



MASTER THESIS

From Sea to Sip: Exploring Underwater Wines of the Mediterranean Depths, a Promising Journey in Catalonia

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ABSTRACT

Sea-aged wines have gained significant attention in the wine industry, and this trend is expected to continue due to the growing interest from wineries and consumers in this innovative method of aging. However, academic research on this niche topic is limited. This thesis aims to provide guidelines for wineries and tourism agencies to promote sea-aged wines. The study emphasizes on the potential for Catalonia to emerge as the ultimate destination for underwater wines and immersive wine tourism experiences. Challenges such as production costs, logistics, regulations, and communication gaps between producers and customers need to be addressed. The underwater wine industry offers opportunities for growth, innovation, and sustainability practices. The concept of sea-aged wines presents a unique and captivating narrative for immersive wine tourism, fostering emotional connections between consumers, the product, and the brand. The notion of storytelling is discussed throughout the paper. This research anticipates continued growth and investment in this fascinating domain, pushing the boundaries of winemaking and captivating wine enthusiasts worldwide. However, further academic research is required due to the scarcity of existing literature on the subject. The research method for this academic paper involved a combination of in-depth qualitative interviews with businesses producing sea-aged wines and a comprehensive customer survey which involved 93 participants. The interviews were conducted with representatives from six underwater wine producers, five of which are located in Catalonia and one in the Alicante region. The data collection period for the winemaker interviews and customer survey took place between March and April 2023. The interviews aimed to gather insights into the process of sea-ageing wines and understand the needs of the winemakers to then utilized these insights to develop comprehensive guidelines aimed at showcasing underwater wines as an immersive attraction for wine visitors.

Keywords: *underwater wine, marine enology, wine tourism development, wine branding, storytelling marketing, sustainable tourism, innovation, experience opportunity design*

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INTRODUCTION

Wine holds a significant place in Mediterranean culture (Carrasco *et al.*, 2019), and Catalonia, Spain, stands out as a region deeply rooted in this tradition. Catalonia boasts a diverse wine landscape, with picturesque vineyards in Penedès and the rugged beauty of Priorat. Wine in Catalonia is not merely a beverage but a celebrated part of the Catalan lifestyle. The use of the traditional glass decanter called 'porrón' is a unique aspect of Catalan wine culture, representing a communal and enjoyable experience where wine is poured from a height into the mouth, showcasing skill and creating a convivial atmosphere. Catalonia strikes a harmonious balance between tradition and modernity in its wine culture, continuously pursuing excellence through innovative approaches. In recent years, a trend has emerged among Catalan wineries, as an increasing number of them have embraced underwater wine production. By submerging carefully crafted bottles beneath the sea's surface, these wineries seek to explore the potential impact of marine aging on the flavour profiles and characteristics of their wines. This innovative venture reflects Catalonia's commitment to blending tradition with experimentation, offering wine enthusiasts a distinct and immersive tasting experience. However, despite the growing interest in underwater wines, there is a significant gap in the existing academic literature, and limited awareness exists among wine enthusiasts about the concept of sea-aged wines.

The goal of this master's thesis is to fill this research gap and address the lack of comprehensive information on sea-aged wines, particularly focusing on their potential for creating engaging wine tourism offers. The thesis aims to provide winemakers with effective marketing strategies and comprehensive guidelines to promote sea-aged wines, generate interest in these wines, leveraging their potential for wine tourism development. By conducting in-depth qualitative interviews with six underwater wine producers and designing a customer survey that garnered responses from 93 participants, this study aims to gather insights into the production processes, perspectives, and preferences related to sea-aged wines. The findings will be presented through various sections in a logical progression, starting with an introduction to the research goals and implications, followed by background information on underwater wines based on the existing literature, the research methodology and findings, SWOT analysis of sea-aged wines, best practices for immersive tourism offers, and finally, recommendations for winemakers and stakeholders in this innovative wine industry. By collaborating with Antoni Sánchez-Ortiz, the winemaker at Perinet winery in Priorat, this research endeavours aims to establish credibility, develop best practices, and promote sustainable winemaking for sea-aged wines. Furthermore, the research aims at contributing to advancing understanding, broadening the audience, and stimulating economic growth in local communities through the implementation of tourism development that tells the story of sea-aged wines. The implications of this research extend to underwater wineries, tourism organizations, local governments, and individuals interested in wine tourism innovation and destination branding. Perinet winery (Priorat) has been used as a study case as the winery just started experimenting underwater wine production. Perinet winery with its fine wines, high-end clientele, well-developed wine club, its premium wine tourism offers, and international scope has the potential to develop immersive experiences with a special focus on underwater wines. This approach can be extended to the region of Catalonia.

LITERATURE REVIEW

In the pursuit of advancing knowledge within the realm of wine tourism, the initial phase of the research methodology involved examining the existing literature review pertaining to sea-aged wines. However, despite the growing number of wineries investigating this innovative approach, there is presently a scarcity of publicly available academic research concerning the specific techniques or chemical composition of wines aged underwater (Carpena et al., 2020). Therefore, this research encompasses a comprehensive review of articles derived from reputable and specialized journals, such as *Decanter*, focusing on underwater-aged wines. By employing a meticulous approach, an endeavour was made to identify patterns and recurring themes evident in these articles, meticulously scrutinizing and contrasting their content to extract valuable insights. Some articles involve winemaker's or other wine experts' interviews. This approach to research permitted this study to embrace the concept of sea-aged wine with a broader scope while facilitating a comprehensive exploration of the subject, allowing for a deeper understanding and examination of the implications of aging wine underwater. Once this had been realized, academic sources have been incorporated into the discussion. The chapter is structured into four distinct subsections, each addressing an aspect of the topic. In the first subsection, a comprehensive overview of underwater wines is provided, shedding light on notable pioneers and regions in underwater wine production. Furthermore, it explores the growing popularity of these wines and highlights the chemical and microbial changes that occur during the process of underwater wine aging. This subsection serves as a foundation for understanding the significance and context of underwater wines within the broader wine industry. The second subsection of this chapter delves into the innovative practices and approaches employed in wine production and wine tourism, examining how the concept of underwater wines aligns with broader industry innovations. By exploring cutting-edge advancements and creative strategies, it exposes the potential benefits and implications of underwater wine production, particularly in the context of enhancing wine tourism experiences. This subsection also lies in exploring the creation of immersive wine tourism experiences through the application of innovative techniques and compelling storytelling. It examines the role of underwater wines as a storytelling element, elucidating how they contribute to crafting memorable and engaging experiences for wine tourists. This subsection underscores the significance of incorporating innovative and immersive elements in wine tourism and highlights the potential impact of underwater wines in this regard. In the third subsection of this chapter, the attention shifts towards the marketing and commercial aspects of underwater wines. This subsection provides valuable insights that will be used in the final chapter to successfully be positioning and differentiating these unique products in the competitive wine market.

1. Overview of Underwater Wines

Historical development and evolution of underwater wine aging

Existing literature does not clearly state when underwater wine ageing started. However, this innovative method had been shaped by a remarkable discovery which occurred in 1998. In the Baltic Sea, divers uncovered bottles from a two-century-old champagne, where the Swedish schooner *Jönköping* was sunk by a German U-boat in 1916 (Heidsieck & C° Monopole, 2021; The Guardian, 2021). Another find, which

occurred in 2010, included a collection of 168 bottles, and although the labels had deteriorated, further analysis allowed for the identification of their origins. As a result, it was determined that the retrieved bottles originated from renowned champagne houses including Veuve Clicquot Ponsardin, Heidsieck, and Juglar — renamed Jacquesson since 1832 (Jeandet *et al.*, 2015). In total, 30 bottles of champagne were well-preserved despite their age (Radio France Internationale, 2010) as they were concealed at more than 60 metres depth, in the darkness of the sea, safeguarded by consistently maintained temperature and pressure (The Guardian, 2021). The bottles were later auctioned and sold for a staggering price of 15,000 euros each, attracting great attention from wine enthusiasts and collectors (Le Point, 2010), while highlighting the demand for this rare product (L'Express, 2012). Winemakers and other wine enthusiasts started to wonder if the dark depths of the ocean, the soothing sway of tidal currents, and unwavering temperatures conceal the key to crafting exceptional wines.

The existing literature exhibits a particular lack of academic research in the examination of chemical reactions and transformations that occur during underwater wine aging. It seems important to know from a scientific point of view the influence of water pressure, temperature fluctuations, mineral composition on wine chemistry, and the role of microbial communities in underwater wine maturation. A valuable academic article (Jeandet *et al.*, 2015) focuses on investigating the chemical transformations and molecular diversity by thoroughly analysing the composition of champagne samples, aged for 170 years underwater, from a shipwreck in the Baltic Sea. The research findings indicate that the Baltic versions of the wines exhibited reduced alcohol content and elevated sugar levels compared to their contemporary counterparts without sea-aging. The article states that the wines have undergone maturation in nearly ideal conditions at the depths of the sea. In a similar vein, some winemakers decide to explore this ageing method as they believe that, by submerging their wines, the environmental factors such as the constant temperature and pressure, the absence of light and oxygen and the motion of the currents can impart positive effects on the aging process (Klosse, 2013). Moreover, sustainable ageing method need to be found for the wine industry. Carpena *et al.* (2020) particularly emphasizes on the need for alternative techniques to barrel aging in wine production, citing limitations such as shelf life, production time, and costs. The article mentions underwater aging as an innovative approach to enhance bottle aging.

The current body of literature also lacks materials comparing the sensory profiles between underwater-aged and traditional-aged wines based of factual sensory characteristics to do a quality assessment, as well as consumer perceptions and attitudes toward underwater wines. However, non-academic articles (Decanter, 2021, Forbes, 2020) report winemaker's statements indicating distinctions between underwater wines and wines aged conventionally in bottles or vats on land. Yet, perspectives on this matter vary. According to Patricia Ortiz, an Argentine winemaker, the underwater-aged wine and the cellar-aged wine were tasted blindly, and the contrast between the two was remarkable (Decanter, 2021). The underwater-aged wine exhibited a rounder, more elegant profile with fresher fruit flavours. Others emphasize on the mineral flavour present and the reminiscent of saltiness (Decanter, 2021), or a mild metallic sensation in sea-aged wines, resembling the taste of iron. Some also mention the enhance complexity and texture of the sea-aged wines. For instance, Antonio Palacios, the chief oenologist at Crusoe Treasure, describes the wines as having a

smooth texture on the palate, accompanied by a heightened feeling of freshness. According to him, it is best to select robust wines for this purpose (Decanter, 2021). Wine is not the only beverage that has undergone this innovating method of ageing. A study investigates the impact of underwater bottle aging on the maturation of Agricultural Rum of Madeira (Aguiar *et al.*, 2021). The physicochemical properties of the rum samples aged in a cellar and after 7 and 14 months underwater were compared. The results reveal significant and positive changes in the organoleptic properties of the rum after 14 months of underwater aging. The study suggests that underwater aging can positively impact the sensory composition of rum.

Growing popularity of underwater wines

The existing articles about underwater wines revealed a notable emphasis on renowned wineries that consistently produce sea-aged wines, with particular attention drawn to Bodega Crusoe Treasure in Spain, Edivo Vina in Croatia, and Gaia Winery in Greece. The Spanish winery is most often referred as the first cellar to have specialized in sea-aged wines (Carpena *et al.*, 2020). It is important to mention that not all wineries producing underwater wines are entirely focusing their production on such wines. Many wineries are still in the experimental stage of sea-aged wine production and therefore continue to produce their traditional wines alongside with the submerged ones. However, this innovative method of ageing wine is growing across the globe, establishing the groundwork for a niche but swiftly expanding sector within the wine industry. From Greece and Italy to new world producers in Chile and the US, winemakers are harnessing the potential of underwater environments to shape a diverse range of wines, encompassing robust reds and effervescent cavas (The Guardian, 2021). The discernible surge in the number of articles dedicated to the subject of underwater wines unequivocally signifies the escalating popularity and burgeoning interest surrounding this enigmatic ageing practice. This notable trend not only underscores the increasing allure and curiosity surrounding submerged vinification but also accentuates the burgeoning significance and potential of underwater wines within the broader oenological landscape.

