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Blending digital and physical experiences in luxury wine hospitality: an experiential approach to technology integration

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Abstract

Purpose – This study explores luxury wine hospitality by considering (1) physical activities and (2) activities created by integrating the physical domain with digital technology. In doing so, it aims to identify the different types of wine tourism-related luxury experiences and build a framework for interpreting hybrid luxury experiences in wine hospitality in the digital era.

Design/methodology/approach – An explorative mixed-methods approach was adopted to investigate types of luxury wine hospitality using cluster analysis and in-depth interviews with producers of wines with controlled and guaranteed designation of origin in Italy's Sangiovese area.

Findings – This study presents a framework for understanding hybrid digital and physical experiences in wine hospitality by examining the core components of luxury experiences. We identify six types of luxury experiences in wine hospitality that combine a physical experiential component with varying degrees of integration with digital technologies.

Practical implications – Our findings (1) provide wine businesses operating in hospitality within the luxury segment with a useful tool for optimising the integration of digital technology into physical experiences to add value to visitors' activities and (2) highlight the importance of digital skills for wineries that organise luxury experiences.

Originality/value – This study systematises the integration of digital technologies into physical activities related to wine hospitality. It presents a hybrid physical–digital analytical framework that adopts an experiential outline of the strategic design of wine hospitality businesses.

Keywords Luxury hospitality, Wine experience, Wine, Technology, Hybrid experiences, Phygital

Paper type Research paper

Introduction

The luxury segment of the hospitality industry is experiencing rapid growth and constant evolution (Correia *et al.*, 2022; Jain *et al.*, 2023), fuelled by the increasing relevance of the

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luxury industry (Nahas *et al*., 2024). In 2023, the Luxury Hospitality industry's global value was over 140 billion UDS and is projected to exceed 360 billion USD by 2032 (Fortune Business Insight, 2024). The growth of luxury hospitality also involves wineries, and wine hospitality is recognised as an important driver of differentiation and brand awareness for wineries (Napolitano *et al*., 2022).

Hence, Luxury Wine Hospitality (LWH) represents a niche within both luxury hospitality and wine tourism, combining high-end services with specialised wine-centric activities. Since the COVID-19 pandemic, the sector has increasingly embraced digital technologies that have become essential to wine hospitality businesses (Gastaldello *et al*., 2022). As a result, the industry now offers not only premium wines, but also exceptional services and personalised experiences that utilise technology. Despite rising interest in luxury wine consumption and the role of technology in enhancing experiences, there is limited research on how these elements combine to shape the LWH guest experience.

Previous studies on luxury hospitality have highlighted exclusivity, customisation, and superior services as key aspects of luxury (Jain *et al*., 2023; Holmqvist *et al*., 2020). In contrast, wine tourism research often emphasises the immersive nature of activities, such as cellar tours and vineyard visits (Bruwer and Li, 2007; Getz and Brown, 2006). Recent studies have begun to examine the role of technology such as virtual reality (VR) and smart services in enhancing tourism experiences (Sigala, 2023; Martins *et al*., 2017). However, the role of technology in luxury wine hospitality has not been explored. While technology is increasingly used in tourism to improve visitor experience (Tussyadiah *et al*., 2018), its use in luxury settings can be challenging. Some studies suggest that luxury consumers may resist technology if it disrupts the authenticity and exclusivity they seek (Charters and Pettigrew, 2008). This ongoing tension between innovation and tradition, where technology should enhance rather than overshadow, is not yet fully understood in LWH.

Given these gaps in the literature, this study aims to explore two key questions. What are the primary types of experiences offered in Luxury Wine Hospitality? Understanding the diverse range of available experiences can help identify what makes this niche appealing to consumers. How is technology integrated into the design of these experiences? Investigating this aspect can reveal how digital tools and platforms are used to enhance the overall guest experience, while maintaining the essence of luxury.

To address these gaps, this study employed a mixed-methods approach, combining both qualitative and quantitative analyses. Focusing on the Sangiovese grape variety, which is pivotal in regions such as Tuscany and Emilia-Romagna and is renowned for producing DOCG wines such as Chianti and Brunello di Montalcino, 595 wineries offering LWH experiences were analysed using 19 experience and technology-related variables. The cluster analysis identified six distinct winery categories. Follow-up interviews with 14 stakeholders explored hospitality strategies across segments.

The results enhance our understanding of how LWH experiences are shaped by both physical and digital dimensions. By classifying wineries into clusters such as the real aesthetic, which emphasises traditional, sensory-rich experiences, and the tech-oriented, which leverages augmented reality and online platforms, our findings show that different business models target varying consumer needs. Our results also extend the four Es model (Quadri-Felitti and Fiore, 2012) by demonstrating how digital innovations are integrated into wine tourism and that, when carefully managed, technology can enhance rather than detract from the luxury experience.

These findings have implications for wine marketing and offer insights into how wineries can differentiate their services by blending sensory and digital elements to provide distinctive luxury experiences.

In the following sections of the article, we will cover the theoretical framework, outline the research design and methodology, present the findings, engage in discussion, and conclude with significant implications for practitioners.

Theoretical background

Luxury hospitality

Luxury Hospitality is a niche in the broad hospitality industry and whose typical features are those of luxury (Correia *et al*., 2022; Jain *et al*., 2023). As Jain *et al*. (2023) pointed out, when referring to luxury hospitality, both concepts, namely "hospitality" and "luxury" must be taken into count.

Regarding "hospitality", in management studies, it been defined as a "contemporaneous human exchange, which is voluntarily entered into, and designed to enhance the mutual well-being of the parties concerned through the provision of accommodation and food or drink" (Brotherton, 1999). In this view, hospitality implies the management of service delivery activities related to accommodation, food, and drink, which involve voluntary human interaction.

The term "luxury" has its roots in Latin and refers to soft or extravagant living, sumptuousness, opulence, and distant or precious objects (Dubois *et al*., 2005). Marketing scholars have defined the concept of luxury in connection with branding by highlighting how luxury brands are a combination of tangible and intangible elements, such as exclusivity, exceptional quality, customisation, creativity, authenticity, rarity, status signal, and price premium (Cristini *et al*., 2017; Kapferer and Valette-Florence, 2016; Sharma *et al*., 2022). In management studies, luxury has also been linked to customer experience. In this view, luxury is the result of a co-creative activity involving interactions between consumers and luxury brands (Atwal and Williams, 2009; Holmqvist *et al*., 2020).

