier, 2019) and authentic (Smith & Hanover, 2016) offer, which is the case for a product such as wine. Consumers become "co-creators, co-designers, co-investors of their own personalised wine tourism experiences" (Sigala & Haller, 2019). Therefore, developing the wine experience becomes a priority (Sigala & Robinson, 2019). For Boutaud (2019), in order to succeed, the experience must be inclusive and memorable by generating emotions, reflections, actions and sharing. Digital innovations are therefore relevant to both increasing and improving the wine experience (Sigala & Robinson, 2019).

It should be added that the main targets aimed at by winegrowers today are Millenials (26–44 y.o in 2021), (Lorey, 2017) who are digital natives and eager for digital experiences in the tourist field (Amaro et al., 2019). This therefore makes digitalisation unavoidable (Lorey & Albouy, 2015). If the constraint of the COVID-19 crisis is added to this, (Seraphin & Dosquet, 2020), physical visits to vineyards were not allowed, digital innovations become a precious tool for maintaining the link between producers and consumers (Alonso et al., 2013). A successful experience on the part of the consumer results in improved satisfaction and

therefore loyalty (De Rojas & Camarero, 2008; Graillot et al., 2011; Filser, 2002; Mainolfi & Marino, 2020; Hung et al., 2016).

Digital technology is becoming essential in tourism (Thach, 2009; Reyneke et al., 2011; Sigala & Haller, 2019) and makes it possible to develop an idealised representation of the tourist offer (Bassano et al., 2018). According to Sigala (2017), social networks, for example, enable consumers to perfect their tourist experiences by transforming them into "always consumers", i.e. sharing content, virtual presence, conversations, relationships and group participation.

The use of digital techniques in wine tourism is a possible way to target a younger group of tourists, and to make the world of wine more attractive for the Millennium generation and the Generation Z (1–25 y.o in 2021), (Lorey, 2017). To this end, the wine-producing companies involved in wine tourism should adapt their means of communication, particularly mobile applications (Guerrieri et al., 2016; Kuo et al., 2019) to the way of life of this new target group. Ben Nasr et al. (2017), Galati et al. (2017), Pelet et al. (2019) have shown the advantages of digital tools in this quest. In addition, studies show that digital tools lend themselves well to communicating about offers that are linked to a consumption experience such as wine (Dolan et al., 2013; Capitello et al., 2014).

Digital techniques can simplify complex products and make information about these more accessible (Cardebat, 2017). The playful aspect of digital applications and tools makes it possible to offer a pleasant, accessible and ultimately customer-oriented experience, not just producer-oriented. Moreover, it can enable better knowledge of targets by developing direct relations with them via forums, for example (Thach et al., 2016). Communities can therefore be formed and interacted with (Laverie et al., 2011; Kolb & Thach, 2016).

Physical, Digital and Phygital Innovations

Despite these numerous advantages, the wine world seems reluctant to develop digital tools (Lalicic & Gindl, 2019). Specifically, in France, in terms of wine tourism, wine companies are more inclined to develop physical innovations related to the local heritage, as demonstrated by Delaplace and Gatelier (2014) in the case of Burgundy.

However, according to Neuburger et al. (2018), for some tourist destinations, "physical space and virtual space are interwoven, creating a phenomenon that can be described using the term 'phygital'. While interaction with a tourist destination previously only occupied a physical dimension, virtual information now adds value to all stages of the customer journey". For example through Augmented Reality and Virtual Reality. For Ballina et al. (2019), "information communication technologies (ICTs) of destination are new mixed realities that integrate physical and digital resources".

Moravcikova and Kliestikova (2017) have described phygital actions as tools of modern marketing in the twenty-first century in the case of Brand Building. Nevertheless, the implementation of "phygital" innovations in the wine tourism

sector, as well as the analysis of a "phygital experience" for tourists, appears to not have yet been analysed. Moreover, this phygital customer experience in wine tourism needs to be further detailed, as there may be differences between "intended experience" and "real experience" (Ponsignon et al., 2017).

The Importance of Sustainability to Reform Wine Tourism

In recent years, it was considered that wine tourism (Hall et al., 2000) simultaneously boosted the economy and production of this sector (O'Neill et al., 2002; UNWTO, 2016; Holmes, 2017).

Figueroa and Rotarou (2018) summarise the advantages of wine tourism on the basis of a literature review, segmenting them according to three main criteria: the vineyard (direct sales with higher margins), the tourist (in person communication with winemakers, value added experience) and the tourism destination (promotion of sustainable development for the local area).

But now wine tourism has reached maturity (Robinson & Sigala, 2019 p. 409): "wine is now a mature tourism market, comprised of a myriad products and experiences and tapping into a plethora of markets". This activity needs to move beyond this stage of maturity and needs to be innovated to create a regeneration of itself.

Sustainable wine tourism creates new ways of thinking about the development of a winery and a region as a tourist destination by the merging of several approaches (Hugues et al., 2015). Some researchers recommend nourishing eco-tourism with its environmental perspective through solidarity tourism (Hallem et al., 2020; Ashley & Haysom, 2006). Add to this cultural tourism and this would give a global dimension associated with slow tourism which would be at the service of the environment and people (Irjevskis, 2019; Robinson & Sigala, 2019).

Wine tourism must therefore today take the step of a globally strategic reflection, by integrating the environmental aspect at the heart of its approach. Coupled with the integration of new technologies this would allow tourists to live a more 'real' and 'authentic' experience (Holbrook & Hirschman, 1982).

Sigala (2020) points out that the COVID-19 crisis can be used as an opportunity to transform tourism by developing future strategies based on technology, sustainability and well-being. According to Sharma et al. (2021), there is a need to revive tourism industry after the COVID-19 crisis based on three key dimensions: sustainable tourism, well-being of society, and climate action.

The need to transform wine tourism in the 2020s through sustainable development strategies appears to be a major challenge. In the case study of the Jurançon Wine Cooperative, the COVID-19 crisis assed to identify whether it has had an impact on the implementation of a sustainable development strategy entitled HEV (High Environmental Value; in French: HVE Haute Valeur Environnementale).

Stakeholder Involvement at Local Level in Wine Tourism Strategy: A Constant Need

For many authors, the success of the transformation of wine tourism depends on the cooperation of all the stakeholders (Getz, 2012; Santini, 2019; Freeman, 1984). who need to carefully analyse and plan their strategy (Sigala & Robinson, 2019; Santini, 2019). The idea is to structure it based on a real destination (Dosquet, 2015; Brosia & Bergery, 2019; Harrington & Ottenbacher, 2016; Bédé & Spindler, 2017; Lee & King, 2019; Thanh & Kirova, 2019). This could then be applied to vineyards in order to offer the target a range of activities based around wine (Kunc, 2010; Mitchell & Hall, 2006).

As wine is a cultural product (Douence, 2003; Lignon-Darmaillac, 2019), it could complement a cultural destination and be included in the overall offer. The purchase of bottles would therefore become one of the objectives of a visit, but not the only one. Although central to a cultural visit, the purchase of bottles would remain the objective, but could be complemented through the creation of an additional offer. This could be in the form of three types of products and services which could create value and content to the experience of the destination.

Byrd et al. (2016) propose that, as well as the basic product (wine), increased services (vineyards, cellars …) and auxiliary services (other services related to tourism and the hotel industry) could add to the entire customer journey (Voss et al., 2008). The experience of each tourist contact with these could transform the customers' journey and the destinations' experiences.

The idea is to make the consumer experience as memorable as possible (Kim et al., 2010; Salvador & El Euch Maalej, 2020). The objective is to make a destination as attractive as possible by emphasising its difference compared to competing destinations (Crouch & Ritchie, 2005, Lee, 2015, Abreu et al., 2018). Scherrer et al. (2009) have shown, for example, that the strength of wine tourism can greatly contribute to the evolution of the image of a destination, using the example of the Canary Islands. By capitalising on its vineyards, this destination has transformed its image from one of mass tourism correlated with problems linked to overtourism (Seraphin et al., 2019) to a destination concerned with sustainable development (Weaver & Lawton, 2007; Hugues et al., 2015).

To be successful, this holistic strategy must be driven by a commitment of all stakeholders and the demand by adopting a customer-focused approach (Freeman, 1984; Lorey et al., 2019; Cubillas et al., 2017; Sigala & Haller, 2019; Sigala & Robinson, 2019).