The increasing demand for sea-aged wine has also propelled the discussion of terroir to the forefront and given rise to the new concept of 'aquair' or 'water terroir' (Mira Napa, 2022; Karagiannis and Metaxas, 2023). Aquair, derived from the combination of "aqua" (meaning "water") and "oir" (from 'terroir', denoting a specific set of characteristics), refers to the interplay between submerged wine containers and the distinctive attributes inherent in a body of water and its surrounding environment. These attributes include temperature, pressure, light (or absence thereof), the proximity to coastal currents (motion) and marine ecosystems. While terroir traditionally focuses on the belief that the land where grapes are cultivated imparts a unique quality to the resulting wine, aquair introduces the notion that oceans and other bodies of water may bestow distinctive characteristics on wines aged underwater (Mira Napa, 2022). Terroir often involves making assumptions, whereas aquair allows for a more empirical approach by comparing wines aged underwater with their counterparts aged on land. This involves conducting sensory tastings and chemical analyses to discern and compare the nuanced qualities of the wines. Through this comparative methodology, conclusions can be drawn regarding the specific impact of the underwater aging process, providing a more concrete understanding of aquair as a unique aspect of winemaking (Mira Napa, 2022). These factors included in the concept of aquair give an opportunity to further contribute to the unique characteristics of the wines, provide

a sense of terroir specific to the underwater environment, while shaping the storytelling of these unique wines. This will be discussed in following section.

2. Innovation, Storytelling and Wine Tourism Creativity

Wine tourism has emerged as a recognized area of the tourism sector, experiencing significant global growth. This expansion necessitates advancements in wine tourism practices, demanding improvements in performance (Santos *et al.*, 2022). The traditional model of winery tours is considered outdated, and wineries need to offer immersive experiences that go beyond wine tastings (Bridge, 2017). This shows the particular importance of innovations in techniques and technologies within the wine industry. As highlighted by Roberta Garibaldi at the International Wine Tourism conference in Tarragona (2023), the concept of sea-aged wines represents an innovative approach in maturing wine, but also gives opportunity for engaging wine tourism offers. Such approach toward innovation is significant for the exploration of creative approaches in integrating underwater wines into wine tourism offerings. It has the potential to revolutionize the wine tourism industry by creating extraordinary and immersive experiences for wine enthusiasts and marine life lovers. In that sense, enotourism has become a mean for wineries to differentiate themselves in a commoditized wine market and create emotional connections with consumers (Bridge, 2017). Nowadays, making fine wine is not enough to stay competitive, wineries need to offer innovative tourism offers. Visitors seek experiences that enrich their lives and provide stories to share (Bridge, 2017). This highlights the significant role storytelling plays within the wine tourism sector. As demonstrated by Gaia winery, which effectively utilizes storytelling to enhance its brand and attract visitors (Karagiannis & Metaxas, 2023). Underwater wineries in Catalonia can also leverage the power of storytelling to promote sea-aged wines and create unique narratives and experiences for visitors. In the context of storytelling and wine tourism in Catalonia, Leonard (2020) provides insights into the region's wine heritage, production, and unique characteristics. The article covers aspects such as historical background, grape varieties, winemaking traditions, and the influence of terroir, showcasing the rich and diverse wine culture of Barcelona, Catalonia, giving opportunities for Catalan wineries to combine the rich storytelling of the local heritage and the fascinating stories behind sea-aged wine ageing.

To stay competitive, wineries must offer innovative tourism experiences that captivate visitors and create lasting memories. By embracing storytelling and incorporating immersive elements into wine tourism, wineries can engage consumers on a deeper level and turn them into external brand ambassadors (Bridge, 2017). For instance, Edivo Vina Winery, situated in Croatia, offers a distinctive experience by housing its wine collection beneath the sea, allowing visitors to join divers on a tour of submerged jugs and also explore a sunken ship located nearby. For non-divers, there is an above-ground winery available. This unique approach to wine tourism showcases the fusion of marine beauty, historical elements, and exceptional stories around the wine production and local heritage, creating an immersive journey for wine enthusiasts (Forbes, 2020; Edivo Vina, 2023).

Innovation in underwater wine production and tourism has the potential to enhance a destination's competitiveness and attract new markets (Brooker & Joppe, 2014). Karagiannis and Metaxas (2023) particularly emphasizes that underwater-aged wines represent a unique offering since they highly contribute to the winery's competitiveness and commercial success as they embody a differentiation point from other

wineries. Understanding the benefits and challenges of embracing innovation in this context is essential for wineries and tourism stakeholders seeking to stay ahead in the ever-evolving wine tourism landscape. Exploring innovations in underwater wine aging techniques and technologies and integrating them into wine tourism offerings can significantly help wineries to attract wine visitors and connect with them on the long-term. This approach not only renews interest among existing tourists and future purchases but also allows wineries and destinations to establish strong relationships with visitors through storytelling, ensuring brand loyalty (Karagiannis and Metaxas, 2023). The emotional attachment to a brand or product also permits to charge a higher price to customers as they tend to value it more than if compared to other options.

3. Marketing and Commercial Considerations for Underwater Wines

The unique and complex ageing process involved in producing these wines often leads to higher prices in the retail market (Carpena *et al.*, 2020). The premium pricing reflects the perceived value and exclusivity associated with underwater wines. Therefore, pricing strategies play a significant role in the marketing and positioning of underwater wines. The exploration of underwater wines presents an opportunity to leverage creative marketing techniques in wine tourism (Karagiannis & Metaxas, 2023).

Research studies have consistently shown that price is a significant factor influencing consumer behaviour when it comes to wine purchases (Lockshin & Corsi, 2012; Duarte *et al.*, 2010; in Karagiannis & Metaxas, 2023). Customers often perceive higher-priced wines as being of superior quality or offering a more exclusive experience. This perception aligns with the pricing of underwater wines, as the intricate underwater ageing process and limited production contribute to their premium status. For instance, Karagiannis and Metaxas (p243, 2023) mentions the underwater wine from Gaia winery as 'a brilliant new product in financial terms, reaching over 200 euros per bottle'. Dr. Paraskevopoulos, founder of Gaia winery, 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" (Karagiannis & Metaxas, p243, 2023).

Examining the available literature allows to gain insights into customer decision-making and understand how to effectively justify the premium pricing associated with such products. Exploring this topic also permits to reflect on consumer purchasing behaviour and develop strategies to optimize pricing strategies for sea-aged wines. Lingqvist *et al.* (2015) delves into the understanding of how business customers make purchasing decisions to aid firms in formulating effective strategies to cater to their needs and preferences. In the same vein, Beneke *et al.*, (2013) sheds light on the factors that impact customer decision-making and the perceived value of private label products. The study revealed significant correlations between perceived relative price and perceived product value, and a relationship has also been concluded between customers' perceived product value and their willingness-to-buy it. These findings emphasize the importance of establishing a perception of value to premium products, highlighting the necessary role of marketing tools in influencing consumer decisions (Lingqvist *et al.*, 2015). Effective marketing strategies can help communicate the unique characteristics and value proposition of underwater wines to potential customers, justifying the higher price point.

Aschemann-Witzel and Zielke (2017) investigates on how price influences consumer decisions in the context of organic food, shedding light on the factors that shape consumer attitudes and choices in this domain. Similarly, the concept extends to sea-aged wines, where implementing strategies to enhance the perceived value of underwater aging enables justifications for premium pricing in the eyes of customers. The research findings reveal that the primary obstacle perceived by consumers when considering the purchase of organic food is the factor of price. Notably, income alone does not sufficiently explain this phenomenon, as it is outweighed by psychographic variables. The study indicates that consumers are willing to pay a premium price of approximately 30%, contingent upon consumer segmented groups and product categories. Moreover, there is a lack of comprehensive knowledge regarding price among organic consumers, and their sensitivity towards price is comparatively lower when compared to occasional or non-organic consumers. In light of these findings, it becomes evident that further market differentiation concerning organic consumer segments and food categories is imperative. The organic food industry provides an insightful context for comparing with sea-aged wines. While organic products typically command higher prices than their non-organic counterparts, there remains a substantial consumer segment willing to invest in such offerings. The significance of targeting the appropriate audience becomes evident in this context, as not all market segments are receptive to purchasing higher-priced products. Understanding the diverse preferences and purchasing behaviours of consumers is fundamental for underwater wine producers seeking to optimize their marketing strategies and effectively position their offerings. By identifying and targeting the right audience, these wineries can tailor their messaging and value propositions to resonate with specific consumer segments, ensuring a better alignment between product price and perceived value. Moreover, research shows that price stands out as the most significant factor impacting consumer behaviour when purchasing wine (Lockshin & Corsi, 2012; Duarte et al., 2010; in Karagiannis and Metaxas, 2023).

Research has looked at the growing significance of digital marketing as a valuable and well-suited instrument to connect with consumers of the wine industry. Recognizing its importance, wineries have embraced digital marketing strategies to effectively engage with their target audience and establish meaningful connections in today's digital age (Pivac, *et al.*, 2020). This notion is especially applicable and holds significant relevance when considering the domain of sea-aged wines. The unique process of aging wines underwater amplifies the importance of digital marketing, as it becomes a central avenue for wineries to effectively communicate and showcase the distinct characteristics and allure of sea-aged wines to a wider audience. Embracing digital marketing strategies enables wineries to capture the attention and interest of wine enthusiasts, fostering greater awareness and appreciation for this extraordinary winemaking technique. Digital media platforms play a pivotal role in encouraging individuals to share their tourism stories and experiences with a wider audience (Bassano et al., 2019). With the advent of social media, blogs, and other digital channels, people now have the means to effortlessly document and communicate their travel adventures, allowing for the dissemination of personal narratives and first-hand accounts of tourism experiences. This aligns with the overarching principles of storytelling marketing, which revolves around the art of using narratives to captivate audiences and forge emotional connections. By leveraging digital media platforms to facilitate the sharing of personal tales and first-hand encounters, underwater wine businesses can effectively employ storytelling as a powerful marketing tool, which has a profound impact on consumer decision-making.

After critically examining the existing literature on sea-aged wines, encompassing an extensive search for academic articles, specialized magazines and official wineries' websites, it is clear that there is a lack of academic research focusing on sea-aged wines. There is, therefore, the need to encourage further studies to address this research gap and promoting sea-aged wines as an opportunity to create immersive wine tourism offers.

RESEARCH METHODOLOGY

Literature Review

One of the first step for designing this research has been to do a complete literature review, serving as a systematic means to collect, synthesize, and evaluate previous research (Snyder, 2019). It also allows to provide a solid framework for advancing knowledge and fostering the development of theories (Baumeister & Leary, 1997; Tranfield, Denyer, & Smart, 2003).

Since the concept of underwater wine ageing is relatively new, there is a very limited number of academic resources available which explore this topic. Therefore, some of the sources used for this research were non-academic in nature. However, they proved invaluable as a foundational resource, serving as a launching pad for the exploration of this distinctive niche product. Furthermore, these articles served to underscore the dearth of extensive research concerning underwater wines, shedding light on the general lack of consumer awareness regarding this enigmatic product and the limited depth of understanding surrounding its maturation process. Additionally, they provided valuable insights into the inquiries and curiosities harboured by the general public, encompassing inquiries pertaining to the geographical locations of wineries involved in this unique practice, the underlying objectives of the maturing process, and the potential for enthusiasts to savour these submerged vintages first-hand.