In luxury hospitality, luxury can be testified by the symbolic, hedonic, and functional value of the service (Peng and Chen, 2019) and the perception of exclusivity and scarcity (Jain *et al*., 2023). This can also be the result of the experience design. For example, Holmqvist *et al*. (2020) emphasise that escapists' out-of-the-ordinary experiences represent one of the most important dimensions of luxury hospitality. The atmosphere of venues, contact with the local culture, and interaction with service staff also contribute to creating experiences of superior value in luxury hospitality (Buehring and O'Mahony, 2019). The luxury dimension of hospitality has also been linked to communication capabilities for environmental sustainability as a means of leveraging the exceptional value of hospitality brands (Amatulli *et al*., 2021).

Scholars have also analysed the peculiarities of food-related hospitality. Focusing on luxury restaurants, Yang and Mattila (2015) acknowledged that hedonic value drives consumer consumption in luxury food hospitality. Other authors have further captured the conspicuous consumption of luxury food hospitality, emphasising the hedonistic and elitist motivations for paying a premium price for live culinary experiences (Kiatkawsin and Han, 2019). By studying Michelin-starred hotels, Batat (2021) added the relevance of the experiential side of food hospitality, which is acknowledged to be driven by emotional, social, and symbolic values attached to the place where consumption occurs (e.g. an exclusive restaurant).

The literature has also addressed LWH that is defined as the combination of luxury hospitality with wine tourism to create distinctive, exclusive wine-related experiences (Coyne, 2020). Moreover, according to Bellini and Resnick (2018) LWH is distinguished by a commitment to personalised services, the provision of premium accommodation, and the organisation of distinctive wine-centric activities. The superior value for guests also encompasses both the territory of origin of the wine, comprising the terroir and its heritage, and the interaction between the winery owner and guests (Zainurin *et al*., 2021).

Wine experience and consumption

Over the past few decades, wine experience and consumption have emerged as multifaceted, evolving concepts. The wine experience extends beyond mere tasting to include interactions with the winescape, comprising peculiar elements such as the landscape, service quality, and

cultural heritage (Bruwer and Li, 2007; Quintal *et al*., 2015). Wine experiences broadly cover all aspects of wine tourism, including cellar door visits, wine routes, and festivals (Getz and Brown, 2006), whereas hospitality wine experiences specifically focus on service interactions and experiential offerings within hospitality settings, such as hotels, restaurants, and tasting rooms (Alonso *et al*., 2023). The hospitality wine experience emphasises elements such as service quality, atmosphere, and personalised interactions, which contribute to memorable experiences and brand loyalty (Bruwer *et al*., 2013). Recent research in this field has begun exploring the role of technology in enhancing wine tourism experiences through virtual and augmented reality (Martins *et al*., 2017). However, studies on the integration of technology into wine experience remain limited, suggesting potential areas for future research (Wen and Leung, 2021; Sigala, 2023).

Several studies have demonstrated a positive correlation between an individual's level of wine experience and their consumption patterns (e.g. Olsen *et al*., 2007). As consumers gain more knowledge about wine through repeated exposure, tasting, and education, they tend to exhibit increased consumption frequency and diversity in their consumption behaviours (Wright *et al*., 2023). They are shaped by several key categories. Personal factors, including wine knowledge, environmental orientation, experience, and involvement significantly influence consumer preferences and decision-making processes (Santos *et al*., 2019; Bruwer *et al*., 2013). Social factors, such as consumers' situational context and social image, also play a crucial role in shaping wine consumption behaviour (Agnoli *et al*., 2023). Extrinsic factors, such as price, country of origin, winescape, labelling, and packaging, have been extensively studied, and underlined their impact on consumer choices (Barber, 2010; Bruwer and Rueger-Muck, 2019). Intrinsic factors such as quality, taste, and sensory attributes contribute significantly to consumer perceptions and preferences (Bonn *et al*., 2016; Galati *et al*., 2019). Furthermore, environmental factors, including sustainability and organic production, atmospherics, signage, and facilities, are increasingly influencing consumer attitudes and willingness to pay for wine (Leri and Theodoridis, 2019; D'Amico *et al*., 2016).

Luxury wine consumption has emerged as a distinct area of focus in this context. While wine consumption research examines factors such as involvement levels, decision-making processes, and preferences across consumer segments (Lockshin *et al*., 2006), luxury wine consumption specifically explores the motivations and behaviours associated with premium high-end wines. Luxury wine is often characterised by attributes such as high quality, high price, rarity, and prestige (Sjostrom *et al*., 2016). However, the definition of luxury wine remains debated, with terms such as ultra-premium, fine, and high-end often used interchangeably (Beverland, 2005; Wright *et al*., 2023). Existing literature highlights that luxury wine consumption is deeply tied to concepts of social status, self-concept, and identity (Johnson *et al*., 2018) and which may explain why consumers engage in luxury wine consumption as a means of signalling wealth, sophistication, or belonging to certain social groups (Hall, 2016). While sharing some commonalities with general wine consumption research, luxury wine literature emphasises the symbolic and experiential aspects of consumption as well as the interplay between traditional notions of exclusivity and emerging trends towards democratisation in the luxury market.

Technology experience

The COVID-19 outbreak has accelerated advancements in the tourism sector, leading to new requirements and prompting stakeholders to embrace digital and smart solutions (Chen *et al*., 2022). Technological innovations such as virtual reality (VR), Bluetooth, and Wi-Fi have provided visitors in the wine industry with exciting new experiences (Lewis *et al*., 2021) positively affecting visitor outcomes (Tussyadiah *et al*., 2018) and creating additional value through new forms of immersive and personalised experiences.