Moreover, the development of wine tourism also involves the possibility of creating links between wine and the different cultural players in the area. For example, the case of Ariousios Wine in Greece (Sigala, 2019) highlights the synergies between wine and culture at a local level, and the need "to engage in transformative innovation in order to augment wine tourism offerings".

The Jurançon cooperative is located in the Béarn region, South West France. It has a strong cultural identity, which is expressed through history, music (choirs),

language and gastronomy. This chapter analyses whether the Jurançon Wine Cooperative has succeeded in implementing partnerships and innovation with these local players. Finally, it appears that the COVID-19 crisis has been an accelerator for the renewal of wine tourism, around three dimensions: technological innovation, sustainable tourism, and partnership with local actors. This chapter therefore analyses whether the Jurançon Wine Cooperative has been able to implement such actions to maintain and develop its tourist activity.

Methodology and the Case Study Context

Case Study

This case study was carried on the Jurançon Wine Cooperative based in the South West of France.

According to (Yin, 1994), a case study is based on: (a) a single company (Jurançon Wine Cooperative); (b) a single phenomenon (environmental and digital innovations of Jurançon coopérative before and during the COVID-19 period; (c) a single data source (managing director of the cooperative, the board of 10 key winegrowers), (d) unity of space (the Pyrénées-Atlantiques department and the Béarn region near the town of Pau), (e) unity of time (January 2020–January 2021), (f) a contextualized analysis (before and during the COVID-19 crisis in 2020).

The Jurançon Wine Cooperative is an SME located in the village of Gan to the South of Pau. It brings together nearly 300 winegrowers. The Jurançon Wine Cooperative welcomed around 270,000 visitors in 2020, which is a huge success considering the impact of COVID-19 crisis on the economic activity of the wine industry which saw the closure of the Cafés, Hotels and Restaurants in France.

The Jurançon Wine Cooperative has been pursuing a policy of sustainable development since the 2000s. This has led it to move from conventional agriculture to sustainable agriculture, and since 2020 to an HEV (High Environmental Value) approach. According to the French Ministry of Agriculture, the HEV is a rewarding honour for winegrowers, farmers and their techniques[1]: "HEV ensures that the farming practices used throughout a winery preserve the natural ecosystem and minimise (chemical) pressure on the environment (soil, water, biodiversity, etc.)". This is a voluntary approach implemented by the winegrowers. The High Environmental Value rating is based on four indicators measuring the environmental performance of farms: preservation of biodiversity (insects, trees, hedges, flowers, etc.), reduction in the use of phytosanitary products, optimised fertilisation and irrigation management.

[1] https://agriculture.gouv.fr/la-haute-valeur-environnementale-une-mention-valorisante-pour-les-agriculteurs-et-leurs-pratiques

Methods of Data Collection

The research questions aimed to analyse and describe innovations implemented during the COVID-19 period, and to highlight the dimensions of the new tourist experience thus created.

Qualitative methods are the most commonly used approach by researchers from all fields when investigating the study of a complex product such as wine (Lorey & Albouy, 2015; Lorey, 2017).

For 1 year in 2020, three different types of qualitative studies were carried out**:** individual interviews, focus group interviews, analysis of secondary research and observations. These qualitative techniques are mostly used in a case study amongst others (Woodside & Wilson, 2003; Visconti, 2010).

Individual Interview and Focus Group

Firstly, nearly half a dozen individual interviews of 1 h each were carried out in 2020 with the Managing Director of the Jurançon Wine Cooperative,[2] during which notes were taken and key information was summarised. During these interviews, the Jurançon Wine Cooperative's tourism and sustainable development strategies were discussed (see theme 1 below). This type of exchange is described as "conversational data" or "informal exchanges" by Visconti (2010) in the context of a case study: "conversational data includes spontaneous conversations of participants in a case, activities engaged in and observed by the researcher, and documents written by participants".

Secondly, focus groups were carried out with 10 winegrowers, members of the Board of Directors. These winegrowers were the first to implement the HEV approach, as part of the Cooperative's long-term sustainable development strategy. The group interview took place in July 2020 on the production site of the Jurançon Wine Cooperative in Gan. It lasted 3 h and the interview guide focused on three themes: (1) "physical" and "digital" innovations being implemented to maintain the tourism activity during the COVID-19 crisis (see below themes 2, 3 and 4); (2) the motivation of winegrowers to switch to HEV (see below theme 1); (3) how to promote the HEV approach to tourists, winegrowers and the Cooperative (themes 1, 3 and 5).

The interview was recorded and then transcribed. After collecting the data, a thematic analysis through a categorisation of the recordings was carried out (Miles & Huberman, 1994). A manual content analysis, both horizontally and vertically, was set up. Then, a double codification was implemented by a second researcher to avoid misunderstandings in interpretation.

[2]The public organisation Vitirev contributes to the data collection. Vitirev (Innovation for wine territories with respect of environment) is a regional funding body.

Due to the constraints of COVID-19 crisis in 2020–2021, the transition of winegrowers to the HEV standard has been delayed. In January 2021, this only concerns 20% of wine growers (those we questioned), who switched to HEV in September 2020. Another 30% of the winegrowers are due to switch to HEV by September 2021.

These constraints on the adoption of the HEV explains why, in the results, focus has been on the physical and digital innovations developed by the Jurançon Wine Cooperative to maintain the wine tourism activity during the COVID-19 crisis period.

Analysis of Secondary Data

The individual and collective interviews were combined with the analysis of secondary data. All of the documents included the secondary analysis were coded in order to access them easily for the presentation of the results. The 12 documents that were deemed the most relevant (but not exhaustive) are presented in the appendix.

These 12 documents include regional daily press (doc 2, doc 11), two reports from a regional TV channel, France 3, Pau (doc1, doc 3), different documents and photos/videos from the website of the Jurançon Wine Cooperative (doc 4, doc 6, doc 7, doc 9, doc 10: www.cavedejurancon.com), an interview of the Managing Director on the Radio "France Bleu Béarn" (doc 8) and the website of the Pau region tourist office (doc 12).

More specifically, documents from the media (press, TV, documents on YouTube) illustrate themes 2, 3 and 4 presented below relating to the physical and digital innovations implemented by the Jurançon Wine Cooperative during the COVID-19 crisis period. The Jurançon Wine Cooperative's information and E-commerce website, as well as their social networks, directly illustrate the physical and digital innovations implemented by the Cooperative (themes 2 to 5) (photos are used to illustrate this).

Observation

At the same time, two of the researchers (who were living in the city of Pau at the time) carried out an observation process, more specifically on key locations near the industrial site of the Jurançon Wine Cooperative, near the town of Gan, South of Pau. In particular: the pop-up shop installed at a crossroads, the direct sales shop, the Château Les Astous wine estate, and the tourist routes between Pau and Spain. These regular observations enabled the two researchers to verify the operational implementation of the cooperative's physical and digital innovations to maintain tourist activity (themes 2, 3, 4 presented below).

Finally, the joint use of individual and collective interviews, secondary data and observations enabled the researchers to confirm data triangulation criteria. According to Miles and Huberman (1994), "triangulation consists of corroborating the results through having recourse to several data sources or different methods (interviews, observation, documentation) to ensure the reliability and validity of a result."

Analysis of Research Findings

Faced with the COVID-19 crisis and the repetition of lockdown measures that were imposed and lifted several times in 2020/2021, the Jurançon Wine Cooperative developed multiple physical, digital and partnership-based innovations to maintain and develop its tourist activity during this period.

As previously mentioned in the methodology section, results were divided into five main themes:

- Theme 1: Wine tourism and sustainable development
- Theme 2: Innovations and maintenance of physical visits during the COVID-19 crisis period
- Theme 3: Present and future digital innovations
- Theme 4: Wine orders: mixed "physical and digital" solutions
- Theme 5: An overall wine tourism strategy involving all stakeholders in the local area

Theme 1. Wine Tourism and Sustainable Development

The sustainable development strategy pursued by the Jurançon Wine Cooperative is closely linked to its collective values (solidarity, responsibility, equality) and its local roots (the Cooperative is a major economic player in the local area: it provides the livelihood for 300 local wine growers and 100 employees).