Winemakers Interviews

To answer to the lack of existing research focusing on underwater wines, new data had to be collected and therefore, a series of qualitative interviews have been made with underwater wine producers. This approach has been chosen to obtain credible data for the research as the existing information available was mostly shared by non-academic articles such as specialized magazines. There are many directions that were possible for undertaking this research. The choice of focus emerged from discussing with the six underwater wine producers during interviews which occurred between March and April 2023. These producers had been carefully selected according to the following criteria: being located in Catalonia or nearby Spanish regions, producing at least one sea-aged wine for commercial intentions, accepting to be interviewed for research purpose. Four of these entities are situated in Catalonia, and one of them is located in the Alicante region. The underwater wine producers selected for data collection are the following: Gergo Borbély from ElixSea (Catalonia), Diego Duran from S'Àmfora (Catalonia), Marion & Manu from A Mar Wines (Catalonia), Gaitano from Nini Vins Naturals (Catalonia), Josep from La Vinyeta (Catalonia), and Celeste & Kiko from Celler Mar De Vin (Alicante).

To analyse the data collected from the interviews with winemakers, the researcher used the theme coding method. This method included processes that enable collected data to be assembled, categorized, and thematically sorted, providing an organized platform for the construction of meaning (Williams & Moser, 2019).

In the hope to bring underwater winemakers closer and encourage them to collaborate, a tasting event has been organised by the researcher on the 17th of April 2023. During this event, the participants had the opportunity to taste various wines from the six underwater wine businesses. The idea to build a community of underwater producers located in Catalonia and surrounding regions as also been discussed.

Customer Survey

Within the context of this master's thesis, a comprehensive customer survey has been meticulously designed and deployed. The primary objective has been to identify the specific target persona and segment visitors who exhibit a heightened interest in underwater wines, especially since such premium products are usually more expensive. By pinpointing these distinct groups, it becomes possible to tailor marketing strategies and cater to their preferences more effectively. Assessing the perceptions of wine tourists towards underwater wines was another aim of this survey. By delving into the perceptions of wine tourists, the survey seeks to capture their sentiments, preferences, and overall attitudes towards the concept of underwater wines. This assessment provides valuable insights into the market's receptiveness to these unique products. By examining customers' expectations regarding tourism activities associated with underwater wines, the survey also intended to gain insights into the desired components and experiences that customers anticipate when engaging with this unique form of wine tourism. This knowledge aids in developing captivating and immersive tourism offerings.

93 participants answered a series of multiple-choice questions and open-ended question questions. Open-ended questions require individuals to generate their own responses, often necessitating greater cognitive effort, time, and mental processing. They are also cognitively more demanding for the participants than other types of questions (Bradburn, 1978) and are more work-intensive for researchers (Neuert *et al.*, 2021). However, open-ended questions permit respondents to fully express their opinion.

71% of the participants were aged between 18 and 34 years old, 19.4% were between 51 to 69 years old, and 9.7% were 35 to 50 years old. The importance of obtaining balanced samples is a significant consideration for researchers (Dickinson, 2012), and as such, it has been given due attention in the sampling methodology. For this research, 50.5% of the customer survey participants identified as male and 49.5% identified as female. While maintaining sample balance is crucial to ensure representative and unbiased data collection, thereby enhancing the validity and generalizability of research findings, the random sampling method was followed for this research. However, the research ensure gender balanced remained steady. In regard to participants' occupation and salary, 31% of the participants reported being either a student or unemployed (paid under 10,000€ per year), 25.8% stated having a mid-level or senior position (25,000€-50,000€), 21.5% answered having an entry-level or junior position (less than 10,000€-25,000€), 12.9% admitted having a managerial or executive position (50,000€-100,000€) and 8.6% recognised having a

senior executive or business owner (more than 100,000€). The sample was quite diverse with participants coming from different regions of the world. 30.7% came from Spain, 30.1% from non-European country, 21% from France, and 18.3% from other European country. Moreover, 54.8% of the participants stated living near the coastline and 33.3% identified themselves as nature lover, 30.1% as adventure seeker, 20.4% as foodie, 10.8% as wine-focused voyager and 5.4% as luxury traveller.

The customer survey was designed and distributed online to collect data on the target persona interested in underwater wines. To design and analyze the survey and the results, Google Forms was used.

Data collection for this research involved gathering first-hand information (directly from customers) and second-hand information (from winemakers who talk about their visitors). The integration of these two types of data enhances the depth, validity, and reliability of research findings. By combining insights from winemakers and customers, this research method allows for a comprehensive understanding of underwater wines and their appeal in the tourism industry. The interviews provide insights from the producers' perspective, while the survey data helps identify the target audience and give directions to potential marketing strategies.

SWOT Analysis

By combining the insights from qualitative interviews with winemakers and the data collected from the customer survey, a comprehensive SWOT analysis was formed. This approach ensured a balanced and holistic assessment of the internal strengths and weaknesses of sea-aged wines, as well as the external opportunities and threats in the market. The incorporation of both winemakers' perspectives and customer insights enriched the analysis and provided a well-rounded view of the current landscape of sea-aged wines.

Best Practices

This research also utilized a website analysis approach to identify and analyze best practice examples of underwater wine tourism offers. These examples have been selected for their excellence in creating and promoting innovative underwater wine experiences as well as their proximity to Catalonia. By examining a sample of websites that showcase and promote immersive experiences, the research uncovered effective strategies, features, and elements that contribute to their success. The findings will serve as valuable insights and guidelines for wineries and tourism organizations seeking to develop, enhance, or optimize their underwater wine tourism offerings, ultimately contributing to the growth and improvement of this unique and immersive form of wine tourism.

FINDINGS & DISCUSSION

To enhance the analytical coherence and provide a comprehensive presentation of the research outcomes, this section combines the findings and discussion into a single section. This integration allows for a more cohesive and streamlined narrative, facilitating a clearer understanding of the research findings and their implications. Therefore, the goal of this chapter is to expose the research findings as well as discussing their significance. This section presents all the findings topic by topic and combine data from the interviews with producers as well as the findings from the customer survey.

1. Background Information about Underwater Wines

1.1. Methods of Production for Underwater Wines

During interviews, a few producers mentioned started experimenting after hearing about the recovery of champagne bottles from a shipwreck (Gergo, ElixSea; Marion & Manu from Amar Wine; Josep, from La Vinyeta). Others, as Celeste and Kiko from Celler Mar de Vins, explained having started underwater ageing out of curiosity. Celeste stated during the interview: “We did the underwater aging to experiment and learn about the differences that existed between terrestrial and underwater wines”. Some wineries exclusively focus on producing wines that are aged underwater, while other wineries experiment with underwater aging alongside their traditional winemaking practices. There also exist firms specialized in underwater ageing and provide their services to wineries such as ElixSea (Gergo Borbély). As the sector continues to expand, winemakers are adopting diverse techniques for underwater aging. These methods vary significantly, ranging from submerging wines in sealed amphorae to utilizing custom-designed barrels or submersible cages adorned with bottles covered in algae. Additionally, some producers such as Diego Duran (from S’Amfora) have opted for a combination of sea-ageing and water-filled tanks located on land instead of marine environments. Depths of submersion also differ, with wines being plunged to depths of up to 30 meters, while others have been aged in shallower waters (Table 1.). This wide array of approaches demonstrates the experimentation and flexibility within the underwater aging practice.

Table 1. Outline of Interviews with Producers

Wineries	Methods of production	Types of sea-aged wines	Vats for Underwater ageing	Underwater depth (m)	Time of underwater ageing (month)	Tourism offers
Elixsea	Not winemakers, underwater ageing expertise	Focuses exclusively on producing sea-aged wines: full-bodied red wines	Glass bottles sealed with wax, 75cl	24-26	6	Sailing experience and diving, twin tasting, occasionally sailing boat tour
Celler Mar de vins	Winemakers, works with a partner for ageing process	Combines the production of conventional wines and sea-aged wines: red and white, medium-bodied wines	Glass bottles sealed with wax, 75cl	30	6	Tasting room
S’Amfora	Winemakers, works with a partner for ageing process	Combines the production of conventional wines and sea-aged wines: full-bodied red wines	Clay bottles (amphora) sealed with wax, 75cl	15	14	Tasting room, vineyard tours and brunch
Nini Vins Naturals	Winemakers, works with a partner for ageing process	Combines the production of conventional wines and sea-aged wines: full-bodied red wines, rosé and sparkling	Glass bottles sealed with wax, 75cl	22	8-12	Tasting room, paella by the sea or river Ebro (area known for rice) with diver
A Mar Wines	Not winemakers, works with a partner for ageing process	Focuses exclusively on producing sea-aged wines: full-bodied redwines	Glass bottles sealed with wax, 75cl	24-26	6	Tasting room, twin tasting
Celler La Vinyeta	Winemakers, works with a partner for ageing process	Combines the production of conventional wines and sea-aged wines: white and full-bodied red wines	Glass bottles sealed with wax, 75cl	13-14	6	Tasting room, twin tasting, occasionally sailing boat tour

1.2. Selecting Suitable Wines for Underwater Ageing

Based on the interviews conducted with winemakers specializing in sea-aged wines, several important findings emerged. As mentioned in the literature review, it is recommended to work with robust wines that can withstand the unique conditions of underwater aging. This aligns with what winemakers mentioned during interviews. For instance, Gergo Borbély, from ElixSea, explains that wines with strong structures and intense flavours tend to fare better during the aging process underwater. He says: “You need a robust wine, a strong one with body, or something with higher acidity, higher levels of tannins, and also a higher level of alcohol. [...] These are the general criteria for aging”. Moreover, Celeste from Celler Mar de Vins explains that “the added value [of underwater wines] is the exclusivity of said underwater aging. In our case, the wines are made with Mediterranean varieties such as Malvasía and Giró. If these wines are submerged in the

Mediterranean, they acquire an extreme exclusivity since there are no wines made with these varieties with underwater aging". Therefore, selecting local grape varieties for underwater ageing also has its significance.

1.3. *Choosing Suitable Vats*

In terms of suitable vats for underwater aging, winemakers mentioned several options. Gergo states that the underwater process currently involves aging wines in bottles, but there are plans to develop containers using vats equipped with pressure release valves, which allow adjusting the pressure inside the vat to mimic the conditions at varying depths. He adds on that it would be preferably made of steel or plastic, to not affect the taste of the wines. Another option discussed was the use of amphoras, which are favoured by Diego Duran from S'Amfora and believed to enhance the aging process underwater. Certainly, the use of amphoras not only imparts a distinct sense of historical lineage but also serves as a captivating marketing aspect. The utilization of amphoras for underwater wine production, reminiscent of the winemaking practices employed by the ancient Greeks and Romans, adds an aura of tradition and heritage to the wine itself. This infusion of historical context not only appeals to wine enthusiasts who appreciate the connection to age-old techniques but also creates a compelling narrative for marketing purposes, captivating consumers with the allure of a unique and storied winemaking approach.

During interviews, the significance of wax in underwater wine ageing was also emphasized. It serves as a protective barrier, ensuring no contact between the wine and saltwater.

1.4. *Choosing Underwater Depth*

The significance of selecting the appropriate underwater depth for sea-aged wines cannot be understated. This crucial factor directly impacts the aging process and the overall flavour profile of the wines. Different depths offer distinct environmental conditions, such as variations in pressure, temperature, and light exposure, all of which influence the maturation and development of the wines (Gergo Borbély, ElixSea). Choosing the right underwater depth involves a careful balance. Shallow depths, closer to the water's surface, may expose the wines to increased temperature fluctuations and higher levels of light exposure, potentially accelerating the aging process and altering the wine's characteristics in an undesirable way (Diego Duran, S'Amfora). On the other hand, deeper depths provide more stability in temperature and reduced light penetration, which can contribute to a slower, more controlled aging process (Gergo Borbély, ElixSea).

Therefore, the appropriate selection of underwater depth is a delicate decision that requires a thorough understanding of the wine's characteristics, desired aging outcomes, and environmental conditions. By carefully considering these factors, winemakers can harness the potential of underwater aging to craft exceptional sea-aged wines with distinctive qualities that captivate wine enthusiasts and contribute to the fascinating world of underwater wine production.