However, in the context of luxury, the role of technology has become increasingly nuanced and complex (Sestino *et al*., 2023; Jain *et al*., 2023; Sestino *et al*., 2023). Although technology

has the potential to significantly enhance consumption experiences, it can also be perceived as controversial, particularly in markets where tradition and exclusivity are key values. In luxury markets, consumers are often driven by "status consumption" (Sestino *et al*., 2023), meaning their purchasing decisions are tied to social prestige and exclusivity. This results in a dual dynamic in which luxury consumers may either embrace or reject new technologies depending on whether these innovations align with their expectations of what constitutes a luxury experience (Charters and Pettigrew, 2008).

For instance, luxury consumers may appreciate cutting-edge technologies that heighten personalisation or immersion, such as virtual reality (VR) or smart devices that offer tailored experiences and real-time interactivity (Zhu *et al*., 2023). These innovations can enhance the overall sense of exclusivity, offering a more personalised and curated experience tailored to their status. However, these technologies may be viewed as detracting from the authenticity and craftsmanship associated with luxury goods and experiences. In the world of luxury wine tourism, for example, consumers may reject technologies they perceive as detracting from the artisanal, hands-on processes that traditionally define luxury wine production, such as meticulous care in grape harvesting or centuries-old winemaking traditions (Charters and Pettigrew, 2008; Lockshin and Cohen, 2011).

Some scholars (Dimitrovski *et al*., 2019; Huang *et al*., 2019) have utilised the Technology Acceptance Model (TAM) to explore technology adoption in luxury markets, focusing on factors such as perceived usefulness and ease of use (Davis, 1989). In these contexts, outcomes are often influenced by consumers' desires for authenticity, tradition, and exclusivity (Walls *et al*., 2011). Technology might be seen as useful and user-friendly, but if it does not align with luxury consumers' expectations of an exclusive or authentic experience, it may be rejected. For instance, while VR can offer immersive experiences such as virtual vineyard tours, some luxury consumers may view this technology as less authentic than an actual visit to the vineyard (Zhu *et al*., 2023). The perceived loss of exclusivity or connection to tradition can hinder the adoption of such technologies in luxury settings. Additionally, Chan and Tung (2019) highlighted that while technology can enhance sensory and intellectual experiences in hotels, it may fall short in providing emotional satisfaction. Wirtz *et al*. (2018) propose a technology acceptance model that includes functional, social-emotional, and relational aspects. Key factors such as social interactivity and perceived humanness are important for assessing how well robots fulfil socioemotional needs (Breazeal, 2003). Trust and rapport are also crucial in technology interactions, influencing the perceived quality of the tourism experience (Qiu *et al*., 2020). Elements such as performance reliability, helpfulness, and personalised interactions are essential for building trust and rapport (Park, 2020).

Moreover, luxury consumers often associate technology with mass-market solutions that can diminish the perceived uniqueness of luxury offerings. This widespread adoption of technological features in products can diminish their perceived uniqueness, undermining the exclusivity that luxury consumers seek. This can create tension for luxury brands that want to innovate through technology but must do so without diluting the traditional elements that contribute to their luxury image (Luzzani *et al*., 2021). Despite this, many wine producers are beginning to adopt technologies to improve services and offer visitors a greater experience (Jain *et al*., 2023).

Although there is extensive literature on wine tourism in different countries and the current adoption of technology in the sector (Alonso and Liu, 2010; Alonso *et al*., 2015, 2023; Bruwer *et al*., 2018; Charters *et al*., 2009; Charters and Menival, 2011), there is still a lack of evidence on the development and application of technology in the Italian wine industry and on how technology is leveraged by firms to enhance visitors' experiences.

Table 1 presents a comprehensive summary of three seminal studies on the wine experience, technology integration in wine tourism, and luxury hospitality. These studies were selected based on their high citation frequency over the past five years and relevance to wine-related themes.

Table 1. List of seminal studies on wine experience, technology experience in wine tourism, and luxury hospitality

Author	Methodology	Purpose of the paper	Main findings	*N*, citations
Luxury hospitality				
Batat (2021)	Qualitative. Longitudinal ethnographic study in 35 French Michelin-starred restaurants (1, 2, and 3 Michelin stars) in France	To understand the role of luxury gastronomy in enhancing the attractiveness of tourism destinations	Luxury restaurants boost destinations by offering exclusive dining experiences, showcasing local products and food culture, thereby increasing media visibility	136
Amatulli *et al.* (2021)	Two experiments: 1) online study with 198 participants 2) A field study with 152 participants	To investigate the effect of a luxury hotel's marketing communication strategy on consumers' willingness to book a room with a focus on environmental sustainability	Luxury hotel's communication strategy that emphasizes environmental sustainability is associated with a higher consumer willingness to book a room. This effect is mediated by the perceived integrity of the luxury hotel	95
Buehring and O'Mahony (2019)	Qualitative. Delphy with hotel experts and interviews with hotel guests	To identify the constructs and generators of memorable experiences (ME) from the perspectives of luxury hotel hosts and guests	40 value generating factors emerged from analysis. These were validated and complemented by guests with 19 additional factors that create memorable experiences according to visitors	43
Zainurin *et al.* (2021)	Qualitative. n depth analysis and interviews with three vineyards located in New Zealand	To explore how luxury was created and then delivered to vineyard guests	Wine luxury experience design is driven by innovation, risk taking, entrepreneurship, and exclusivity. It is also based on co-creation of experiences with guests	4
Jain *et al.* (2023)	Systematic Literature Review	To understand what creates memorable experiences in luxury hotels, taking the vies of both companies and guests	The study provides a thematic analysis of luxury hospitality	19
Luna-Cortés *et al.* (2022)	Systematic Literature Review and co-occurrence anlysis	to Provide a thematic analysis of Luxury Hospitality	The study provides a definition of Luxury Hospitality, and analyze three research topic: (1) consumer experience; (2) sustainability, (3) effects of Covid-19	26

(*continued*)