The Jurançon Wine Cooperative and Its Local Involvement

The Jurançon Wine Cooperative ("Cave de Jurançon" in French) is located in the town of Gan to the South of Pau, in the Béarn area (Pyrénées-Atlantiques in South West France). The vineyard is situated on the hills of the Pyrenees, 80 km from the Spanish border and 100 km from the Atlantic Ocean. The "Cave de Jurançon" is a cooperative, with strong local community values and very deep local roots: "*the Jurançon cellar is a community. We have always tried to build this local community tool. We have producers, employees and installations*" (FGW: Focus Group, wine-growers). In addition, the Béarn region has its own history, culture, language and family traditions: "*my land, I got it from my grandfather who gave it to my father. I am going to pass it on to my son. We don't want to pollute our land at all. Our land is our life. We have to show people that it is a natural heritage that is passed on from generation to generation*" (FGW).

Wine-Tourists of all Generations

The Jurançon Wine Cooperative is one of the most visited sites in France, with nearly 270,000 visitors a year. According to the group of winegrowers interviewed (FGW), the Jurançon Wine Cooperative attracts a wide variety of visitor profiles: "*Many different types of visitors come here: families, groups of older people, groups of young people. Quite a lot of trips for the elderly. It is a very interested population. 80% to 90% of them are French, but we also get some Spaniards, Germans, English, Belgians and tourists from the Nordic countries*".

The clientele concerns all generations. "*We see couples of young people who come to visit, to taste. Young people are a clientele that needs to be accompanied, they need freedom and social networks. There are many families and tourists who go skiing in winter. In summer, they either go to the Basque Coast (Atlantic Ocean) or to the mountains*" (FGW).

The Jurançon Wine Cooperative also has visits from groups of tourists coming by coach. They visit the famous Pau castle, and the factory and the Jurançon Wine Cooperative. Some also come from the Christian pilgrimage town of Lourdes, 1 h away: *"pilgrimages to Lourdes are tending to decrease, but there are still a lot of them. When they take a day, from Lourdes, they come to see the castle of Pau and the Jurançon Wine Cooperative" (GW).*

From Sustainable Development Strategy (HEV) to Sustainable Tourism

The sustainable development strategy carried out by the Jurançon Wine Cooperative has consisted in moving from a conventional style of agriculture to sustainable agriculture. This is then to move to a progressive implementation of the HEV (High Environmental Value) standard in 2020/2021 (see logo below in Fig. 1): "*We went into HEV first to protect the environment, but also to look after ourselves, because*

Fig. 1 HEV logo (High Environmental Value) (in French = HVE = Haute Valeur Environnementale)

we are users first. The HEV logo that we put on our bottles is a farm, with a sun, the earth. It's a landscape with a house, something human. It means: I have produced this wine according to specifications in which I commit to respecting the environment as a whole".

In the HEV standard, there are four areas to be respected: biodiversity, phytosanitary management, fertilisation and water management. Biodiversity is a given for Jurançon wines, because "*we already have the trees, hedges, hillsides and meadows*". Irrigation is not necessary (as it often rains in the Pyrenees). The management of phytosanitary products becomes a priority: "*we are working to use less and less of them*" (FGW).

One of the advantages of HVE certification "*is to be able to communicate about our practices to Jurançon wine consumers*" (FGW). Indeed, the HEV standard was created in France in 2014, but it was not promoted by the public authorities until 2018.

The communication dimension of HEV certification with wine tourists is therefore essential. It is gradually being implemented in the tourism strategy of the cooperative, taking into account the gradual transition to HEV of the various groups of winegrowers (the first group was certified in September 2020). Indeed, with the COVID-19 crisis, the certification of the different groups of winegrowers has delayed by a few months (September 2021), and priority has been given to maintaining the tourist activity and its development.

The gradual implementation of the HEV strategy lays the foundations for a sustainable tourism strategy. It takes into account the current and future impacts of wine tourism on an economic level (impact on the cooperative, the town of Gan and the Béarn area), a social level (maintaining and developing local employment) and an environmental level (respect for biodiversity). This sustainable tourism strategy responds to the needs of tourists, winegrowers, vineyards in their natural environment, and the community of local stakeholders (cities, hotels and restaurants, tourist offices, etc.).

Theme 2. Technology Supported Innovations for Enabling Wine Tourism experiences During the COVID-19 Period

The Jurançon Wine Cooperative welcomes many tourists to Gan: for example, families, young people, groups of senior citizens. They first visit the industrial production site, then the wine storehouse, and finally a wine estate nearby ("Château d'Astous").

Nearly 270,000 tourists visit the Jurançon Wine Cooperative. This is a unique opportunity: "*compared to other sites, ours is enormous. We have put in place the means to communicate with the customer we have in front of us, face to face as it were*" (FGW). The Managing Director and the winegrowers interviewed highlight the importance of the human relationship with the tourist visiting the Jurançon Wine

Fig. 2 Semi-Underground Ageing Cellar

Cooperative: "*during this visit, the customer is on holiday, eager to ask for information, how we work, what our daily work is and to discover our passion. This is where we manage to pass on our commitment to our job and our passion for the product and the environment. It's a very human relationship*".

The Visit of the Industrial Site and the Winery: Creation of Videos (Fig. 2)

With the constraints of COVID-19 crisis, teams personnel welcoming the tourists to the Jurançon Wine Cooperative had to adapt to maintain physical visits during the COVID-19 crisis period. This led to a change in the origin of customers: fewer senior citizens, more families, fewer pilgrims. (Doc 1, YouTube: *Béarn: the Jurançon Wine Cooperative, the first company visited in the New Aquitaine Region, fourth August 2020).* Visitors were welcomed, but the sanitary conditions were respected: masks had to be worn and visits were spaced out over time. Similarly, the organisation of the Open Doors was maintained in July 2020 (3000 people) and on 14 August 2020, with strict respect for sanitary conditions: visits to small and widely-spaced wine cellars, widely-spaced tastings, etc. (Doc 2, La République des Pyrénées (regional daily press). *Maintaining Open Doors in July/August 2020.*

In order to maintain several visits over time, the Jurançon winegrowers created videos (some videos already existed): '*when we receive coaches of tourists, we have videos that play on a loop, even in the shop. We show the different techniques: pruning the vines, manual harvesting, late harvesting under the snow. There are a lot of*

videos where you can see on a screen how the vines are cultivated. The project is to make tourists want to visit (…), and we are going to continue to promote this spirit of wine tourism' (FGW).

The Visit of the Nearby Vineyard via a Small Train

In order to respect the spacing between visits to the vineyards due to COVID-19 constraints, the organisers have developed the idea of a visit to the vineyards by a *small electric train* for tourists or by a walking tour (Doc 3: YouTube: Visit of the Jurançon vineyards on foot and by little train). "*The aim is to show tourists the vine in its current condition, depending on the season. Some go to visit it in spring, others in summer and others at harvest time. To show them how it's done. There are the surrounding woods and vine terraces, so it improves the landscape. A whole host of things that help protect the environment*" (FGW). For one of the winegrowers interviewed, this idea of the small electric train is one of the factors that will improve the wine tourism project as a whole. "*With this initiative, this wine tourism project will improve. This is our objective.*" (FGW).

Creation of a Pop Up Store

In order to take advantage of the passing tourism between the town of Pau and the winter sports resorts close to the Spanish border, and a pop-up store was created on a roundabout near to the Jurançon Wine Cooperative (see Fig. 3 below). This initiative was reinforced during the COVID-19 crisis period, as it allows free tastings of Jurançon wine to be organised while respecting the COVID-19's health restrictions. In addition, this tasting shop, located near the vineyards and hills of the Pyrenees, is an invitation for tourists to discover the natural environment where it is located (Doc 4: website from the Jurançon Wine Cooperative: https://www.cavedejurancon.com).

Fig. 3 Pop-up wine store

Finally, these innovations (videos, small train, pop up store) show the ability of the Jurançon Wine Cooperative to adapt to periods of lockdown and re-opening due to the COVID-19 crisis in 2020/2021.

Theme 3. The Present and Future of Digital Innovations

The winegrowers have a challenge: on the one hand, the attachment to human relations in the promotion of wine tourism; and on the other hand, the need to implement digital innovations in the present (COVID-19 crisis period) and in the future (smartphone applications, VR headset, etc.).

On the one hand, the human relationship is prioritised: "*when they visit the Jurançon Wine Cooperative, visitors are above all looking for contact and authenticity with a winegrower; what is important is the relationship with the land, the vine and the product that the winegrower – the one who works with the environment every day – can communicate. The tourist becomes captivated and interested" (*FCW).