1.5. *Choosing Underwater Time*

Similarly to the significance of selecting the suitable underwater depth for sea-aged wines, deciding on the suitable time for underwater wine aging also is a crucial aspect. Gergo Borbély from ElixSea, as well as Marion and Manu from A Mar Wine, advocates a minimum aging period of eight months. They reveal that it

is during the 4 to 6 months period underwater that the wines undergo the most significant transformation. The ageing is thought to bring roundness and silkiness to the wines. Gergo mentions that tannins integrate 3 to 4 times faster than on land and that the complexity and intensity of aromas is also modified. Primary aromas are enhanced, as well as the youthfulness and freshness of the wine. According to Kiko, from Celler Mar de Vins: “with underwater aging we get unique and genuine wines. In general, we have observed rounder wines tannically speaking and, on the other hand, more complex wines”.

Despite all the well-thought decision-making, since sea-aged process is still at its experimental stage, the results are not always exact. Gergo explained during the interview that about 80% of the wines he tried, either did not evolve enough or the original version was better than the sea-aged wine.

2. Sea-Aged Wines: SWOT Analysis

This SWOT analysis provides a comprehensive overview of the internal strengths and weaknesses of sea-aged wines, as well as the external opportunities and threats underwater wines face within the industry. It highlights the potential benefits and challenges associated with the production and marketing implementation of these unique wines, while also acknowledging the need for addressing consumer awareness, production costs, and market competition. The SWOT was formed using data collected from qualitative interviews with the winemakers as well as the customer survey. The incorporation of both winemakers' perspectives and customer insights enriched the analysis and provided a well-rounded view of the current context of sea-aged wines.

Strengths:

- Distinctive flavour profile derived from the maturation process in marine environments
- Faster ageing of the wine (about 4 times faster)
- Captivating story and unique selling point that appeals to wine enthusiasts
- Exclusivity and appeal to connoisseurs and collectors
- Potential for high market value due to rarity and desirability

Weaknesses:

- Lack of clearly defined target persona (discussed in section 3)
- No communication between sea-aged wine producers (discussed in section 6.2)
- Low customer loyalty
- Potential for inconsistent aging outcomes, leading to variations in quality
- Limited volume of production
- Higher production costs compared to traditional wines (need continuous monitoring)
- High risk of wine spoilage
- Expertise needed due to complex and specialized production process
- Uncertainty about aging potential and quality over time
- Low return on investment from wine tours on a boat

Opportunities:

- Growing consumer interest in unique and unconventional wines
- Expanding niche market for premium wines and artisanal products
- Collaborations with coastal regions and vineyards for enhanced branding and product differentiation
- Aligns with consumer's increasing demand for health/wellness and focus on sustainable practices and eco-friendly production methods
- Leveraging wine tourism and experiential marketing for immersive consumer experiences
- Competitive advantage: Unique selling point, differentiation from competitors

Threats:

- Customer scepticism about the impact of underwater ageing on wines (discussed in section 5)
- Difficulty to obtain the underwater certification to place the bottles in the sea
- Legal restrictions (blurred policies): labelling requirements (DO issue), adding complexity to production and marketing
- Limited consumer awareness of sea-aged wines, requiring education and marketing efforts (discussed in section 4)
- Intense competition from established wine producers, making market entry challenging
- Potential negative environmental impact from marine ecosystems and packaging materials
- Economic fluctuations and market uncertainties, impacting consumer spending and demand

It is important to note that this analysis is non-exhaustive, meaning that there may be additional factors and considerations that could impact the success and sustainability of sea-aged wines. Further research and analysis may uncover additional insights and aspects that are not covered in this analysis.

These findings can be used as the basis for providing recommendations to producers focusing on underwater wines in the hope to improve the positioning of their wines on the market. Therefore, after looking at the SWOT analysis, this paper looks at the main problems to tackle: the lack of clearly defined target persona for underwater wines and the need to promote these wines as there is a lack of customer awareness about the existence of such wines.

3. Need of a Clearly Defined Target Persona for Underwater Wines

3.1. Customers for Underwater Wines: Producers' Perspective

During the interviews, producers were asked about the customer profile that purchases their unique underwater wines in the form of the question: 'What customer profile buys your underwater wines?'. Here, are presented their enlightening responses, shedding light on the usual clientele for sea-aged wines.

Celeste from Celler Mar de Vins, states that their customers "has a medium-high purchasing power". This aligns with Gergo's statement explaining that most of their customers "are looking for premium products". Josep from Celler La Vinyeta also mentions that customers "do not mind paying more for an engaging experience". Marion from A Mar Wines also mentions that customers buying sea-aged wines are usually looking for "something new and different". Gergo also explains that most customers have "at least some to advanced knowledge [about wine]" and are "willing to explore new types of wines".

Celeste adds that their clients have “an open mind” and that they are “curious and eager to experiment in the world of wines”. This resonates with Gaietano’s comment about his customers being “keen to explore the underwater world through wine”. In the same veins, Gergo explains that a large number of their customers are divers (either licenced or non-licenced) and therefore shows a particular interest toward “marine life”. This goes along with Gaietano’s mention of underwater wine customers being “nature-oriented” and interested in wineries following “sustainable practices”.

Now, this paper will provide an insightful analysis of the target persona that best aligns with the exquisite experience of sea-aged wines. Acknowledging the unique characteristics and preferences of individuals from this segment will offer valuable guidance for tailoring marketing strategies.

3.2. Customer Survey Findings

Figure 1 below illustrates the fascinating distribution of participant self-descriptions, revealing valuable insights into their personal interests and inclinations. A significant proportion of 33.3% identified themselves as 'nature-lovers,' highlighting their affinity for the natural world. Following closely, 30.1% described themselves as 'adventure seekers,' indicative of their desire for thrilling experiences. Additionally, 20.4% identified as 'foodies,' demonstrating their passion for gastronomic delights. Interestingly, 10.8% of participants identified themselves as 'wine-focused voyagers,' emphasizing their specific interest in wine-related explorations. Furthermore, as mentioned in the literature review, research shows that price stands out as the most significant factor impacting consumer behaviour when purchasing wine (Lockshin & Corsi, 2012; Duarte et al., 2010; in Karagiannis and Metaxas, 2023). Findings from the customer survey (Figure 2) align with such statement.

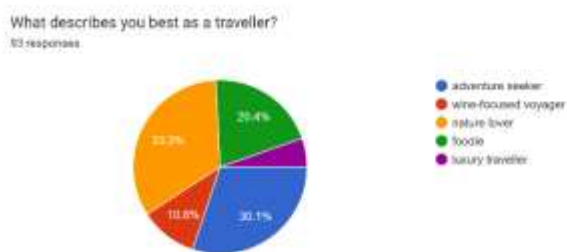


Figure 1. Customer survey: What describes you best as a traveller?

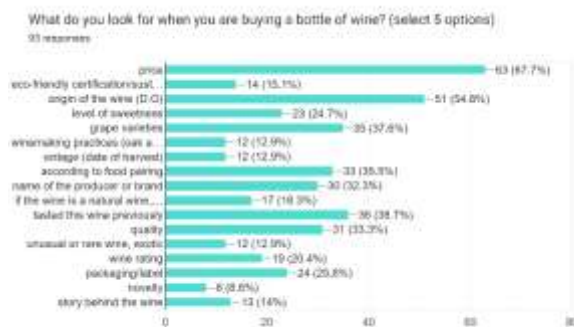


Figure 2. Customer survey: What do you look for when you are buying a bottle of wine?

Figure 3 demonstrates that 71% of the sample population are very likely to try wines they have never tasted. This finding sheds light on the inherent curiosity and adventurous spirit of customers, instilling a sense of optimism for the reception of novel offerings such as sea-aged wines. The data signifies an exciting opportunity to captivate and engage these customers with the allure of sea-aged wines, which epitomize a unique and unconventional vinicultural experience. With their open-mindedness and willingness to explore new flavours, this customer segment holds great potential for embracing the distinct qualities and sensory journey that sea-aged wines offer. Moreover, Figure 4 shows that 58.1% of the sample population would

choose sea destinations for their holidays. This advantageous alignment presents an exciting opportunity for wineries producing sea-aged wines to capture the attention and interest of this customer segment.

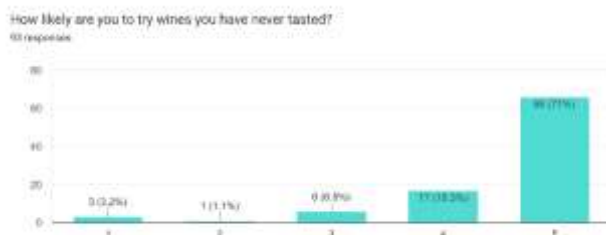


Figure 3. Customer survey: How likely are you to try wines you have never tasted?

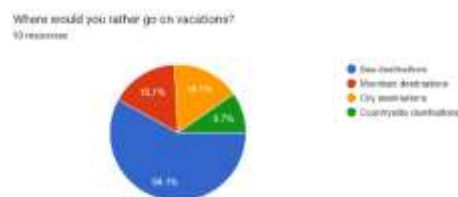


Figure 4. Customer survey: Where would you rather go on vacations?

When asked how much they know about underwater wines, 61.3% of the overall sample said their knowledge regarding to this topic was almost non-existent (1 out of 5). Nevertheless, 51.1% of them believe that underwater ageing can somewhat have a positive influence on the wine (3/5 on the scale). Additionally, 98.8% people answered positively when asked if they would be interested to taste sea-aged wine.

Moreover, the customer survey demonstrated that on a scale from 1 to 5, 5 being very likely, 46.2% of the sample population scored 3 when asked how likely they are to purchase an underwater wine. This was before any price range had been mentioned. When asked what extra percentage of the price they would be keen to spend on underwater wines, 51.1% stated they would be willing to pay up to 10% more, while 20.7% replied they would not pay more for such product. The data collected shows that 22.8% of the population would be willing to pay 10 to 25%, while 4.3% of them would be likely to pay 25% to 50%, and 1.1% would accept paying more than 50% of the price of a bottle of a sea-aged wine. It is worth mentioning that people answering the survey had no knowledge of the efforts behind sea-aged wines. This research supports that by educating potential customers and explain the effort behind such process, customers would be even more willing to pay a higher percentage.

In the same vein, when asked 'Would you be keen to extend your budget for a wine tour focusing on sea-aged wines?', 33.7% of the sample population said they prefer to stick to their initial budget and not exceed it for a wine tour, even if it involves sea-aged wine, while 32.6% stated they are willing to extend my budget up to 10% for a unique wine tour experience focused on sea-aged wines. 22.8% claimed they would be likely to extend their budget 10% to 25% more for a unique wine tour experience focused on sea-aged wines. The data collected also shows that 9.8% are interested to extend their budget 25% to 50% more and 1.1% only is willing to extend their budget more than 50% (Figure 5). This shows that even though people seem interested in underwater wine, there is truly a need to promote such wines as premium products.

Overall, most participants show interested in knowing more about sea-aged wines. When asked 'how interested are you in learning more about underwater wines?' on a scale from 1 to 5, 39.1% scored 4 and 26.1% answered 5.

These statistics are of great importance as they will be useful for crafting a target persona tailored to underwater wines. By understanding the diverse preferences of these distinct segments, we can create a captivating narrative that appeals to their individual interests and motivations.

3.3. *Target Persona Proposal*

To create promotional content adapted to the appropriate audience, a target persona must be created for underwater wines. This target persona needs to also be used for designing engaging wine tourism offers such as the examples given in the section 'Underwater Wine Tourism Development'. As of now, the estates have a target persona for their wines in general but not for their submarine wines. Based on the interviews with producers, the customer survey and an analysis of numerous websites and Instagram pages focusing on underwater wines, this section suggests the appropriate target person for such wines.