Table 1. Continued

Author	Methodology	Purpose of the paper	Main findings	*N*, citations
Wine experience				
Brochado *et al.* (2019)	Qualitative. Content analysis of 470 TripAdvisor reviews of 5 wine hotels in Douro Valley, Portugal	To identify the main themes of sensory experiences shared online by wine tourists	Visual aesthetics and taste were the most frequently mentioned senses, followed by hearing, highlighting the importance of the overall sensory experience in wine tourism. Wine tasting and purchasing were central to the wine tourism experience	207
Wen and Leung (2021)	Experimental design with 203 young wine consumers comparing VR vs traditional wine tour videos	To explore the influence of virtual wine tours on young consumers' wine sensory experience and purchasing behaviors	Consumers with higher wine knowledge appreciated video presence and wine tastes/ aromas more	151
Bruwer and Rueger-Muck (2019)	Quantitative. Survey of 513 visitors to Barossa Valley wine region in Australia	To examine the nature of wine tourist motivations and effect of destination factors from a hedonic perspective	Most important destination characteristic is scenic beauty of landscape.Wine tourism engagement decision is generally impulsive. No major differences in perceptions across age generations	140
Leri and Theodoridis (2019)	Quantitative. Survey of 615 winery visitors in Greece using structured questionnaires and path analysis	To explore the impact of winery, visit experiences on visitors' emotions, satisfaction and post-visit behavioral intentions	Winery environment (especially atmospherics, signage and facilities), other visitors' behavior, and visitors' desire to learn and have fun positively impact visitors' emotions	133
Santos *et al.* (2019)	Literature review and content analysis	To provide a theoretical and conceptual analysis of wine and wine tourism experiences	Key dimensions of wine experience are authenticity, service interaction, surrounding scenery, product offerings, information dissemination, personal growth, lifestyle. Wine tourism experience results from combination of core wine product, destination appeal, and cultural product	104
Technology experience				
Carmer *et al.* (2024)	Systematic Literature Review	Analyze sensory wine education in hospitality	It highlights five key areas in sensory education, showing the importance of technology in wine education	43

(*continued*)

Table 1. Continued

Author	Methodology	Purpose of the paper	Main findings	*N*, citations
Martínez-Falcó *et al.* (2024)	Quantitative: Surveys	This paper explores how wine tourism acts as a catalyst for green innovations in the Spanish wine industry	The research results show that wine tourism activity has a positive and significant influence on green product and process innovation	63
Festa *et al.* (2023)	Quantitative: Surveys	The main aim of this research was to investigate whether and how digitalization affects sustainability and performance in wine tourism	The research shows that the more digitalized wineries are, the more sustainable they become and the better their performance	45

Source(s): Authors' own work

The insights gleaned from this analysis directly informed and justified our research questions:

RQ1. What are the primary types of experiences offered in LWH?

RQ2. How is technology integrated into the design of the LWH experience?

Materials and method

A mixed-methods design and multilayered approach were used. Multilayered research involves collecting and analysing data from multiple sources or perspectives, often at different levels of abstraction. This approach includes both qualitative and quantitative tools to gain a deeper understanding of complex phenomena (Headley and Plano Clark, 2020).

This study focused on the Sangiovese grape, the most widely cultivated variety in Italy. This type of grape is used to produce over 200 DOCG, DOC and IGT wines, including the renowned Chianti, Chianti Classico, Carmignano and Brunello di Montalcino (Nosi *et al.*, 2019; Federdoc, 2022). The choice of the Sangiovese area was relevant to the validity of the study because of Italy's top ranking in the Wine Lover Index, its popularity among luxury travellers, and the significant contribution of wine tourism to the turnover of Italian wineries.

The Sangiovese variety is prominent in Tuscany, Emilia, Romagna, Marche, Molise, and Umbria. Outside Italy, Sangiovese grows in modest quantities in California (the Napa Valley, Sonoma, and Sierra Foothills), Argentina (Mendoza), Australia, and Corsica.

Dataset building

As the Sangiovese grape variety is widely cultivated, sample selection was based primarily on wineries that provided LWH and produced at least one wine certified with the DOCG regional geographical indication. Focus was placed on DOCG labels because consumers associate them with higher quality (Galletto *et al.*, 2021); which is also coherent with the distinctive perceived characteristics of luxury brands (Ko *et al.*, 2019). DOCG wines carry an additional guarantee of extraordinarily high quality. This study collected data from 595 companies located in four Italian regions found on the websites of the producer consortia for each DOCG certification. The final sample used for further analysis was determined by extracting 163 wineries that provided a proprietary accommodation service, including accommodation in cottages or hotels. The study identified 19 wine experience and technology items, summarised

into appropriate groups of categories to reduce the dimensionality of the dataset and simplify interpretations without losing variability (Konishi, 2015).

Variable identification and classification

Table 2 lists the digital and physical parameters investigated. All variables were further grouped into four experiential categories according to the four Es models of Quadri-Felitti and Fiore (2012), as detailed by Haller *et al*. (2020), who adapted Pine and Gilmore's (1998) model to the wine experience. The digital experience variables were based on an analysis of the literature on technological applications in wineries. In the absence of a previous classification of the variables identified according to the four Es model, an initial grouping was made by drawing on theories regarding the use of technology in wine experiences. The baseline classification that emerged was discussed among the researchers to reach a consensus and was then validated through interviews with two experts in wine marketing.

For each selected winery, an online search was conducted to verify whether the LWH included one or more of the items investigated (1: included; 0: not included). This was done because there was a need to identify an initial filter to group all variables into classes of similar variables (Korzeniewski, 2016).

Cluster analysis

The next step was to perform a cluster analysis using the k-means method. A random sample of clusters is investigated before determining a more stable cluster model. Based on what Jurowski and Reich (2000) suggested for non-hierarchical clustering that researchers established a reasonable cutoff to stop the counting and identification of clusters. The dataset was partitioned into six clusters (Korzeniewski, 2016). Statistical Package for the Social Sciences (SPSS) was used for all statistical analyses. The dataset is partitioned into homogeneous groups using k-means clustering. All components highlighted in the classification were used as segmentation variables in the k-means clustering, which are summarised in Table 3 in the results section.