The Development of Social Networks by the Communication Department

On the other hand, the Jurançon Wine Cooperative has developed profiles in several social media networks; including YouTube, Facebook, Twitter, Instagram. For Twitter, a gallery of emblematic photos of the Jurançon Wine Cooperative has been created so that they can be relayed on Twitter by the tourists. The same approach is being developed for Instagram (www.instagram.com/cavedejurancon). For certain social networks, this approach, aimed at tourists, deserves to be further developed; however, it made it possible to "*publicise the open days of the Jurançon Wine Cooperative during the summer of 2020*" (FGW).

Creating a Link Between the Physical Visit of Tourists and Digital Communication

This communication via social networks is carried out by the cooperative's communication department. However, for the winegrowers interviewed, "*what is important is the communication made by the visitors. This is the one that needs to be worked on*" (FCW). These highlight an innovation that could be achieved in the short term: "*creating a place in the cellars or in the vineyards of Jurançon wine where people can take pictures of themselves and post their visit which is something interesting. It's free and it's a lot of recognition for us. If they post something positive, for us it's the best" (FCW).*

Winegrowers have two objectives: "*the first aim is to create a community of tourists around this cellar, not to promote institutional communication from the Jurançon Wine Cooperative"* (FCW). The second is about education of the tourist: "*through the HEV, we also want to educate the visitor to be our relay*".

Creation of an Application on Smartphone and Virtual reality Project

A consensus is emerging around the idea of creating a tailor-made ('à la carte') application based on different types of tourist profiles: "*during a visit, some tourists among the younger generations might get tired of listening to someone talk about a vine for an hour: they want to get to the point. It would be interesting to develop a small application to go directly to the desired subject, such as the grape harvest or the maturing of the wine"* (FGW).

Virtual Tour of the Jurançon Wine Cooperative and Virtual Reality Project

The virtual visit of the industrial site and the winery already exist from a photo gallery, which could soon be transformed from videos, in order to be more interactive with future tourists.

Some winemakers are reluctant to create a virtual reality game: "*I am not sure that tourists expect that, virtual reality. Even relatively young people"*. However, other winegrowers emphasise the educational dimension of virtual reality: "*The tourist has a virtual reality helmet, and he learns how to prune the vines via a simple tutorial. He learns how to cut the grapes and sort the bunches. It is completely interactive. It allows you to be an actor and to understand the profession of farmer and how we make Jurançon wine*" (FCW).

Finally, the various technical and digital innovations evoked by the winegrowers of the Jurançon Wine Cooperative, whether existing, new or in progress, aim to increasingly involve tourists in both physical and digital interactions. The aim is then to create a "new mixed or phygital tourist experience".

Theme 4. Wine Orders for Tourists: Mixed "Physical and Digital" Solutions

Faced with the COVID-19 crisis in 2020/2021, the winegrowers of the Jurançon Wine Cooperative have developed "physical" and "digital" initiatives aimed to maintain the wine activity at a regional, national or international level for tourist customers. A non-exhaustive list of these initiatives is presented below.

Shopping with Adapted Opening Hours

The Jurançon Wine Cooperative offers the possibility of ordering wines directly from a shop next to the industrial site. Its opening hours have been adapted throughout the COVID-19 crisis period, in particular due to the multiplicity of lockdown and lifting operations in 2020/2021. It offers free tastings of the different Jurançon wines. It is aimed at a regional clientele or tourists passing through: there are many of them on the Pau/Spanish border route.

Development of the E-Business Website and Creation of a Click & Collect System

In France, the government, in order to face the COVID-19 crisis, has decided to close bars and restaurants almost continuously since March 2020. However, for private individuals, these circuits are essential shopping venues. The Jurançon Wine Cooperative has therefore decided to develop its website more for wine marketing. Specifically, it enabled private individuals and tourists to be delivered by "express transport" (France + abroad) (cavedejurancon.com).

In addition to this, the Jurançon Wine Cooperative created a "click & collect system". At the beginning of the COVID-19 crisis in April 2020, this "click & collect" system was not the preferred method for the Managing Director, because it did not allow a human exchange about the wine nor wine tasting (Doc 8: Radio France Bleu Bearn; interview of the Managing Director of the Jurançon Wine Cooperative, eighth April 2020). However, with the prolongation of the COVID-19 crisis in 2021, the Jurançon Wine Cooperative decided to create this "click & collect" system, as evidenced by its E-business site in January 2021: "*with the latest version of our website, we wanted to offer you something new that is both practical and innovative. It is in this context that we have decided to offer you the possibility of picking up your orders placed on the Internet in our shops.*" (www.cavedejurancon.com/retrait-en-magasin).

Development Segmented Marketing Approach & Alternative Channels of Distribution

At the same time, the Jurançon Wine Cooperative created a parking and rest area (car park and picnic area – Fig. 4 below) for tourists passing through in camper vans (Document 9: "Service Area for Camper Vans"). This parking area is located close to its industrial site, and offers the possibility to order wine directly from the direct sales shop.

The Jurançon Wine Cooperative has also developed alternative distribution channels: as one of its channels were the Hotel, Restaurants and cafés, the closure of these due to the COVID-19 crisis, forced the winery to find other commercial channels, in particular butcher's shops, delicatessens and pastry shops (Doc 11:

Fig. 4 Service area for Camper Vans

Clémentine Bourreli, Export Manager of the Jurançon Wine Cooperative, daily newspaper, *Le Parisien,* 17th Nov. 2020).

Theme 5. A Global Wine Tourism Strategy Involving all Stakeholders in the Local Area

Historically, the Jurançon Wine Cooperative developed numerous partnerships at three levels: local, sports sponsorship and communication via opinion leaders. These partnerships helped to increase the awareness of the Jurançon Wine Cooperative brand and attract new tourists. These initiatives will be continued and strengthened during the COVID-19 crisis in 2020/2021.

Partnership with Local Players

Historically, the Jurançon Wine Cooperative developed numerous partnerships with tourism stakeholders and local authorities in the Béarn area and South West France. These partnerships were developed with the cities of Pau (capital of Béarn) and Lourdes (a pilgrimage city), campsites, restaurants and hotels, numerous Tourist Offices (Béarn des Gaves Tourist Office, Béarn-on-line, etc.) and via digital media "guide-bearn-pyrenees.com" (doc 12): "discovery of the Jurançon vineyard at the Cave Cooperative de Gan".

Sponsoring of a Famous Local Rugby Team

Specifically, a long-term partnership was developed with the Pau rugby team ("Section Paloise") in the Top 14 Championship (Doc 10, partnership with the Pau professional rugby team, www.cavedejurancon.com). It allowed the Jurançon Wine

Cooperative to put down roots at a local level on the one hand, and on the other hand to ensure its reputation at (inter)national level. It is also a means of attracting tourists at regional and national levels. This last point is particularly important during the COVID-19 crisis period in 2020/2021, with the slowdown in economic activity.

Communication on Wine Tourism with a Network of Brand Ambassadors

In addition, the Jurançon Wine Cooperative welcomes celebrities to its site, who each year become the ambassadors of Jurançon wine: e.g. Tony Estanguet, President of the Paris 2024 Olympic Committee, the Director of the Tour de France cycling race, emblematic rugby players, managers from large and medium-sized companies at regional and national levels. These sports and business personalities become spokespersons for the Jurançon Wine Cooperative, and allow tourists to get to know the wine and the destination "Cave de Jurançon" (Jurançon Wine Cooperative) in Gan, South of Pau.

Finally, the Jurançon Wine Cooperative was able to develop partnership initiatives, enabling it to attract tourists on a regional, national and international level. The objective was to develop a strong local and national communication network, with either celebrities or simply holidaymakers. "*The aim is that every customer, whether famous or not, should be a spokesperson*" (FCW).

Implications of the Findings: "Phygital" in Wine Tourism

The COVID-19 crisis appeared in France in March 2020, and due to the lockdown and the distancing constraints, had two consequences in 2020/2021: (1) it accelerated the implementation of digital innovations in order to maintain wine tourist activity; (2) it slowed down the implementation of the HEV (High Environmental Value) approach within the Jurançon Wine Cooperative, while offering interesting communication prospects in the short and medium term.

The analysis of the results highlights the following two points of discussion:

1. First of all, the innovations implemented by the Jurançon Wine Cooperative to develop its wine tourism policy are physical, digital and partnership-based. In this sense, these 3 types of initiatives promoting wine tourism, could enhance those described by Sigala and Haller (2019), which are more focused on digital innovations.