Target Persona: Ocean Enthusiast Wine Connoisseur

Demographics:

- Age: 30-60 years
- Gender: all genders
- Education: College-educated or higher
- Occupation: Professionals in fields such as beverage industry, marine biology, diving instructors, or individuals passionate about underwater exploration and wine

Psychographics:

- Interests: wine, diving, marine life, underwater photography, adventure & food travel
- Lifestyle: Active & adventurous, with a keen interest in exploring unique experiences, medium range to high income
- Wine Knowledge: Moderate to advanced wine knowledge, with a particular interest in discovering and experiencing novel and niche wine offerings
- Preferences: Enjoys exclusive and immersive experiences, appreciates the convergence of wine and unique environments

Motivations:

- Novelty: Attracted to unique experiences that offer something new and different
- Exploration: Thrives on discovering uncharted territories and seeking out extraordinary adventures
- Connection with Nature: Values the beauty of the ocean and seeks ways to connect with it in a sustainable manner
- Appreciation for Wine: Appreciates fine wines and enjoys exploring new flavours and tasting experiences

Behaviour:

- Travel: Willing to travel to coastal destinations for unique experiences
- Social Media Use: Active on platforms such as Instagram, Facebook, or specialized diving and wine-related forums for seeking recommendations and sharing experiences
- Willingness to Spend: Willing to invest in exclusive, do not mind paying more for engaging experiences and premium-quality wines

Message:

- Emphasize the extraordinary nature of underwater wines and their connection to the oceanic environment
- Highlight the uniqueness and exclusivity of the experience, appealing to their sense of adventure and discovery
- Showcase the expertise and craftsmanship behind the production of underwater wines
- Promote the sensory and immersive aspects of tasting underwater wines, emphasizing the distinct flavours and characteristics imparted by the marine environment

It seems worth mentioning that the above target persona is a general representation and can be further refined based on specific research findings or target market analysis for underwater wines. This persona has been designed based on findings mainly collected in Catalonia and therefore, this persona might diverge in a different context.

4. Combat the Lack of Awareness about Underwater Wines

After conducting interviews with winemakers and getting data from the customer survey, it became evident that there is a noticeable lack of awareness among the general public regarding sea-aged wines. Findings from the customer survey designed for this research reveals that about 43% of the sample population have never heard about the notions of 'underwater-aged wines' or 'sea-aged wines'.

However, findings from the customer survey (Figure 5) shows that 34.4% of the participants scored 4 out of 5 and 23.7% replied 5 out of 5 when asked if they would be interested in attending an event featuring underwater wines (5 being very interested). Combining participants scoring 4 and 5, there is a willingness of 58.1% of the population to get involved with sea-aged wines. This truly demonstrates the willingness of potential customers to discover such wines if they knew about the offers available.

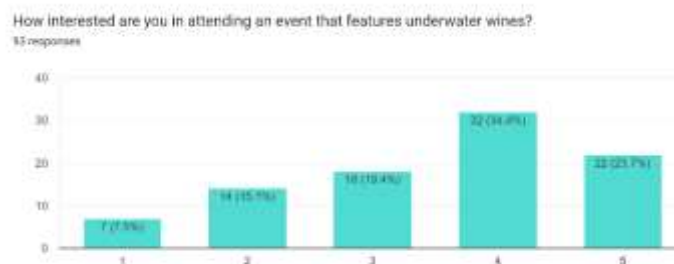


Figure 5. Customer survey: How interested are you in attending an event that features underwater wines?

By setting up strategies to promote sea-aged wines, wineries can build further awareness about this innovative offer. When asked about communication during interviews, producers especially mentioned word of mouth, websites, social media platforms such as Instagram and Google reviews. Celeste from Celler Mar de Vins mentions that "it is not necessary to have any elaborate strategy since underwater wines, have a very high exclusivity. However, we advertise this product on the web and social networks". When asked 'Why do you think tourists decide to visit your winery rather than another one?', Kiko (also from Celler Mar de Vins) states: "We have 5 stars in all reviews on our Google account and this makes tourists decide to visit us. They

tell us that they want to know small production wineries that make wines with local varieties. In addition, they also come because of their interest in underwater wines”.

5. Customers’ Scepticism about Underwater Wines

It is important to acknowledge that a segment of potential customers harbors skepticism regarding the impact of underwater ageing on wines. While the concept of sea-aged wines may pique their curiosity, they approach it with a cautious mindset and seek further reassurance or evidence before fully embracing the idea. When asked “How are customers interacting with you when you tell them about underwater wines?”, some producers mention a few sceptical customers. Kiko from Celler Mar de Vins says that there are usually some “sceptical customers of underwater aging and many believe that this experiment is purely commercial and there really won't be a difference between the wines”.

In a similar vein than Kiko’s observation, Figure 6 shows that there are indeed sceptical customers. Only 14% of the sampled population scored 5 out of 5 when asked if they believed that underwater ageing can have a positive influence on the wine. However, when asked ‘Would you be keen to taste an underwater wine (or taste again)?’, 98.9% of the participants said they would try it. These findings present an intriguing dynamic: while skepticism is present regarding the direct influence of underwater aging, the overwhelmingly positive response to tasting sea-aged wines suggests a deep curiosity and receptiveness among potential customers. It signifies an opportunity for wineries to bridge the gap between skepticism and exploration by providing engaging and educational experiences that help customers understand the unique qualities and benefits of sea-aged wines. By addressing the concerns of the skeptical minority and emphasizing the allure of the tasting experience, wineries can effectively capture the attention and enthusiasm of the majority who are keen to embark on a sea-aged wine journey.

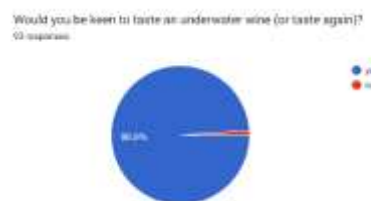
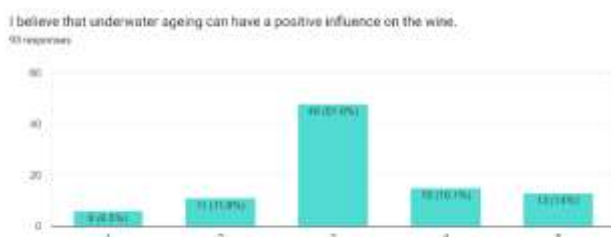


Figure 6. Customer survey: I believe that underwater ageing can have a positive influence on the wine.

Figure 7. Customer survey: Would you be keen to taste an underwater wine?

The next section explains how some producers attempts to tackle the issue of sceptical customers.

Tourism Offer: Twin Wines Package

Through interviews with winemakers, they all expressed the desires of customers to explore the underwater expression of wines alongside their terrestrial counterparts. Notable producers like Gaitano Pellisa from Nini Vins Natural, Gergo from ElixSea, Marion & Manu from A Mar Wine, and Celeste & Kiko from Celler Mar de Vins have responded to this demand by organizing comparative wine tastings. In these tastings, enthusiasts have the chance to experience the original wine in one glass and its underwater-aged counterpart in another, sometimes referred to as 'twin wines.' Gergo from ElixSea poetically captures the essence of this divergence,

stating, "they were born from the same parents, in the same house, but one dreamt of further adventure out there, while the other stayed on and took an office job." Gergo mentions that usually the visitor's first question during the tasting is: 'what changes?'. People are curious about the changes and are seeking explanation. This desire for comparison has emerged as a priority for both winemakers and visitors, as highlighted by the feedback received after the wine tours. Supporting this notion, the customer survey designed for this research reveals that 56.5% of the respondents express a keen interest in personally discerning the differences between the two wines. This demonstrates the need for wine tours to include a comparative tasting in the offer for at least one of the underwater wines. This will especially show that winemakers are confident in their wines and that they truly believe in the underwater ageing process. This approach helps sceptical visitors to be the judge of the transformation.

To facilitate this exploration, package offers have been introduced by some producers. A Mar Wine, for instance, offers both the underwater-aged wine and its land-aged counterpart at a reduced-price difference (Marion & Manu, 2023). Similarly, Celeste from Celler Mar de Vins explains that "the clients are offered the possibility of buying a terrestrial-submarine pack so that they can compare the same wine, one with terrestrial aging and the other with underwater aging. We organize tasting with underwater wines and their terrestrial sibling". This enticing proposition encourages customers to acquire both wines, enabling them to compare and contrast the nuances of each from the comfort of their own homes. By actively promoting such comparisons, underwater wine producers convey their unwavering belief in the distinctiveness and quality of their creations.

Understanding and addressing this scepticism becomes crucial for wineries aiming to promote sea-aged wines. By actively acknowledging and engaging with the concerns of these individuals, wineries can establish trust and credibility while providing the necessary information to alleviate doubts. The need to create educational digital content for reassuring customers will be discussed later in this paper.

6. Promoting Wine Tourism Development for Underwater Wines

Based on the comprehensive analysis and overall data collected about underwater wines, this section gives recommendations aiming to guide and inform key stakeholders in the underwater wine industry, including wineries and tourism organizations. These recommendations are designed to capitalize on the unique opportunities offered by underwater wine production and promote its sustainable growth. By implementing these suggestions, stakeholders can enhance the development, marketing, and overall success of underwater wines, further contributing to the enrichment of the wine tourism experience and the preservation of cultural heritage.

6.1. Immersive Wine Tourism Experiences for Underwater Wines

As mentioned in the literature review, underwater wines give an opportunity for creating immersive wine tourism offers (Roberta Garibaldi, 2023) critical for wineries to attract and engage in a meaningful manner with visitors (Brooker & Joppe, 2014; Karagiannis and Metaxas, 2023). By focusing on behavioural and sensorial customer engagement, wineries can create unforgettable experiences for visitors.

When asked ‘What kind of event would you like to be involved in?’, 60.2% of the sampled population said they are interested in ‘a boat ride including a tasting of underwater wines’.

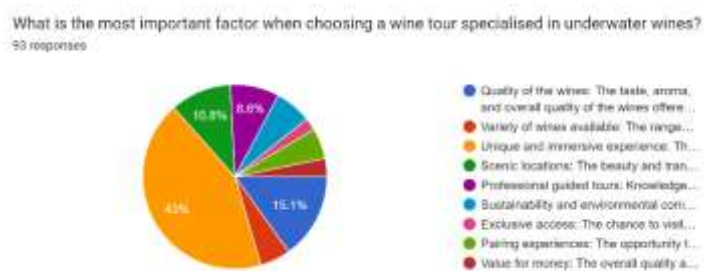


Figure 8. Customer survey: What is the most important factor when choosing a wine tour specialised in underwater wines?

To get customer truly engaged in the wine tourism offers, combining underwater wines with a water-related activity appears as a worthwhile proposition. This is also known as ‘underwater wine tourism’ or ‘wine aquatourism’ (Karagiannis and Metaxas, 2023). This combination of wine appreciation with immersive tourism services represents a promising niche market. This gives the opportunity to travellers merge their appeal for wine and gastronomy while enjoying the beauty of the sea. Nowadays, visitors are interested by living a wine experience rather than just tasting wine. This is truly emphasized by the customer survey designed for this thesis. When asked ‘What is the most important factor when choosing a wine tour specialised in underwater wines?’ (Figure 8), 43% of the sample population answered that they are mainly interested in living a ‘Unique and immersive experience: The opportunity to learn about the process of underwater winemaking and its impact on the flavour profile of the wines.’ Spain, with its coastal businesses and underwater museums, stands as a prime example to explore the potential for sea-aged wines in term of unique and immersive wine tourism offer (Karagiannis and Metaxas, 2023).

Best Practices of Immersive Tourism Offer for Underwater Wines

In their recent publication, Karagiannis and Metaxas (2023) highlight three remarkable examples of underwater wine tourism experiences. The first is La Bodega Submarina de Canarias in Spain, where visitors have the opportunity to engage in underwater wine tasting inside a submarine. Croatia's Edivo Vina offers a unique encounter as guests can "Dive & Pick" their own underwater wine amphorae from the sea. Lastly, the Bajoelagua Factory 'Crusoe Treasure' in Bilbao, Spain, offers a distinctive twist with their "Covid Free, Memorable, and Authentic Underwater Wine Tourism Experience from Home" through virtual tasting sessions. These innovative offerings showcase the diversity and creativity within the realm of underwater wine tourism, enticing enthusiasts with unforgettable and immersive experiences.