Table 2. List of physical and digital experiential items investigated according to the four Es model

Wine physical experience	4E model classification
Wine tasting	Educational
Winery visit	Esthetic
Consuming winescape	Esthetic
Outdoor activities and sports	Escapism
Events	Entertainment
Restaurants and bar	Esthetic
Food tasting	Educational + Esthetic
Heritage site visits	Escapism
Wine demonstrations	Entertainment
Wine academy	Educational
B2B activities	Entertainment
Wellness and relax	Esthetic
Wine shops	Entertainment
Harvesting activities	Escapism
Wine digital experience	*4E model classification*
AR	Esthetic + Educational
Digital payment	Esthetic
E-Commerce	Entertainment
Wi-Fi	Escapism + Esthetic
Virtual tour	Escapism

Source(s): Authors' elaboration on data collected

Table 3. Profile of the key informants

Role	Company	Company	Cluster	Year of foundation	Years of activity	Code
General Manager	Company 1	Argiano	1	1580	444	X1
Owner	Company 2	Buccia Nera	1	2004	20	X2
General Manager	Company 3	Camperchi	1	1870	154	X3
Owner	Company 4	La Poderina	1	1988	36	X4
Hospitality Director	Company 5	Lungarotti	2	1987	37	Y1
Hospitality Director	Company 6	Mastrojanni	2	1975	49	Y2
Owner	Company 7	Podere della Bruciata	2	1963	61	Y3
Sales Director	Company 8	Talosa	2	1972	52	Y4
Marketing Director	Company 9	Tenuta Pietramora	3	1999	25	J5
Owner	Company10	Salcheto	4	1984	40	M1
Owner	Company 11	Roccafiore	4	1999	25	M2
Hospitality Director	Company 12	Bindella	5	1909	115	L1
Owner	Company 13	Villa Le Prata	5	1860	164	L2
Hospitality Director	Company 14	La Braccesca	6	1990	34	R1

Source(s): Authors' elaboration on data collected

Qualitative analysis

Cluster analysis was followed by another level of investigation that consisted of in-depth interviews. This method was found to be coherent with the objective of collecting novel insights about the clusters identified at the previous level of investigation to deepen their understanding through the experiences and emotions of the interviewees (Mears, 2012). The selection of the interviewee sample followed the key informant approach (Robson and Foster, 1989), and interviewees were chosen from among owners, marketing managers, and hospitality managers of the wineries, recognised as having privileged access to the surveyed phenomenon. The interviews were limited to the 163 wineries included in the cluster analysis to ensure consistency with the previous results. Hospitality managers were contacted via email and invited to participate. The interviews were conducted between February and July 2022 using Zoom and Google Meet. Interviews were performed until all clusters were explored and no new insights could be added to the data collected (Faulkner and Trotter, 2017), leading to a total of 14 interviews. Table 3 presents the details of the respondents.

The interviews lasted for an average of 60 min each. Each in-depth interview followed the structure envisaged for in-depth interviews and was based on a set of broad open-ended questions that followed a conversational flow (Arsel, 2017). The interview was divided into two phases: first, the researchers explained to the interviewees the aspects of the cluster to which they belonged. In the second phase, the researchers allowed the interviewees to share their experiences to deepen the understanding of the characteristics of luxury hospitality created in their wineries. Table 4 presents the in-depth interview questions. These were formulated on the basis of the experiential framework and the theory of digital technologies in wine experiences and the LWH, and drawing on the results of the cluster analysis to make links between the data and the existing frameworks and to generate new theoretical insights. A critical reflection approach was adopted for the interviews, in which professionals were invited to question and reconstruct wine hospitality practices through their narratives. They

Table 4. Interview guide questions

Why did you start the wine hospitality activities next to the winery?
With respect to the characteristics of your cluster, which aspects do you consider most important?
What is the role of your guests in the creation of the wine experience?
What is the role of the winery in the creation of the wine experience?
What role does digital play in the creation of the wine experience?
How are digital technologies integrated into the physical experience?

Source(s): Authors' own work

were asked to reflect on the characteristics of experience design and the interactions between the physical and digital dimensions (Morley, 2013).

The qualitative data were coded using an abductive logic approach. Abductive logic represents an "inferential creative process for producing new hypotheses and theories based on surprising research evidence" (Timmermans and Tavory, 2012). With this approach, the researcher is involved in the process of imaginative thinking about the findings; they constantly return to the theory and previous findings to double-check new inferences and corroborate them with additional data (Charmaz, 2009). Data were analysed in a way that allowed the researcher to focus on the interviewees' lived experiences and revisit each interview through field notes and memos to uncover new, surprising elements (Rinehart, 2022). Data were coded in accordance with the steps prescribed by the abductive methodology (Timmermans and Tavory, 2012; Vila-Henninger *et al.*, 2022). "Defamiliarization" and "revisiting" were applied to the data to allow the researcher to focus on the interviewee's lived experiences and revisit each interview through field notes and memos (Rinehart, 2022; Timmermans and Tavory, 2012). The coding process advanced through the triangulation of data with theories related to the phenomenon under analysis, namely, the experience framework and the theory concerning digital technologies in wine experiences and LWH, and to the results of the cluster analysis, to create links between data and the existing frameworks and allow new theoretical insights to emerge.

Coding was conducted using MAXQDA to facilitate the abductive encoding process (Vila-Henninger *et al.*, 2022) and enhance the validity of the qualitative data (Sinkovics *et al.*, 2008). To increase the reliability of the codebook, two researchers independently coded it and later discussed and revised the codes to capture the empirical phenomena accurately.

Findings

To confirm the validity of the clusters, we ran a one-way analysis of variance (ANOVA) to check the significance of the mean differences across clusters. As shown in Table 5, all the predictors were significant, indicating that they varied significantly across the retrieved clusters.

After observing the significant results of the one-way ANOVA, we analysed the six retrieved clusters. The segments found were labelled on the basis of a descriptive analysis of their most significant variables; this considered the model classification of both physical and digital wine experiences: Real Aesthetic Cluster (n = 54), Traditional Edu-oriented Cluster (n = 45), Aesthetic-Enabled Cluster (n = 26), Entertainment-Enabled Cluster (n = 19), Edutainer Cluster (n = 11) and Tech-Oriented (Educational) Cluster (n = 8). Table 6 shows the differences among the principal components in terms of number of members, values scored per variable, and cluster labels.