The physical innovations concern, for example, the possibility of visiting the Cooperative's industrial site during the COVID-19 period, (while maintaining the human relationship with tourists). the visit of the vineyard by a small train, the creation of a pop-up store, and the development of a site for camper vans.

The digital initiatives led by the Jurançon Wine Cooperative are numerous, currently being implemented or being planned. These are the creation of videos for

tourists arriving by coach and visiting the production site; the development of social networks; the creation of spaces for tourists' photos to be posted on various accounts such as Instagram (etc.); the creation of applications on smartphones; the possibility of educating the customers about pruning vines via virtual reality headsets.

On another level, the Jurançon Wine Cooperative's E-business site was developed for local tourists (with the creation of a click & collect system), or national/international tourists (development of a specific remote delivery system).

The historic partnership initiatives have been developed and maintained. These include partnerships with local authorities, tourist offices, sponsorship of the local rugby team, or the creation of a network of ambassadors. These partnership initiatives are part of a long-term strategy to develop the Jurançon Wine Cooperative's wine tourism.

2. Secondly, digitalisation becomes unavoidable (Sigala & Haller, 2019), especially during the COVID-19 crisis in 2020/2021. It enables access and understanding of a complex subject such as wine (Cardebat, 2017), and creates a specific approach for each target (families, young people and the elderly for the Jurançon Wine Cooperative) via Smartphone applications for example (Thach et al., 2016), or to educate tourists about vine pruning via virtual reality.

The main concern of the Jurançon winegrowers is the creation of a tourist community of the Jurançon Wine Cooperative. However, unlike the recommendations of some researchers (Laverie et al., 2011; Kolb & Thach, 2016), this community should be created through communication from the customers themselves to enable a sustainable experience through souvenirs of the visit, without the imposed institutional "formatting" of a digital communication service of the cooperative.

The main theoretical contribution is to provide a framework to describe the innovations implemented by the Jurançon Wine Cooperative as being "phygital", i.e. the combination of "physical" and "digital" innovations.

Indeed, in the case of the Jurançon Wine Cooperative, the human relationship around wine and wine tourism sites is at the heart of exchanges between winegrowers and tourists. If digital innovations become unavoidable in the promotion of wine tourism in the 2020s, the fact remains that the "classic" or "physical" approaches need to be maintained and enhanced, most specifically in the case of the promotion of sustainable tourism strategies.

Consequently, wine tourism in the 2020s can be defined as "phygital". It is similar to a mixed approach between "classic wine tourism" and "eWine Tourism" (Haller et al., 2020). It contributes to creating a new way of making visitors live their wine tourism experience in a dual physical and virtual dimension, and thus transforms the role of wine tourists (Sigala & Haller, 2019). The findings of Ballina et al. (2019) are therefore confirmed: "this phygital phenomenon represents a radical change for co-creation in tourism", and constitutes "a new experiential model".

The recommendation to wine tourism professionals is to set up this "phygital strategy". However, it is strongly recommended that a balance between "classic" or "physical" strategies vs. digital strategies is maintained, even if the latter are becoming unavoidable.

Conclusions, Study Limitations and Ideas for Future Research

The objective of this chapter was to analyse the innovations implemented by the Jurançon Wine Cooperative, in the South West of France, during the COVID-19 period in 2020/2021 in order to maintain its tourist activity. First, it was shown that the innovations that were set up were "phygital", that is to say a combination of "physical" and "digital" actions. In addition to these two types of actions, the Jurançon Wine Cooperative has continued its partnership actions at local level with local authorities or tourist offices: these are part of its historical strategy. Second, we can define that this new wine tourism experience lived by tourists is "phygital", i.e. both physical and digital. This constitutes a new radical experiential model for the wine sector.

In conclusion, wine stakeholders must implement balanced wine tourism strategies focused on three areas: "physical" innovations, "digital" innovations, and "partnership" innovations on a local, national and international level. As wine in France is both a cultural product and at the heart of personal exchanges, the human dimension must not be forgotten in the implementation of phygital actions to develop wine tourism.

Interviews with the managers of the Jurançon Wine Cooperative (Director and winegrowers who are members of the Management Committee), as well as observations made in the field, provided a great deal of information on the wine tourism strategy of this major local player.

However, it would have been beneficial to interview other winegrowers of the cooperative, as well as tourists visiting the Jurançon Wine Cooperative site to differentiate the intended experience from a real experience (Ponsignon et al., 2017). These perspectives are part of next steps in 2021, and should enable the possibility to provide a better definition of the concept of "phygital" in the wine tourism experience from the tourists' point of view.

Appendix

Sources of Secondary Data: List of the 12 t Documents (Doc 1) YouTube: first Report on the regional TV channel France 3 Pau – Sud Aquitaine, 4 August 2020, during the COVID-19 period). *Béarn: the Jurançon Wine Cooperative, the first company visited in New Aquitaine Region*

– (Doc 2) La République des Pyrénées (regional daily press). *Maintaining Open Doors in July 2020 and August 14, 2020.* https://www.larepubliquedespyrenees.fr/2020/08/11/cave-de-gan-nouvelle-journee-portes-ouvertes-vendredi-14-aout,2725199.php

– (Doc 3) YouTube: second Report on the regional TV channel France 3 Pau – Sud Aquitaine, 19th August 2019, Visit of the Jurançon vineyards on foot and by little train
– (Doc 4) Website from the Jurançon Wine Cooperative: *https://www.cavedejurancon.com.*
– (Doc 5): Cave de Jurançon Instagram account
– (Doc 6): Direct sales shop next to the Jurançon Wine Cooperative industrial site (www.cavedejurancon.com)
– (Doc 7): E-business website of the Jurançon Wine Cooperative *(www. cavedejurancon.com*)
– (Doc 8): Radio *France Bleu Béarn eighth April 2020*: Coronavirus: the Jurançon Wine Cooperative in Béarn reorganises and continues to sell its wines. Interview of the Managing Director.
– (Doc 9): Service Area for Camper Van (www.cavedejurancon.com).
– (Doc 10): Partnership with the Pau professional rugby team ("Section Paloise") in the Top 14 (French Rugby League 1) (www.cavedejurancon.com).
– (Doc 11: Clémentine Bourreli, Export Manager of the Jurançon Wine Cooperative, daily newspaper, Le Parisien, 17th Nov. 2020).
– (Doc 12): https://www.guide-bearn-pyrenees.com/en/do-it-your-way/food-lovers/article-discovery-of-the-jurancon-vineyard-at-the-cave-cooperative-de-gan

References

Abreu Novais, M., Ruhanen, L., & Arcodia, C. (2018). Destination competitiveness: A phenomenographic study. *Tourism Management, 64*, 324–334.

Alonso, A., Bressan, A., O'Shea, M., & Krajsic, V. (2013). Website and social media usage: Implications for the further development of wine tourism, hospitality, and the wine sector. *Tourism Planning and Development, 10*(3), 229–248.

Amaro, S., Andreu, L., & Huang, S. (2019). Millenials' intentions to book on Airbnb. *Current Issues in Tourism, 22*(18), 2284–2298.

Ashley, C., & Haysom, G. (2006). From philanthropy to a different way of doing business: Strategies and challenges in integrating pro-poor approaches into tourism business. *Development Southern Africa, 23*(2), 265–280.

Ballina, F. J., Valdes, L., & Del Valle, E. (2019). The Phygital experience in the smart tourism destination. *International Journal of Tourism Cities, 5*(4), 656–671.

Bassano, C., Barile, S., Piciocchi, P., Spohrer, J. C., Iandolo, F., & Fisk, R. (2018). Storytelling about places: Tourism marketing in the digital age. *Cities, 87*, 10–20.

Bédé, S., & Spindler, J. (2017). *Les Contrats de destination, Un outil d'attractivité et de valorisation des territoires*. L'Harmattan.

Ben Nasr, I., Hallem, Y., & Lagier, J. (2017). Quel est le rôle de l'application mobile dans la valorisation de l'expérience muséale ? *Management & Avenir, 92*(2), 87–108.

Bisson, L. F., Waterhouse, A. L., Ebeler, S. E., Walker, M. A., & Lapsley, J. T. (2002). The present and future of the international wine industry. *Nature, 418*, 696–699.