In the same vein, this section focuses on three best practices of underwater wine activities and analyses each of them. Since this research mainly focuses on underwater wine businesses of Catalonia (and neighbouring regions), the examples mentioned in this section are all located in Catalonia. These three examples of optimal approaches for immersive tourism experiences with underwater wines has been shaped based on interviews with the six sea-aged wine producers involved in this research.

ElixSea: Underwater Treasure Hunting

The Underwater Treasure Hunting offers a captivating immersive wine tourism experience. Based in Girona, ElixSea specializes in marine enology, providing underwater aging for wineries. Their unique wine tourism offering combines adventure, storytelling, and wine. Participants embark on a treasure hunt led by experienced divers, exploring submerged wine cellars and discovering carefully aged and preserved wine bottles. This multi-sensory experience goes beyond traditional wine tasting, engaging visitors in the narrative behind each bottle. The underwater environment adds intrigue and anticipation, unveiling the history, craftsmanship, and unique qualities of the wines. This immersive journey connects wine enthusiasts and divers, showcasing the power of storytelling to create lasting memories and ignite curiosity.

Nini Vins Naturals: Paella & Underwater wines by the Sea

Nini Vins Naturals, located in Rasquera, offers a unique wine tourism experience called "Paella & Underwater Wines by the Sea." This immersive experience combines Catalan culture and heritage through two iconic elements: traditional paella and underwater wines. Guests indulge in an authentic Catalan paella meal prepared with local ingredients, showcasing the region's culinary traditions and natural beauty of the landscape. This experience allows visitors to fully immerse themselves in Catalan gastronomy and appreciate the region's commitment to wine innovation. "Paella & Underwater Wines" offers a delightful gastronomic journey that unveils Catalan cultural values, connecting visitors with the essence of Catalonia and its rich wine heritage.

S'Amfora: Underwater Wine Tasting on a Sailing Boat

S'Amfora, located in Porrera, Catalonia, produces unique wines with Designation of Origin Qualificada (D.O.Q.) Priorat and D.O. Terra Alta. Their wines are bottled in amphorae and aged underwater, creating a distinct character. The winery hosts underwater wine tastings on the schooner Karya, a magnificent boat navigating the coast of Cambrils. Inspired by Roman winemaking traditions in Tarraco, these events aim to celebrate Cambrils' seafood cuisine alongside wine tastings. Recently, S'Amfora organized an engaging wine label game, where attendees voted for their favourite artwork to become the new label for their upcoming underwater wine. This interactive approach involved visitors in the winery's decision-making process, fostering a sense of involvement and shaping the brand's visual identity.

These examples epitomize immersive wine tourism, combining storytelling, cultural heritage, sense of place, and wine tasting.

Gastronomy Tourism Focus: Partner with Underwater Restaurants

To enhance the gastronomy aspect of their wine tourism offer, wineries can explore strategic partnerships with underwater restaurants, creating unique and memorable experiences for visitors. By combining the underwater wine aging concept with the culinary expertise of these establishments, wineries can offer extraordinary wine and food pairings in a captivating underwater setting. Such collaborations not only elevate the overall experience but also contribute to the promotion of local gastronomic heritage. A remarkable instance of a potential collaboration with underwater wine producers could be established through a partnership with the distinguished fine dining establishment, Under, located in Lindesnes, Norway. A

remarkable spectacle awaits visitors, since they will have the chance to gaze through a vast transparent wall, observing shoals of fish gathering around the magnificent structure. Under's chef, Nicolai Ellitsgaard, draws his culinary inspiration from the natural surroundings in Lindesnes to create a menu that showcases the region's abundance of fish and seafood (Under, 2022). This truly gives a sense of place to the experience. The combination of underwater wines paired with such exquisite seafood cuisine, all experienced while submerged beneath the water's surface and surrounded by the captivating marine life, would result in an even more unparalleled, immersive adventure leaving visitors with a truly remarkable and unforgettable memory.

Since Under is the ideal illustration of excellence, it has been chosen as an example here. However, such partnership can also be created with the restaurant Sublimotion, situated in Ibiza, Spain. The location is ideal for underwater businesses of Catalonia, since the island is located nearby the Catalan coastline. Visitors can reach Ibiza from Barcelona by booking a 3h30 flight. There is also the option to take a ferry from multiple locations.

By emphasizing the connection between visitors and the sense of place, wineries can create a deeper and more meaningful bond between their sea-aged wines and the coastal region of Catalonia. This approach allows tourists to not only savour the wines but also immerse themselves in the local culinary traditions. For example, Gergo highlights ElixSea's efforts to organize wine tastings on boats, where visitors can enjoy their wines paired with exquisite sea urchin delicacies.

Incorporating gastronomy into their offerings, wineries have a tremendous opportunity to enhance the visibility of underwater wine, which faces the challenge of lack of awareness. Despite its potential, many consumers remain unaware of sea-aged wines due to limited marketing efforts from the tourism boards and a general lack of education about such wines among customers. To unlock their untapped potential, raising awareness through targeted campaigns, partnerships with experts, and organizing events is crucial. The combination of wine and gastronomy expands the winery's appeal, by attracting food lovers, culinary travellers, and those seeking a complete sensory experience. Showcasing local culinary traditions and offering wine and food pairings highlights the region's flavours, establishing wineries as must-visit destinations.

6.2. Creation of the Catalan Underwater Wine Producers Association

Communication between underwater wine producers is one of the main issues. To help solving this problem, and Catalan Underwater Wine Producers Association can be created. To understand how establishing such initiative, there is a need to look at a successful winemaker association. This section uses Napa Valley Vintners as best practice study case.

Napa Valley Vintners as Best Practice Example of Winemakers Association

One notable example of a winemakers association is the Napa Valley Vintners (NVV) in California, USA. The NVV is a renowned association that represents 539 wineries in the Napa Valley region (Napa Valley Vintners, 2022). This research considers it as a best practice example due to its overall success, commitment to quality, sustainability, community engagement and great communication between members. The NVV plays a

significant role in promoting and protecting the reputation of Napa Valley wines through various initiatives. They enforce strict quality standards among the winery members, ensuring that wines labelled with the Napa Valley appellation meet rigorous criteria. Furthermore, the NVV places a strong emphasis on sustainability and environmental stewardship. They also have initiatives to promote education and professional development within the wine industry, fostering collaboration and knowledge-sharing among winemakers.

This paper supports that the success of the Napa Valley Vinters Association can be replicated in Catalonia in the context of sea-aged wines. The first goal of creating such association is to provide opportunities for producers to know each other and exchange about how to promote this innovative maturation technique. The following sections will explore the various initiatives that the Catalan Underwater Wine Producers Association can focus on.

Promote Exchange Among Underwater Wine Producers

By communicating with one another, producers can create mutual events to promote sea-aged wines. A notable event that occurred is the Underwater Wine Congress that took place in Bilbao in 2019. Its inception was driven by the purpose of promoting the merits of a novel oenological technique intertwined with marine sustainability. This gathering caters to a diverse audience, encompassing both the curious general public seeking unparalleled experiences and industry experts, as well as media enthusiasts with an interest in innovation, oenology, and gastronomy (Treasure Crusoe, 2019). Such international conferences permit 'to share knowledge regarding submerged wines and sustainable marine tourism development' (Karagiannis and Metaxas, p246, 2023).

Showcase Catalonia as the Ultimate Underwater Wine Destination: Place Branding

Overall, the main goals of the Catalan Underwater Wine Producers Association would be to build awareness about sea-aged wines and showcase Catalonia as the ultimate underwater wine destination. In this section, recommendations and strategies that can be implemented by the Catalan Underwater Wine Producers Association in partnership with the Catalonia tourism board will be mentioned.

Karagiannis and Metaxas (2023) mentions that in Greece the collaboration between the Ministry of Culture, the Region of Thessaly, and the Municipality of Alonissos resulted in the launch of the country's first underwater archaeological museum, further promoting marine wine tourism. Drawing inspiration from the successful collaboration in Greece, there is potential for a similar initiative in Lanzarote, where the underwater museum featuring sculptures by Jason deCaires Taylor provides a captivating and immersive setting.

By working together, wineries of the Catalan Underwater Wine Producers Association and the tourism board can offer complete excursions that cater to both certified divers and beginners without a diving license. This collaboration can result in comprehensive packages that combine cultural heritage, marine life and wine tasting. For example, visitors could start their day with a visit to the museum, learning about the sculptures' significance and the artist's vision while enjoying an entertaining water activity (swimming, snorkelling, scuba diving). They can then proceed to a guided wine tasting session, where they have the opportunity to savour the underwater-aged wines and learn about the reasons behind this innovative process.

Such initiatives truly offer a greater tourism variety to destinations, as they provide a distinct and multi-dimensional experience, attracting both adventure seekers and culture enthusiasts. The collaboration can leverage the marketing efforts of both the tourism board and wineries, promoting the destination as a hub for underwater wine tourism. Additionally, it enhances the overall tourism offering of the destination, adding diversity and appeal to attract a broader range of visitors.

Through joint promotional campaigns, the collaboration can raise awareness about the unique experiences available and position the destination as a must-visit destination for those interested in combining underwater exploration and the fascinating world of underwater wines. By tapping into the appeal of the underwater museum and showcasing the harmony between the sculptures and the wines, this collaboration has the potential to create a distinctive brand identity for the destination and drive tourism growth in the region. This could permit to position Catalonia as the ultimate destination for exploring sea-aged wines, making it an unmissable point of reference for water activity aficionados and wine enthusiasts.

Underwater Wine Label Creation

Following the example of the Napa Valley appellation label, an Underwater-aged label can be created. One of the primary goals of this collective effort is to create a distinct label for underwater wines that symbolizes the unique and innovative winemaking process they undergo. This label will not only differentiate these wines in the market but also serve as an assurance of quality and authenticity, ensuring that consumers can easily identify and appreciate the exceptional underwater-aged wines produced by association members.

Sustainability Guidelines Development

Following the idea of the Napa Green program, guidelines to encourage sustainable specific to the underwater environment can also be developed. The underwater wine producers already recognize the importance of environmental sustainability. With a strong focus on marine conservation and responsible winemaking practices, the association could be dedicated to developing sustainability guidelines for its members to follow. These instructions would signify that the wines produced by association members adhere to strict environmental standards and are crafted in a manner that minimizes their ecological impact. By promoting eco-friendly winemaking techniques and advocating sustainable practices, the association aims to foster a sense of environmental stewardship within the underwater wine industry. Moreover, these sustainable practices could be implemented in the marketing strategies and help reassuring customers wondering about their ethical concerns in regards of the marine environment. This paper will discuss later on the notion of sustainability marketing and its use for implementing promotional strategies.

Educate About Underwater Wines

The creation of the Catalan Underwater Wine Producers Association provides an invaluable opportunity to educate consumers, professionals, and the general public about the world of underwater wines. Through various initiatives, such as educational workshops, tastings, and public events, the association would seek to raise awareness and understanding of the unique characteristics and benefits of underwater-aged wines. By sharing knowledge about the winemaking process, the influence of underwater aging on flavour profiles,

and the cultural and historical significance of this practice, the association would aim to cultivate a deeper appreciation for underwater wines. Through these educational endeavours, the association can strive to foster a broader recognition and appreciation for underwater-aged wines, expanding their reach and appeal among wine enthusiasts worldwide.