The cluster with the greatest number of firms is the **Real Aesthetic** cluster. For this group, wine and food tasting are central to the experience sought. This cluster is characterised by restaurant services, winery tours and visits, and winescape consumption. The Real Aesthetic group of firms' centres on wine and food consumption is enhanced by additional tours and

Table 5. One-way ANOVA

Predictor	MS	DF	*F*	*p*
Restaurants and bar	2.26	5	12.683	0.00
Wine tasting	1.70	5	23.765	0.00
Winery visit	5.15	5	71.669	0.00
Heritage site visits	3.29	5	21.288	0.00
Wine demonstrations	2.49	5	17.368	0.00
B2B activities	0.61	5	10.936	0.00
Consuming winescape	3.32	5	21.624	0.00
Wine academy	0.76	5	11.370	0.00
Events	2.21	5	16.158	0.00
E-commerce	1.32	5	7.286	0.00
Wellness and relax	2.84	5	20.130	0.00
Wine shops	1.11	5	10.798	0.00
AR	0.09	5	9.953	0.00
Virtual tour	0.10	5	4.774	0.00
Outdoor activities and sports	3.80	5	33.753	0.00
Food tasting	3.36	5	22.287	0.00
Harvesting activities	0.03	5	0.785	0.00
Wi-Fi	3.60	5	28.020	0.00
Digital payment	2.07	5	28.422	0.00

Note(s): MS: mean square; DF: degrees of freedom; F: *F*-test; *p*: significance level
Source(s): Authors' elaboration on data collected

experiences that are not strictly related to consumption. The goal of this hybridisation is to organise experiences that allow the visitor to discover all the aspects that are "behind the bottle" and are related to farming practices, with the winery as the focus. These experiences are planned with the aim of completely immersing guests in the wine world.

Although firms in the Real Aesthetic Cluster demonstrate a certain knowledge of digital tools, their use is limited. These firms believe that technology cannot replace the physical experience built around people and lean toward a prominent face-to-face approach to wine hospitality, as shown by the following:

> It is not just important but fundamental to have a human approach to guests. This makes them feel that despite all the technology we have, they do not deal with a robot but with a human being – our staff – who are at their complete disposal during their stay at our facility. (p. X1)

The *Traditional Edu-oriented Cluster* was the second-largest group of firms ($n = 45$). This cluster is oriented towards educational experiences, with an offering based on wine cellar visits and wine and food tastes. Compared with the Real Aesthetic Cluster, this group is defined by the absolute centrality of wine in the activities; a strategic role is assigned to the cellar and landscape. However, this business model is less sophisticated than those previously mentioned; it centres on the consumption of authentic wines without additional experience. It focuses on design experiences that complement territories. These two aspects confer uniqueness and personalisation to LWH:

> It's the whole set of things – the terroir, the wine. Wine becomes a unique and unrepeatable thing when there is the whole set: the soil, the person who works it, the history behind the choices in the cellar, and the choices in the supply chain. That is what makes a wine unique – maybe not perfect but unique. It's the same thing with the idea of the energy of a place. I like this idea because people are everything in a place. (p. L2)

The companies in this cluster rarely organise visits outside the accommodation, scoring a value close or equal to 0 for "Heritage site visits", "Outdoor activities and sports", "Harvesting

Table 6. Clusters, members and variables

Variables	Components Real estethic *n = 54*	Estethic-enabled experience *n = 26*	Tech-oriented (educational) *n = 8*	Entertainment enabled *n = 19*	Traditional edu-oriented *n = 45*	Edutainer *n = 11*
Restaurants and bar	0.65	0.50	0.00	0.05	0.18	0.82
Wine tasting	1.00	1.00	1.00	1.00	0.49	1.00
Winery visit	0.98	1.00	0.00	0.00	0.36	1.00
Heritage site visits	0.67	0.77	0.38	0.79	0.02	0.82
Wine demonstrations	0.20	0.73	0.63	0.42	0.00	0.73
B2B activities	0.00	0.04	0.25	0.26	0.00	0.45
Consuming winescape	0.46	0.77	0.75	0.89	0.07	1.00
Wine academy	0.06	0.00	0.38	0.21	0.00	0.55
Events	0.17	0.27	0.25	0.74	0.07	0.91
E-commerce	0.20	0.58	0.88	0.21	0.18	0.55
Wellness and relax	0.20	0.88	0.00	0.63	0.09	0.45
Wine shops	0.06	0.19	0.13	0.63	0.04	0.27
AR	0.00	0.00	0.25	0.00	0.00	0.00
Virtual tour	0.00	0.00	0.25	0.00	0.02	0.09
Outdoor activities and sports	0.22	0.92	0.38	0.26	0.02	1.00
Food tasting	0.28	0.88	0.88	0.84	0.13	0.82
Harvesting activities	0.06	0.08	0.00	0.05	0.00	0.09
Wi-Fi	0.06	0.85	0.75	0.84	0.20	0.45
Digital payment	0.00	0.00	0.63	0.74	0.16	0.00

Source(s): Authors' elaboration on data collected

activities", "Wine academy" and "Wine demonstrations". With respect to technology, these companies rarely integrated digital tools into their experiences.

The third group, in terms of size, is an *Aesthetic-Enabled Cluster*, which contains 26 firms. These are the most complete firms in the sample because they can combine educational, escapist, aesthetic, and entertainment experiences. They are distinctive because of their advanced use of technology, presence of spas, and wellness and tasting experiences. The experiences offered by these companies include wine tasting (M = 1.00), food tasting (M = 0.88), heritage site visits (M = 0.77), and outdoor activities (M = 0.92). Physical experiences ensure that customers understand the cultural aspects of the wine world. However, the companies in this cluster also focus on creating exclusivity through excellent well-being services.

> We make sure that everything is defined for the tourist. At our farm, we want that our guests turn off their brains and completely enjoy the nature that surrounds us. There are only whispers here, no stress. (p. Y4)

These firms integrate their experiences with digital tools, such as Wi-Fi and e-commerce, to purchase local products.