Boutaud, J.-J. (2019). L'expérience comme lieu commun de l'exception. *Hermès, La Revue, 83*(1), 61–67.

Brosia, S., & Bergery, L. (2019). Le système de valeurs d'un acteur du tourisme responsable. Une étude de cas. *Management et Avenir, 1*(107), 143–164.
Byrd, E. T., Canziani, B., Hsieh, Y. C., Debbage, K., & Sonmez, S. (2016). Wine tourism: Motivating visitors through core and supplementary services. *Tourism Management, 52*(C), 19–29.
Capitello, R., Agnoli, L., Begalli, D., & Codurri, S. (2014). Social media strategies and corporate brand visibility in the wine industry: Lessons from an Italian case study. *EuroMed Journal of Business, 9*(2), 129–148.
Cardebat, J. M. (2017). *Économie du vin*. La Découverte.
Chauveau, J. (2019). L'attraction des vins français en question: Perte d'image et nouvelles stratégies, le cas du Japon. *Pour, 237-238*(1–2), 73–80.
CNIV. (2019). *Comités des Interprofessions des Vins à appellation d'origine et à indication géographique*. Chiffres clés. https://www.intervin.fr/etudes-et-economie-de-la-filiere/chiffres-cles. Accessed Dec 2021.
Crouch, G. I., & Brent Ritchie, J. R. (2005). Application of the analytic hierarchy process to tourism choice and decision making: A review and illustration applied to destination competitiveness. *Tourism Analysis, 10*(1), 17–25.
Cubillas, S., Mars, M. M., Torres, R. M., & Sias, P. M. (2017). Touristic authenticity and value co-creation: An exploration of two local wineries in Southeastern Arizona USA. *Journal of Rural and Community Development, 1251*, 34–54.
De Rojas, C., & Camarero, C. (2008). Visitors' experience, mood and satisfaction in a heritage context: Evidence from an interpretation center. *Tourism Management, 29*(3), 525–537.
Delaplace, M., & Gatelier, E. (2014). Collective and individual wine heritage strategies and wine tourism development in Burgungy. *Patrimoine et Territoire*, 40–53.
Dolan, R., Goodman, S., & Habel, C. (2013). How (and why) are wineries using Facebook for marketing? *Australian and New Zealand Grapegrower and Winemaker, 595*, 85–86.
Dosquet, F. (2015). *Créer du sens en marketing*. EMS.
Douence, H. (2003). Culture de la vigne ou culture dans les vignes: la mise en patrimoine des vignobles du sud-ouest de la France. In L. Fournier (Ed.), *Patrimoine et valorisation des territoires* (pp. 65–76). L'Harmattan.
Figueroa, E. B., & Rotarou, E. S. (2018). Challenges and opportunities for the sustainable development of the wine tourism sector in Chile. *Journal of Wine Research, 29*(4), 243–264.
Filser, M. (2002). Le marketing de la production d'expériences: statut théorique et implications managériales. *Décisions Marketing, 28*, 13–22.
Fontan, P. (2019). Les stratégies de communication et de marketing des lieux autour du vin: de l'étiquette à l'œnotourisme. *Pour, 237–238*, 227–240.
Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.
Galati, A., Crescimanno, M., Tinervia, S., & Fagnani, F. (2017). Social media as a strategic marketing tool in the Sicilian wine industry: Evidence from Facebook. *Wine Economics and Policy, 6*(1), 40–47.
Getz, D. (2012). *Event studies, theory, research, policies for planned events*. Routledge.
Graillot, L., Mencarelli, R., & Anteblian, B. (2011). Comment gérer des expériences touristiques extraordinaires ? Analyse et recommandations à partir d'une immersion dans les parcs à thème. *Décisions Marketing, 64*, 11–21.
Guerrieri, A., Dosquet, E., & Dosquet, F. (2016). *Le marketing mobile. Comprendre, influencer, distribuer, monétiser*. Dunod.
Guintcheva, G., & Lagier, J. (2019). Quel est l'impact du digital dans la valorisation de l'expérience muséale familiale ? *Management & Avenir, 111*(5), 57–78.
Halem, Y., Sahut, J. M., & Hikkerova, L. (2020). Le slow tourisme, comme voie pour améliorer le sentiment de bien-être. *Gestion 2000, 3*(37), 129–147.
Hall, C. M., Sharples, L., Cambourne, B., & Macionis, N. (2000). *Wine tourism around the world – Development, management and markets*. Elsevier.
Haller, C., Thach, L., & Olsen, J. (2020). Understanding eWinetourism practices of European and North America wineries. *Journal of Gastronomy and Tourism, 4*(3), 141–156.

Harrington, R. J., & Ottenbacher, M. C. (2016). Winne tourism strategy making: A model for planning and implementation. In K. L. Lee (Ed.), *Strategic winery tourism and management. Building competitive winery tourism and winery management strategy* (pp. 9–30). CRS Press (Taylor and Francis).

Holbrook M.B., & Hirschman, E.C. (1982, September). The experiential aspects of consumption: Consumer fantasies, feelings and fun. *Journal of Consumer Research*, *9*(2), 132–140.

Holmes, M. R. (2017). Integrated rural wine tourism. *Journal of Wine Research, 28*(3), 216–238.

Hugues, M., Weaver, D., & Pforr, C. (2015). *The practice of sustainable tourism. Resolving the paradox*. Routledge.

Hung, W. E., Lee, Y. J., & Huang, P. H. (2016). Creative experiences, memorability and revisit intention in creative tourism. *Current Issues in Tourism, 19*(8), 763–770.

Irjevskis, A. (2019). Designing organizational eco-map to develop a customer value proposition for a slow-tourism destination. *Administrative Sciences, 9*(3), 5–7.

Kim, J. H., Ritchie, J. R. B., & Tung, V. W. S. (2010). The effect of memorable experience on behavioral intentions in tourism: A structural equation modeling approach. *Tourism Analysis, 15*(6), 637–648.

Kolb, D., & Thach, L. (2016). Analyzing German winery adoption of Web 2.0 and social media. *Journal of Wine Research, 27*(3), 226–241.

Kunc, M. (2010). Wine tourism: A review of the Chilean case. *International Journal of Tourism Policy, 3*(1), 51–61.

Kuo, T. S., Huang, K. C., & Nguyen, P. H. (2019). Adoption of mobile applications for identifying tourism destinations by travelers: An integrative approach. *Journal of Business Economics and Management, 20*(5), 870–877.

Lalicic, L., & Gindl, S. (2019). Viennese wineries on Facebook: Status quo and lessons learned. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 155–176). Palgrave Macmillan.

Laverie, D. A, Humphrey, W. F, Velikova, N., Dodd, T. H, & Wilcox, J. B. (2011, June). Building wine brand communities with the use of social media: A conceptual model. In *6th AWBR international conference*, (pp. 9–10). Bordeaux Management School.

Lee, K. L. (2015). *Strategic winery tourism and management. Building competitive winery tourism and winery management strategy* (pp. 9–30). CRS Press (Taylor and Francis).

Lee, C. F., & King, B. (2019). Determinants of attractiveness for a seniors-friendly destination: A hierarchical approach. *Current Issues in Tourism, 22*(1), 71–90.

Lignon-Darmaillac, S. (2019). L'œnotourisme: de la culture de la vigne au vin objet de culture. *Pour, 237–238*(1–2), 217–226.

Lorey, T. (2017). Two models of representation for the babyboom and millennium generations in France: Elitist identity capital vs. universal democratic capital. *International Journal of Entrepreneurship & Small Business, 32*(1/2), 79–101.

Lorey, T., & Albouy, J. (2015). A generational approach of wine consumption in France: An opportunity for segmentation. *Décisions Marketing, 79*, 93–112.

Lorey, T., Dosquet, F., Errami, Y., & Chantelot, S. (2019). Dynamique de co-création des politiques publiques dans des contextes institutionnels complexes: le cas des Chemins de Compostelle en France et en l'Espagne. *Management International, 23*(3), 89–105.

Magalios, P., Kosmas, P. C., Tsakiris, A., & Theocharous, A. L. (2019). Sensory evaluation of wine through correspondence analysis: A theoretical and empirical rationale. *Journal of Wine Research, 30*(1), 62–77.

Mainolfi, G., & Marino, V. (2020). Destination beliefs, event satisfaction and post-visit product receptivity in event marketing. Results from a tourism experience. *Journal of Business Research, 116*, 699–710.