Creation of an Underwater Wine Club

Creating an underwater wine club for wine enthusiasts would also be a great achievement for the Catalan Underwater Wine Producers Association. By offering a dedicated community and exclusive experiences, such as tastings and events, the club can generate awareness and appreciation for these distinctive wines, fostering their recognition and consumption. Moreover, the creation of the Catalan Underwater Wine Producers Association presents an exciting opportunity to host virtual comparative tasting events. This allows wine enthusiasts from around the world to partake in the sensory journey of exploring twin wines from various producers, fostering a sense of global community and appreciation for the unique offerings of sea-aged wines, while promoting their existence. A good example of international event focusing on sea-aged wines was the first-ever underwater wine congress, held in 2019 in northern Spain. This conference was organized in response to the lack of a cohesive framework within the underwater aging industry. The congress aimed to bridge this gap, encourage collaboration, and establish industry-wide standards for underwater wine aging (Treasure Crusoe, 2022).

Catalan Underwater Wine Route Creation

The Catalan Underwater Wine Producers Association can also create an Underwater Wine Route Creation throughout Catalonia. Karagiannis and Metaxas (2023) suggests that wineries participate in an underwater wine and cultural tourism cluster. This initiative involves a collaboration between public institutions, private companies, and the European Commission, as part of the EU project "Underwater Cultural Route in Classical Antiquity". Together, they have created an innovative touristic cultural product known as "Dive in History," which connects underwater archaeological heritage and shared cultural values. By joining this cluster, a winery can tap into a network of like-minded organizations, expanding its reach and enhancing the overall tourism experience for visitors (Karagiannis and Metaxas, 2023). Creating the Catalan Underwater Wine Route would permit to attract wine tourists interested in diving, local culture, gastronomy, and sea activities.

7. Marketing Guidelines for Underwater Wines

Innovation is crucial for attracting and retaining customers and this is particularly accurate for competitive sectors such as the wine and tourism industry. With its innovative ageing process, underwater wines have a special advantage. As Karagiannis and Metaxas (2023) emphasize, innovation can renew interest among existing customers, promote loyalty, and lead to repeated visits and future purchases. This is especially relevant for sea-aged wines, since there is a clear lack of product visibility on the market. As mentioned earlier, the customer survey designed for this research reveals that 43% of the sample population had never heard about the notion of underwater wines or sea-aged wines.

A major challenge that underwater wine businesses are facing is the fact that many customers are trying the product out of curiosity without necessarily becoming repeat buyers (Gaitano Pellisa from Nini Vin Naturals; Josep, La Vinyeta). To address this issue and retain loyal customers, wineries must use marketing tools in the most efficient way possible. Building upon the aforementioned elements, this section will discuss marketing strategy suggestions tailored specifically for underwater wines. These recommendations can be used by underwater wine businesses to promote their wines in an efficient manner.

7.1. Experiential Marketing

As mentioned earlier, underwater wine businesses must be encouraged to create meaningful experiences that truly engage visitors with the wines. Since experiential marketing focuses on creating immersive and memorable experiences for consumers, allowing them to engage with a brand on a deeper level, it is particularly useful to promote underwater wines. It goes beyond traditional advertising methods by actively involving consumers in interactive and sensory experiences that leave a lasting impact. The goal of experiential marketing is to forge a strong emotional connection between the consumer and the brand, leading to increased brand loyalty, positive word-of-mouth, and ultimately, driving sales. It aims to create a memorable and shareable experience that resonates with consumers on an emotional level, making the brand more relatable and memorable.

Experiential marketing can take various forms, such as pop-up events, product demonstrations, interactive installations, live performances, or immersive brand activations. These experiences are designed to stimulate the senses, evoke emotions, and create a unique and personal connection with the brand. By conducting interviews with sea-aged wine producers and reviewing relevant literature, valuable insights have been gathered, shedding light on crucial aspects to consider when implementing experiential marketing strategies.

Experiential marketing is highly effective in capturing consumers' attention in a cluttered marketing landscape and stands out by providing memorable and engaging experiences. By immersing consumers in the brand's story, values, and products, experiential marketing has the power to leave a lasting impression and drive consumer behaviour.

7.2. Storytelling Marketing

Storytelling is a significant part of experiential marketing, and together, they can be especially powerful in building awareness about underwater wines. The implementation of storytelling in the tourism offer has been broadly recognised in academic literature and practice, as it represents an essential element of tourism services and has a significant impact on customer satisfaction.

Storytelling refers to the strategic use of narratives, anecdotes, and compelling narratives to convey information, engage emotions, and create connections with an audience. It involves the art of crafting and delivering stories that resonate with customers, employees, and stakeholders, in order to communicate brand values, evoke desired emotions, and drive desired actions. Storytelling in business helps to humanize and differentiate a brand, making it more relatable and memorable to its target audience. It is a powerful tool for conveying complex ideas, building trust, and inspiring loyalty among customers and employees. Storytelling

marketing can truly help wineries and destinations build a strong relationship with their visitors, ensuring brand loyalty (Karagiannis and Metaxas, 2023). It goes beyond simply promoting a product and instead creates an emotional connection with the audience. Nowadays, with technology dominating promotional strategies, effective and creative storytelling can be facilitated by social sharing, social media marketing, and content marketing, transforming how customers perceive a brand (Van der Have & Rubalcaba, 2016).

Implementing storytelling marketing can greatly enhance visitors' experiences and strengthen their social bonds with a place, triggering a desire to return (Swanson & Timothy, 2012). This becomes invaluable for any wine tourism destination, as stimulating positive feelings can motivate tourists to make return trips and future purchases (Karagiannis and Metaxas, 2023). For underwater wines, it is essential to leverage storytelling to create a lasting impact on customers who may initially be driven by curiosity.

One way to build a storytelling marketing strategy for underwater wines is to connect the past and present. As Karagiannis and Metaxas (2023) mention, underwater wine aging practices, such as using clay pots and amphorae in wineries in Croatia and Spain, communicate the history of a place, the connection with ancient cultural heritage, and the wine-making techniques and rituals of the past. Highlighting these historical elements can create a sense of authenticity and uniqueness, capturing the imagination of customers and fostering a deeper connection with the brand. This is what the winery S'Amfora does with their S'Amfora d'OLIM "designed to surprise, fall in love and make you travel to the past" (S'Amfora website, 2023). This wine is aged in the Mediterranean Sea for 14 months in artisanal ceramic amphora (Diego Duran, 2023). During the interview, Diego Duran, owner and winemaker in S'Amfora, states his desire to captivate visitors with stories. He specifies that his wines provide to both the curious visitors seeking to explore a new realm of tasting through the innovative method of sea-ageing, as well as those who seek to connect with the ancient traditions of the Romans and their stories, lifestyles, and enjoyment surrounding wine. Additionally, Diego Duran emphasizes that through storytelling and customer satisfaction, past visitors can become powerful brand ambassadors. This is similar to the idea mentioned earlier that by incorporating storytelling and immersive features into wine tourism, wineries can engage consumers on a deeper level and turn them into external brand ambassadors (Bridge, 2017). As an illustrative example, Diego shares the story of visitors who had a delightful experience during a wine tasting picnic with Diego. They were so pleased with their visit that they voluntarily created a video showcasing their memorable time, which S'Amfora now utilizes as a compelling promotional tool. This video serves as a testament to the positive impact of storytelling and customer satisfaction on fostering brand advocacy. Along the same lines, Tercia *et al.* (2022) highlights that crafting a compelling narrative around the wines allows managers of tourist destinations to leverage the experiences and knowledge of past visitors, turning them into brand ambassadors. Additionally, since humans naturally share knowledge and experiences through stories and anecdotes, these personal touches resonate with current and potential customers more effectively than official messages from tourism boards (Tercia *et al.*, 2022). Encouraging customers of underwater wine brands, like in the case of S'Amfora, to share their experiences through videos or testimonials can create a powerful and authentic narrative that engages new customers and reinforces the loyalty of existing ones.

Producing focused activities designed to create distinctive, memorable, and authentic wine experiences is another important aspect of storytelling marketing for underwater wines (Karagiannis and Metaxas, 2023). As discussed in the previous section, these activities can include immersive tastings of boats or unique sites, tours of the underwater aging facilities, and educational sessions on the unique characteristics of aquaair—a term used to describe the interaction between submerged wine containers and the special characteristics of the surrounding water environment (Mira winery, 2022). Integrating the concept of aquaair in the storytelling strategy can also help to convince sceptical customers. Terroir is a notion often mentioned and widely understood among wine connoisseurs – even though its definition can be seen as blurry. Comparing the notion of terroir with aquaair can be useful in helping customers to comprehend the impact of sea-ageing on the wines.

During the interviews with winemakers practising the sea-ageing method, most of them mentioned the discovery of the 200 years old bottles of Champagne. Gergo explains: ‘When we heard about the recovery of the champagne bottles, we thought it was an amazing story, and I know that it’s how our customers feel when they hear about our wines for the first time, or every time even. They are amazed by the story, and it tends to stick with them [...] It also helps justifying the price.’ In a similar vein, Tercia *et al.* (2022) states that telling a story does not only amaze customers but also provides a rationale for the price, as they become immersed in the narrative and perceive its value.

A notable example of successful storytelling marketing in the wine industry is Gaia winery. As highlighted by Dr. Paraskevopoulos (co-owner and oenologist), Gaia's "Submerged Thalassitis" wine contributed significantly to the winery's storytelling approach, sustaining its marketing impact far beyond expectations (Karagiannis and Metaxas, 2023). This demonstrates the crucial role that storytelling plays in the commercial success of a winery, as well as its potential in wine tourism development. By combining storytelling with exceptional experiences, wineries can ensure customer satisfaction and foster loyalty.

Storytelling also enhances a sense of belongings. In that sense, visitors feel more connected to the place and are likely to become more willing in preserving it. UNESCO (2019) states the importance of crafting a compelling story and leveraging the World Heritage brand to achieve conservation of the Outstanding Universal Value, referring to the cultural and/or natural significance which is so rooted that it surpasses national borders.

As a whole, storytelling marketing is an essential strategy for sea-aged wines, particularly in overcoming the challenge of customers' initial curiosity without creating long-term loyalty. By crafting compelling narratives that connect the past and present, leveraging customer experiences as brand ambassadors, and offering distinctive and authentic wine experiences, wineries can retain customers, build loyalty, and achieve recognition and perceived quality (Karagiannis and Metaxas, 2023). Through storytelling marketing, underwater wines can captivate customers, evoke emotions, engage customers with the product and brand image, while justifying their unique value and premium price.

Promote Underwater Wines as Underwater Heritage Conservation

Sea-aged wines not only embodies the enchantment of the maritime world through storytelling, but also raises environmental awareness. Therefore, the sustainable philosophy behind sea-aged wine production must be integrated in the marketing strategy. The promotion of underwater wines needs to showcase the positive impact this ageing method has on the maritime ecosystem and its role in advocating the protection of underwater heritage.

In addition to its tourism appeal, underwater heritage protection is a crucial aspect to consider. UNESCO estimates that millions of ancient shipwrecks and submerged sites exist globally, including those with wine-related significance (Karagiannis and Metaxas, 2023), as the shipwreck with the 200 years-old Champagne bottles. Proper management of these sites can allow tourists to access them without harming the natural habitat, making them appealing cultural attractions (Karagiannis and Metaxas, 2023). The location of dive trails and sites plays a vital role in their attractiveness to marine tourism. Shallow warm-water sites, such as those found in the Mediterranean, including in Catalonia, tend to be more appealing to divers compared to remote or deep cold-water sites (Karagiannis and Metaxas, 2023). The customer survey designed for this research found that 58.2% of the participants would choose to go on vacations in sea destinations, rather than mountain destinations, city destinations, or countryside destinations. This represents a massive opportunity for sea-aged wines and demonstrates that underwater wine producers can attract visitors by combining wine and water activities, while protecting the local heritage in a sustainable manner. This aligns with the goals of the Blue Economy label and UNESCO's philosophy, emphasizing sustainable underwater tourism development. According to the World Bank, the blue economy can be defined as the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem" (World Bank, 2017). Some of the wineries mentioned the concept of blue economy during interviews (Gergo, ElixSea; Marion & Manu, A Mar Wine). ElixSea takes care of the underwater ageing for A Mar Wine. The partners both stated that the underwater winery provides shelter and creates new habitats for various species - providing approximately 400 times more space in the marine environment. It also filters hundreds of liters of seawater and captures dissolved CO₂ in the water (Marion & Manu, A Mar Wine). Interviews truly showed the desire of underwater wine producers to work towards sustainable development goals, such as reducing carbon footprint, environmental regeneration, and increasing the natural capital of the Mediterranean. The underwater structures were created to enhance marine life growth, provide shelter for smaller inhabitants, and contribute to the quality of the wine through underwater aging, refining the wine with the help of ocean currents.