> For me, it's fundamental. I was one of the first wineries – perhaps the first one in Italy back in 2010, when sum up did not exist in the country – to adopt it precisely so that the customer did not have to put too much effort into paying. By using this technology, he can have peace of mind. (p. T4)

The *Entertainment-Enabled Cluster* comprises businesses centred on entertainment and related activities. In this group, wine (M = 1.00), food tasting (M = 0.84), and outdoor tours were predominant. The design of experiences is aimed at generating a "holistic" approach to wine hospitality through playful, interactive, and socialising activities.

In this cluster, there is a sizeable presence of wine shops and the adoption of good technology. The companies in question use Wi-Fi as well as digital payment and e-commerce tools; they trust that digital technology can enhance the wine experience and are moving towards its adoption.

> For the onsite experience, we came up with a tool that ended with a presentation with pictures – to show the harvest when there is no harvest. Right now, we have the tourist self-tour, albeit with very basic tools. We don't have augmented reality or videos; everything is static. Onsite we are not very digitised, though I wouldn't mind developing something that can convey experiences during those times of the year when the visitor cannot reach us. (p. M1)

In the *Edutainer Cluster*, the educational and entertainment components of experience prevailed. This is the most developed group, with the highest scores in wine tasting (M: 1.00), winery visits (M: 1.00), winescape consumption (M: 1.00), outdoor activities (M: 1.00), private events (M: 0.91), food tasting (M: 0.82), and restaurants (M: 0.82). The firms in this cluster integrate offline experiences with e-commerce and Wi-Fi and offer virtual tours to support physical experiences:

> We always try to use digital communication tools or facilitate the creation of the experience. As I said before, the website is the main tool, but we also try not to reveal too much about what the experience will be like. We know that in hospitality what we all aim for is the "wow" effect. (p. R1)

These attributes define a set of business models that actively build experiences which incorporate all relevant activities and are not limited to a few aspects. These activities form an integrated hospitality system that revolves around wine-related knowledge and education. In this group, the strategic design is based on customising all components of the wine experience in accordance with customer needs and expectations. The goals are high exclusivity, memorability, and intimacy.

Finally, the *Tech-Oriented (Educational) Cluster* leverages technology to develop its experiences. AR (M = 0.25), Wi-Fi (M = 0.75), e-commerce (M = 0.88), and digital payments (M = 0.63) define this group and are more developed than the other clusters. The wineries in this group assign centrality to the digital domain and platform integration to develop customer offerings. The link between digital technologies, promotions, and consumer relationship management activities is also strong in the cluster.

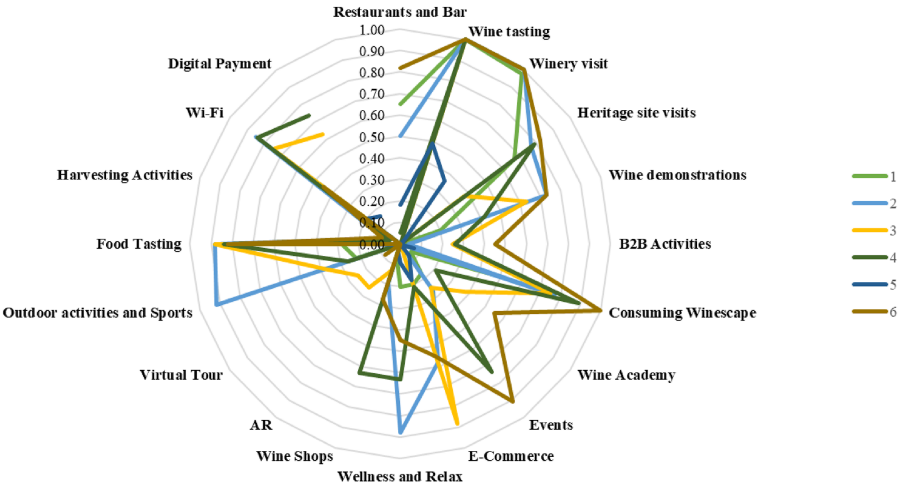
> We use the channel manager and digital platforms a lot to communicate with customers and manage our market offerings. We use them in the spring and autumn. They allow us to keep track of all our locations. We also use Google Ads to create knowledge about our services. Eighty percent of our bookings come from the website. (p. J5).

Figure 1 shows the distribution of the values and the relative presence of the variables in each group.

The Traditional Edu-oriented Cluster exemplifies how LWH can leverage technology to deepen visitors' engagement with local culture and traditions. While this cluster shows limited technological integration, the selective use of digital tools amplifies, rather than replaces, authentic place-based experiences. This approach aligns with Zainurin *et al.*'s (2021) emphasis on the importance of the terroir in luxury wine experiences but extends it by showing how technology can act as a bridge between visitors and the rich cultural heritage of wine regions.

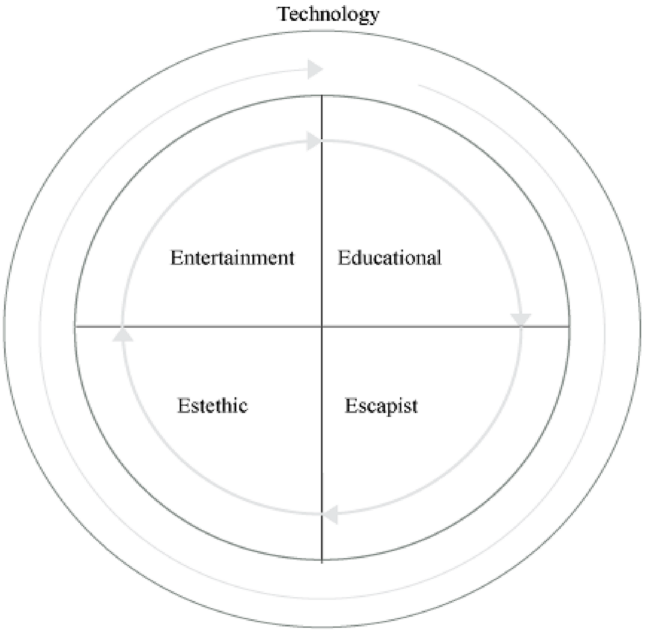
Discussion and conclusions

This analysis indicates several areas for discussion. First, it builds a framework for LWH that integrates the four areas of Pine and Gilmore (1998) experience model with digital technology, and allows for the combination of Quadri-Felitti and Fiore's (2012) model with digital experiences. The Framework is showed in Figure 2. In the current novel hybrid



Source(s): Authors' own work

Figure 1. Distribution of values per component



Source(s): Adapted from Quadri-Felitti and Fiore (2012, p.8)

Figure 2. The theoretical framework for understanding digital and physical experiences in wine hospitality

winescape, the experiences examined range from those with zero technology – aimed at consumers seeking authenticity and interested in discovering only gastronomic heritage, local food, and wine – to technology-enabled experiences that increase visitor engagement (Petit *et al*., 2019).