Miles, M. B., & Huberman, A. M. (1994). *Analysis of qualitative data*. De Boeck.

Mitchell, R., & Hall, C. M. (2006). Wine tourism research: The state of play. *Tourism Review International, 9*, 307–332.

Moravcikova, D., & Kliestikova, J. (2017). Brand building with using phygital marketing communication. *Journal of Economics, Business and Management, 5*(3), 148–153.

Neuburger, L., Beck, J., & Egger, R. (2018). The 'Phygital' tourist experience: The use of augmented and virtual reality in destination marketing. In M. A. Camilleri (Ed.), *Tourism planning and destination marketing* (pp. 183–202). Emerald Publishing Limited.

O'Neill, M., Palmer, A., & Charters, S. (2002). Wine production as a service experience – The effects of service quality on wine sales. *Journal of Services Marketing, 16*(4), 342–362.

Pelet, J. É., Barton, M., & Chapuis, C. (2019). Towards the implementation of digital through Wifi and IoT in wine tourism: Perspectives from professionals of wine and tourism. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 207–236). Palgrave Macmillan.

Ponsignon, F., Durrieu, F., & Bouzdine-Chamevaa, T. (2017). Customer experience design: A case study in the cultural sector. *Journal of Service Management, 28*(4), 763–787.

Réjalot, M. (2019). Dynamiques et évolutions récentes des acteurs et métiers dans le vignoble de Bordeaux. *Pour, 237–238*(1–2), 81–89.

Reyneke, M., Pitt, L., & Berthon, P. R. (2011). Luxury wine brand visibility in social media: An exploratory study. *International Journal of Wine Business Research, 23*(1), 21–35.

Robinson, R., & Sigala, M. (2019). Epilogue: An ecosystems framework for studying wine tourism-actors, co-creation processes, experiences and outcomes. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 409–415). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-75462-8_8

Salvador, M., & El Euch Maalej, M. (2020). L'expérience touristique mémorable: une approche par le produit alimentaire emblématique d'une région. *Management et Avenir, 2*(116), 61–84.

Santini, C. (2019). The business of wine tourism: Evolution and challenges. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 261–276). Palgrave Macmillan.

Scherrer, P., Alonso A., & Sheridan L. (2009, September/October). Expanding the destination image: Wine tourism in the Canary Islands. *Journal of Tourism Research, 11*(5).

Seraphin, H., & Dosquet, F. (2020). COVID-19 and the mutations of overtourism. In H. Seraphin & A. C. Yallop (Eds.), *Overtourism and tourism education, a strategy for sustainable tourism futures* (pp. XVI–XXVIII). Routledge.

Seraphin, H., Zaman, M., Olver, S., Bourliataux-Lajoinie, S., & Dosquet, F. (2019). Destination branding and overtourism. *Journal of Hospitality and Tourism Management, 38*, 1–4.

Sharma, G. D., Thomas, A., & Paul, J. (2021). Reviving tourism industry post-COVID-19: A resilience-based framework. *Tourism Management Perspectives, 37*, 100786.

Sigala, M. (2017). Collaborative commerce in tourism: Implications for research and industry. *Current Issues in Tourism, 20*(4), 346–355.

Sigala, M. (2019). Synergising wine with culture for augmenting wine tourism experiences: The case of Ariousios wine, Chios, Greece. In M. Sigala & R. Robertson (Eds.), *Management and marketing of wine tourism businesses: Theory, practice and cases*. Palgrave Macmillan.

Sigala, M. (2020). Tourism and COVID-19: Impacts and Implications for advancing and resetting industry and research. *Journal of Business Research, 117*, 312–321.

Sigala, M., & Haller, C. (2019). The impact of social media on the behavior of wine tourists: A typology of power sources. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 139–154). Palgrave Macmillan.

Sigala, M., & Robinson, R. (2019). Introduction: The evolution of wine tourism business management. In M. Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business* (pp. 1–21). Palgrave Macmillan.

Smith, K., & Hanover, D. (2016). *Experiential marketing: Secrets, strategies and success stories from the world's greatest brands*. Wiley.

Thach, L. (2009). Wine 2.0 – The next phase of wine marketing? Exploring US winery adoption of wine 2.0 components. *Journal of Wine Research, 20*(2), 143–157.

Thach, L., Lease, T., & Barton, M. (2016). Exploring the impact of social media practices on wine sales in US wineries. *Journal of Direct, Data and Digital Marketing Practice, 17*(4), 272–283.
Thanh, V. T., & Kirova, V. (2019). Déterminants de l'attractivité d'une destination œnotouristique. *Revue d'Économie Régionale & Urbaine, 1*, 125–151.
UNWTO. (2016). *Wine tourism-a growing tourism segment* (PR No.: PR 16062). United Nations World Tourism Organization. http://media.unwto.org/press-release/2016-09-09/wine-tourism-growing-tourism-segment. Accessed Dec 2021.
UNWTO. (2019). *World tourism barometer – Nov 2019* | UNWTO, https://www.unwto.org/ world-tourism-barometer-2019-nov. Accessed Dec 2021.
Visconti, L. M. (2010). Ethnographic Case Study (ECS): Abductive modeling of ethnography and improving the relevance in business marketing research. *Industrial Marketing Management, 39*(1), 25–39.
Voss, C. A., Roth, A., & Chase, R. B. (2008). Experience, service operations strategy, and services as destinations: Foundations and exploratory investigation. *Production and Operations Management, 17*(3), 247–266.
Weaver, D. B., & Lawton, I. J. (2007). Tweenty years on: The state of contemporary ecotourism research. *Tourism Management, 28*(5), 1168–1179.
Whiteland, A. (2020). The way forward for cellar door tourism beyond the pandemic. *Australian & New Zealand Grapegrower & Winemaker, 678*, 16–17.
Woodside, A. G., & Wilson, E. J. (2003). Case study research methods for theory building. *Journal of Business & Industrial Marketing, 18*(6/7), 493–508.
Yin, R. K. (1994). Discovering the future of the case study, method in evaluation research. *Evaluation Practice, 15*(3), 283–290. journals.sage.pub.com.

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Part IV
Epilogue

"Improvisational" Wine Tourism: An Alternative Model of Managing Technological Changes

Coralie Haller

Abstract Wine tourism industry has progressively seen its offerings shifting from a service-based to an experience-based economy mostly relying on advanced technology as potential new sources of competitive advantage. The deployment and appropriation of technological innovations imply, however, complex processes and induce transformations of varying scope and intensity integrating evolving perceptions of a multitude of actors in an organisation. This chapter suggests an alternative model of managing technological changes for the wine tourism organisations, called "improvisational", which integrates the dynamic and flexible nature of organizations and technologies. This model reconciliates conceptions of episodic and continuous change to outline transformation trajectories. Improvisational wine tourism is on its way!

Keywords Wine tourism · ICT deployment · ICT appropriation · Transformation

For more than two decades, ITC has been seen as a major force for transforming organizations and even industries. "Disruptive innovation", "digital revolution" or "radical change" are all terms used to characterize the existence of a singular process of transformation that finds its source in IT innovations. Organizations constantly need to identify levers to evolve their business processes and be able to integrate IT innovations like dematerialization of information, and more recently big data management and blockchain technology. The latest technological advancements allow organizations to propose enriched customer experiences as well as effectively communicate and promote their brands. More specifically, tourism professionals rely on advanced technology and interactive devices as potential new sources of competitive advantage by shifting the focus of their offerings from a service-based to an experience-based economy (Fernandes & Cruz, 2016).

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The wine industry is not an exception as to how it relates to ICTs: it has been one of the industry reluctant to fully embrace this disruptive technology (Shepp, 2013). This echoes to the strong embeddedness in culture and technique of wine production from its elaboration, history, and expertise (Marroni Minasi et al., 2020). When it comes to wine tourism, it is directly related to tradition as it focuses on activities, events and visitation of ancestral heritage sites related to wine (Hall & Mitchell, 2007). Commonly, the wine tourism activities allow some long-standing family companies to communicate a set of family values and symbols deep-rooted in the region in which the wine producer is located (Vrontis et al., 2016). However, the rapid deployment of technology in the different tourism segments requires for the sectors lagging behind to implement innovations rapidly to better meet emerging customer needs. (Gilinsky et al., 2008). As predicted by Haller et al. (2020), virtual wine tourism will increase radically as the Internet evolves. This is the advent of what the authors called eWineTourism (eWT).