LIMITATIONS & GUIDELINES FOR FUTURE RESEARCH

This academic research, while valuable in advancing knowledge and understanding of the sea-aged wine sector, is subject to certain limitations that warrant consideration. These limitations, inherent to the research process, must be acknowledged to ensure the integrity and credibility of scholarly endeavours. The main difficulty of this research was to find existing and available data to conduct literature review. As the data firstly collected was issued from non-academic papers, it has been assumed that it was likely unreliable from an academic perspective. However, such articles have been a start point for research as they have directed the researcher in a multitude of directions.

Additionally, research design has been constrained by a maximum of 30 pages, time and resource limitations. As this study has been made as part of the WINTOUR Master's, there was a clear deadline upon which the research had to be submitted, which has potentially constrained the depth and breadth of insights.

Furthermore, getting information for research in an emergent niche market is typically difficult. Even though ethical considerations were at the heart of the whole methodology process, some producers might have limited the researcher's access to certain information due to fear of data divulgation, which potentially had an impact on the representativeness and completeness of the research.

This research opens up exciting avenues for further investigation and exploration. The findings and insights obtained from this study provide a solid foundation for future research to delve deeper into the dynamics and nuances of the topic of sea-aged wines. By identifying gaps and uncovering new perspectives, this research paves the way for fresh inquiries and opportunities to expand knowledge in this field.

Potential research avenues include the investigation of aquaioir, the long-term viability of sea-aged wines once out of the water, the potential of different grape varieties for underwater aging, the concerns surrounding the Designation of Origin (DO) protection and policymaking, addressing scepticism and criticisms, and so on.

Since the researcher attempted to acknowledge and address these limitations since the inception of the study, utilizing rigorous methodologies and transparent reporting to foster robust and reliable findings, the research captures a credible representation of the underwater wine sector.

CONCLUSION

In conclusion, this research on sea-aged wines has shed light on the immense potential and opportunities that lie within this innovative method of ageing wine. Catalonia, with its harmonious blend of tradition and modernity, has positioned itself as a prime candidate for the development of wineries focusing their production on underwater wines. Perinet emerges as a compelling example, showcasing the possibility of establishing itself as a leading player in this niche market, catering to a discerning clientele seeking premium wines. By leveraging the fame and reputation of Priorat, a renowned wine region in Spain, Perinet has been a captivating case study for the potential implementation of underwater wines with their offer. This research endeavour has also brought together six underwater wine producers for the first time in Catalonia, eventually fostering future collaboration, knowledge-sharing, and collective advancement in this emerging field.

The implications of this research extend beyond the winemaking industry. Policymakers at both regional and national levels, such as the tourism boards of Catalonia and Spain, as well as Denomination of Origin associations, can benefit from the insights gained. The findings offer a foundation for informed decision-making, facilitating the development of tourism strategies that leverage the allure of underwater wines. Academic researchers and practitioners in the wine industry, including winemakers, sommeliers, and wine merchants, can use the research as a valuable resource to deepen their understanding of this innovative winemaking approach and develop marketing strategies that effectively promote and differentiate underwater wines.

Sea-aged wines not only represent a novel alternative for wine ageing but also hold the potential to attract visitors through immersive wine tourism experiences. By creating tourism offerings that combine wine, local gastronomy, aquatourism, heritage, and sustainable practices, wineries can captivate and engage tourists seeking unique and authentic experiences. This niche market of wine aquatourism can contribute to environmental awareness, protect underwater heritage, and foster cultural exchange. The research emphasizes the importance of regional, local, and entrepreneurial improvements in tourism offerings while also providing marketing guidelines to promote sea-aged wines effectively. By crafting immersive wine tourism experiences that showcase the magic of the maritime world and embrace local gastronomy, wineries can differentiate themselves and cater to the growing demand for authentic and memorable tourism experiences. Marketing storytelling and digital engagement can successfully help wineries to establish themselves as leaders in this fascinating domain.

Moreover, this research aims to contribute to the ongoing exploration and understanding of underwater wine production. By shedding light on current research and processes, the findings pave the way for future development and necessary adjustments.

Undoubtedly, the concept of underwater wines has gained significant attention in the wine industry in recent years, and this trend is going to continue. However, there remains a dearth of current academic research on this niche topic. Therefore, this thesis aims to encourage further investigations and studies on sea-aged wines, paving the way for more in-depth understanding and advancement in this unique winemaking domain.

By embracing the guidelines presented in this research, Catalonia has the potential to emerge as the ultimate destination for underwater wines and immersive wine-aquatourism experiences, captivating visitors from around the world. The first step towards this will be to tackle the lack of awareness in regard to underwater wines and create the Catalan Underwater Wine Producers Association to answer the lack of communication between sea-aged wine producers.

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SOURCES

- Aschemann-Witzel, J., & Zielke, S. (2017). Can't buy me green? A review of consumer perceptions of and behavior toward the price of organic food. *Journal of Consumer Affairs*, 51(1), 211-251.
- Aswani, S. (2022, March 28). Key trends driving the Global Beverage Alcohol Industry in 2022. Retrieved February 28, 2023, from <https://www.theiwsr.com/key-trends-driving-the-global-beverage-alcohol-industry-in-2022/> from IWSR
- Bassano, C., Barile S., Piciocchi P., Spohrer J.C., Iandolo F., Fisk R. (2019). Storytelling about places: Tourism marketing in the digital age, *Cities*, Volume 87, p10-20, ISSN 0264-2751, <https://doi.org/10.1016/j.cities.2018.12.025>.
- Beneke, J., Flynn, R., Greig, T., & Mukaiwa, M. (2013). The influence of perceived product quality, relative price and risk on customer value and willingness to buy: a study of private label merchandise. *Journal of Product & Brand Management*.
- Bitterman, N. (2014). Aquatourism: Submerged tourism, a developing area. *Current Issues in Tourism*, 17(9), 772–782.
- Bridge, A. (2017), "Trends in wine tourism: the Fladgate group perspective", *Worldwide Hospitality and Tourism Themes*, Vol. 9 No. 6, pp. 679-684. <https://doi.org/10.1108/WHATT-09-2017-0054>
- Booyens, I. (2020). Tourism Innovation in the Western Cape, South Africa: Evidence from Wine Tourism. In: Rogerson, J., Visser, G. (eds) *New Directions in South African Tourism Geographies. Geographies of Tourism and Global Change*. Springer, Cham. https://doi.org/10.1007/978-3-030-29377-2_11
- Brooker, E., & Joppe, M. (2014). Developing a tourism innovation typology: Leveraging liminal insights. *Journal of Travel Research*, 53(4), 500–508.
- Carpena, M., Pereira, A. G., Prieto, M. A., & Simal-Gandara, J. (2020). Wine Aging Technology: Fundamental Role of Wood Barrels. *Foods*, 9(9), 1160. <https://doi.org/10.3390/foods9091160>
- Carrasco, I., Castillo-Valero, J. S., & Pérez-Luño, A. (2019). Wine tourism and wine vacation as a cultural and creative industry: the case of the Bullas wine route. *Cultural and Creative Industries: A Path to Entrepreneurship and Innovation*, 181-195.
- Dickinson, E.R., Adelson, J.L. & Owen, J. (2012) Gender Balance, Representativeness, and Statistical Power in Sexuality Research Using Undergraduate Student Samples. *Arch Sex Behav* 41, 325–327. <https://doi.org/10.1007/s10508-011-9887-1>
- Jackson, R. S. (2017). Innovations in winemaking. In *Science and technology of fruit wine production* (pp. 617-662). Academic Press.
- Jeandet, P., Heinzmann, S. S., Roullier-Gall, C., & Schmitt-Kopplin, P. (2015). Chemical messages in 170-year-old champagne bottles from the Baltic Sea: Revealing tastes from the past. *Journal Name*, Volume (19), 5893-5898. <https://doi.org/10.1073/pnas.1500783112>
- Karagiannis, D., Metaxas, T. (2023). "Fishing" for Winemaking Perfection in Cloudy Waters...Underwater Wineries: Innovation Genius or Another Marketing Trick? Implications on Wine & Food Tourism. In: Sigala, M., Haller, C. (eds) *Technology Advances and Innovation in Wine Tourism*. Springer, Singapore. https://doi.org/10.1007/978-981-19-8277-4_14
- Klosse, P. R. (2013). Umami in wine. *Research in Hospitality Management*, 2, 1–2. Leonard, A. (2020). Barcelona Catalonia, Spain. In *Mediterranean Wines of Place: A Celebration of Heritage Grapes* (pp. 9–14). Lockwood Press. <https://doi.org/10.2307/j.ctv105b90g.5>
- Le Point. (2012). Du champagne bicentenaire retrouvé par des plongeurs en mer Baltique. Retrieved from https://www.lepoint.fr/insolite/du-champagne-bicentenaire-retrouve-par-des-plongeurs-en-mer-baltique-18-07-2010-1215997_48.php#11
- L'Express. (2012). Un champagne vieux de 200 ans vendu 15 000 euros. Retrieved from https://www.lexpress.fr/styles/plaisirs/saveurs/un-champagne-vieux-de-200-ans-vendu-15-000-euros_1125188.html

Lingqvist, O., Plotkin, C. L., & Stanley, J. (2015). Do you really understand how your business customers buy. *McKinsey Quarterly*, 1, 74-85.

Radio France Internationale. (2010, July 17). Champagne bicentenaire retrouvé par des plongeurs en mer Baltique. Retrieved from <https://www.rfi.fr/fr/europe/20100717-champagne-bicentenaire-retrouve-plongeurs-mer-baltique>

Napa Valley Vintners. 2022. <https://napavintners.com/about/>

Neuert, C., Meitingner, K., Behr, D., & Schonlau, M. (2021). Editorial: The Use of Open-ended Questions in Surveys. *Methods, data, analyses : a journal for quantitative methods and survey methodology (mda)*, 15(1), 3-6. <https://nbnresolving.org/urn:nbn:de:0168-ssoar-73172-3>

Pivac, T., Maksimović, M., & Blešić, I. (2020). The Importance of Digital Marketing for Wineries and Development of Wine Tourism: Case Study Of Serbia. 5th International Thematic Monograph: Modern Management Tools and Economy of Tourism Sector in Present Era, 241-251.

Santos, V., Ramos, P., Sousa, B., & Valeri, M. (2022). Towards a framework for the global wine tourism system. *Journal of Organizational Change Management*, 35(2), 348-360.

Snyder, H., (2019) Literature review as a research methodology: An overview and guidelines, *Journal of Business Research*, Volume 104, Pages 333-339, ISSN 0148-2963, <https://doi.org/10.1016/j.jbusres.2019.07.039>.

Under. 2022. <https://under.no/>

UNESCO. 2019. Operational Guidelines for the Implementation of the World Heritage Convention. https://whc.unesco.org/en/compendium/action=list&id_faq_themes=962

Williams, M., & Moser, T. (2019). The art of coding and thematic exploration in qualitative research. *International Management Review*, 15(1), 45-55.

World Bank, a. U. N. D. o. E. a. S. A., 2017, *The Potential of the Blue Economy: Increasing Long-term Benefits of the Sustainable Use of Marine Resources for Small Island*.

Yu, P., Wang, Y., & Hanes, E. (2022). Innovative Management Strategy of Wine Tourism in the COVID-19 Era: A Case Study of China. In *Cases on Emerging Market Responses to the COVID-19 Pandemic* (pp. 59-89). IGI Global.