The objective of this book was to investigate technology development in the wine tourism industry and has highlighted the major impacts of technological innovations for wine tourism professionals. Those impacts are relative to the profound transformation of wine tourism associated with ITC from different levels of analysis: (1) micro-level (organizational level), (2) meso-level (structure of the industry-level) and (3) macro-level which is specific to a wine tourism destination. Whatever the level studied, we have observed **that technological innovation implies uncertain and complex processes of change built along the way, integrating the active and evolving perceptions of a multitude of actors.**

Still, the majority of wine tourism organizations don't have the required knowledge and capabilities to further implement ICT in order to become more competitive (Martins et al., 2017). Indeed, information system academic research has long shown that the deployment and appropriation of new technological devices can lead, depending on the degree of inertia of the organization, to transformations of varying scope and intensity, ranging from local exploitation to radical change (Venkatraman, 1994). As Besson et Rowe (2012) put forward, organizational transformation associated with IT is an in-depth modification of one or more dimensions of the structure of an organization induced by the use of an IT or a set of IT. Thus, the more the transformation project touches the core of the organization and its deep structure (values, mission, positioning, technologies), the more complicated it can be (Hannan & Freeman, 1984).

The risk associated to ICTs deployment and appropriation are also coupled with high dependency of the wine product on environmental changes (like natural disasters - fire, flood, frost, etc.) (Gilinsky et al., 2008). Moreover, human-created crises like the COVID-19 disruption (Gilinsky et al. 2020) had an extremely large impact on the wine tourism industry with over half of the wineries lost 50% or more in wine tourism revenue (winetourism.com, 2020). Even if wine tourism has to cope with uncertainty on an every-day basis, it is a necessity for the rejuvenation of organizations and economies (Knight, 1921). "It is also the lifeblood of the entrepreneurship phenomenon which studies how, by whom and with what effects opportunities to bring new goods and services to market are discovered, evaluated and exploited"

(Shane & Venkataraman, 2000, p. 218). In this perspective, the entrepreneurial process is understood as a chain of events where the entrepreneur (individual or group) in interaction with his (their) environment identifies, builds and exploits opportunities in order to generate value, either by creating innovations or new organizations. Adopting an entrepreneurial approach when developing wine tourism perspectives seems to be an alternative to tackle the fast-moving environments. However, there is a lack of strong frameworks for dealing with uncertainty that goes beyond standard treatments of risky decision making in various ways (Foss, 2020, p. 1328).

While academic research on tourism entrepreneurship has attempted to clarify its antecedents and outcomes as well as the boundary conditions of these linkages (Haller & Aldebert, 2019), investigations relative to wine tourism entrepreneurship are overlooked. In particular, many avenues of research seem to be opening up, and in particular to answer more process-related questions link to the deployment and appropriation of ICTs in uncertain environment. In this perspective, and based on Orlikowski et Hoffman (1997), we suggest that wine tourism (from a micro, meso and macro perspective) should consider an **alternative model of managing technological change called "improvisational"** which integrate the dynamic and flexible nature of organizations and technologies. This model reconciliates conceptions of episodic and continuous change to outline transformation trajectories that oscillate between different types of change: *anticipated (planned and deliberate), emergent (unplanned and undeliberate), and opportunistic (unplanned but deliberate)* (see Fig. 1). It integrates iterative experimentation, use and learning over time. This approach takes advantage of the evolving capabilities, emerging practices, and unanticipated outcomes that accompany use of new technologies in contemporary organizations (Orlikowski et Hoffman, 1997).

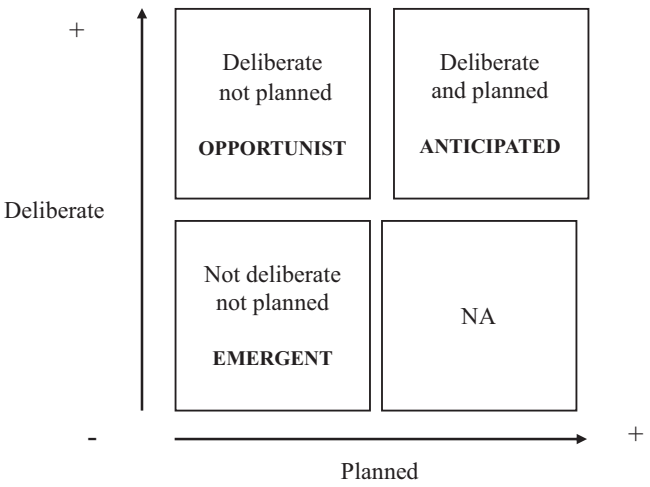

Fig. 1 "Improvisational" model of managing technological changes for the wine tourism industry. (Adapted from Orlikowski et Hoffman, 1997)

It should seem normal to expect the unexpected and to anticipate that the unpredictable may happen. We cannot know the unpredictable, but we can foresee its possibility by trying to foresee the trends and risks to come. A change of paradigm is a new, long, difficult, chaotic process that comes up against enormous resistance from established structures and mentalities. The unpredictable future is in the making today. Let's follow the recommendations of the thinker and philosopher Morin (2020) who suggests to create a mode of knowledge and thought able to respond to the challenges of complexities and uncertainties. Improvisational wine tourism is on its way!

References

Besson, P., & Rowe, F. (2012). Strategizing information sysyem-enabled organizational transformation: A trasndisciplinary review and new directions. *The Journal of Strategic Information Systems, 21*(2), 103–124.

Fernandes, T., & Cruz, M. (2016). Dimensions and outcomes of experience quality in tourism: The case of port wine cellars. *Journal of Retailing and Consumer Services, 31*, 371–379.

Foss, N. J. (2020). Behavioral strategy and the COVID-19 disruption. *Journal of Management, 46*(8), 1322–1329.

Gilinsky, A., Santini, C., Lazzerretti, L., & Eyler, R. (2008). Desperately seeking serendipity: Exploring the impact of country location on innovation in the wine industry. *International Journal of Wine Business Research, 20*(4), 302–320.

Gilinsky, A., Sen, A., Ford, J., Canavati de la Torre, S., & Newton, S. (2020). US wine industry pre- paredness for unforeseen crises and disasters: An empirical test. *Wine Economics and Policy, 9*(1), 5–18.

Hall, C. M., & Mitchell, R. (2007). Gastronomic tourism: Comparing food and wine tourism experiences. In M. Novelli (Ed.), *Niche tourism* (pp. 87–102). Routledge.

Haller, C., & Aldebert, B. (2019). Entrepreneuriat et tourisme: enjeux et perspectives in Clergeau & Peypoch, la recherche en management du tourisme, chaptitre 22, 395–407.

Haller, C., Thach, L., & Olsen, J. (2020). Understanding eWineTourism practices of European and North America Wineries. *Journal of Gastronomy and Tourism, 4*(3), 41–156.

Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review, 49*, 49–64.

Knight, F. (1921). *Risk, uncertainty and profit*. Houghton Mifflin.

Marroni Minasi, S., Lohmann, G., & Valduga, V. (2020). Geographic information systems are critical tools to manage wine tourism regions. *Tourism Geographies, 22*(1).

Martins, J., Gonçalves, R., Branco, F., Barbosa, L., Melo, M., & Bessa, M. (2017). A multisensory virtual experience model for thematic tourism: A port wine tourism application proposal. *Journal of Destination Marketing & Management, 6*(2), 103–109.

Morin, E. (2020). *Changeons de voie: les leçons du coronavirus*. Denoël.

Orlikowski, W., & Hoffman, D. (1997). « An improvisational model for change management: The case of groupware technologies ». *Inventing the Organizations of the 21st Century*, *265*.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *The Academy of Management Review, 25*(1), 217–226.

Shepp, J. (2013, January 19). *Social media marketing for the wine industry*. Presentation at a Wine Intensive Executive MBA, Sonoma State University [Video file]. Retrieved from https://fr.slideshare.net/earthsite/social-media-forthe-wine-industry-by-joey-shepp

Venkatraman, N. (1994). IT-enabled business transformation: From automation to business scope redefintion. *Sloan Management Review, 35*(2), 73–87.

Vrontis, D., Bresciani, S., & Giacosa, E. (2016). Tradition and innovation in Italian wine family businesses. *British Food Journal, 118*(8), 1883–1897.

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