Second, regarding the experiential dimensions of LWH, this study illustrates the dominance of the aesthetic and educational aspects. The hedonistic component of the luxury experience (Kapferer and Valette-Florence, 2016) is emphasised in LWH, with activities that enhance the senses. This aspect adds subjective relevance to LWH to create personal harmony (Hemetsberger *et al*., 2012) and intimate and private experiences (Bauer *et al*., 2011) for visitors rather than spectacular practices. Another important aspect is education, which aims to convey knowledge about the superior value and authenticity of wine products.

Our study shows that companies are distributed along a continuum defined by their degree of adoption and implementation of digital tools. The Real Aesthetic, Aesthetic-Enabled, Tech-Oriented (Educational), Entertainment-Enabled, Traditional Edu-oriented, and Edutainer clusters exhibit different degrees of technology adoption, hybridised with classic experiential dimensions (i.e. entertainment, educational, aesthetic and escapist; Pine and Gilmore, 1998). Thus, the building blocks of experiences remain stable, but are augmented by technology.

Moreover, the Aesthetic-Enabled ($n = 26$) and entertainment-enabled ($n = 19$) clusters comprise two groups of companies that integrate authenticity and technology. E-commerce, Wi-Fi, digital payments, and virtual tours are the characteristic elements of these two groups, including the first adopters of these tools in this context. Confirming what is found in the literature, the firms in question created VR experiences for their cellars to educate visitors about wine products and local habits (Charters and Pettigrew, 2008; Lockshin and Cohen, 2011; Chamorro *et al*., 2020). They leverage e-commerce to strengthen their relationships with guests even before the experience and monitor the evolution of their interests over time (Lewis *et al*., 2021). According to the interviewees, technology is a beneficial intermediary for both visitors and companies that contributes to the creation of additional value by nurturing new forms of experiences (Tussyadiah *et al*., 2018). For some, technology is a way of improving the quality of a product and educate consumers about food. Furthermore, the interviewees in the aesthetic-enabled and entertainment clusters believe that digital technologies increase visitors' engagement with the experience (Petit *et al*., 2019) and generate positive emotions (Krishna and Schwarz, 2014).

Contrary to concerns that technology might dilute luxury experiences (Luzzani *et al*., 2021), we found that in the Aesthetic-Enabled and Tech-Oriented (Educational) clusters, digital tools are strategically deployed to heighten perceptions of exclusivity. For instance, personalised virtual tours and AI-driven recommendations serve not just as convenience, but also as markers of a bespoke, high-end service. This finding extends Sestino *et al*. (2023) work on technology in luxury contexts, demonstrating that digital enhancements can reinforce rather than undermine the perceived exclusivity of a service.

We also found a group of innovators (the Tech-Oriented [Educational] cluster) that offered the most integrated experiences. This group, which represents 4% of the sample, can offer advanced experiences and combine artificial intelligence (AI) with less advanced technologies such as Wi-Fi, digital payments, and virtual tours. The Edutainer Cluster adopts technology to create immersive learning experiences regarding wine production and appreciation, while the Aesthetic-Enabled Cluster uses digital tools to enhance the visual and sensory aspects of wine tasting. This suggests that in LWH, the luxury experience is not just about escaping reality, but also about engaging deeply with the product, its origins, and its cultural significance (Zainurin *et al*., 2021).

Technology is absent when companies argue that wine-related experiences should be a representation of the territory, local culture, and habits without any interfering elements between the individual and the experience (Real Aesthetic and Traditional Edu-oriented

Clusters). These businesses are strongly anchored in the physical nature of the wine experience and approach digital technology with distrust, assigning only limited usefulness to wine hospitality. However, they rely on essential technological tools (i.e. Wi-Fi and digital payments) to facilitate interaction with their guests. The "traditional Edu—oriented" cluster exemplifies how LWH can leverage technology to deepen visitors' engagement with local culture and traditions. While this cluster shows limited technological integration, the selective use of digital tools amplifies, rather than replaces, authentic place-based experiences. This approach aligns with Zainurin *et al.*'s (2021) emphasis on the importance of the terroir in luxury wine experiences but extends it by showing how technology can act as a bridge between visitors and the rich cultural heritage of wine regions.

Our analysis reveals that when thoughtfully implemented, technology can amplify the symbolic and hedonic dimensions of LWH experiences. Contrary to concerns that technology might weaken luxury experiences (Luzzani *et al*., 2021), the results show that in aesthetically abled and technology-oriented (educational) clusters, digital tools are strategically deployed to heighten perceptions of exclusivity. For instance, personalised services such as virtual tours and AI-driven recommendations serve not just as convenience but also as markers of high-end services. This finding extends Sestino *et al*. (2023) work on technology in luxury contexts, demonstrating that digital enhancements can reinforce rather than undermine the perceived exclusivity of a service.

Using an exploratory mixed-methods approach, this study provides a comprehensive framework for understanding the integration of technology in Luxury Wine Hospitality (LWH) experiences. In response to our first research question, we identified six primary types of LWH experience, ranging from traditional and technology-minimal approaches to highly integrated digital-physical offerings. These clusters – Real Aesthetic, Traditional Edu-oriented, Aesthetic-Enabled, Entertainment-Enabled, Edutainer, and Tech-Oriented (Educational) – represent a spectrum of approaches to LWH, each balancing tradition and innovation in unique ways.

To address our second research question, we found that technology integration in the LWH design varies significantly across these clusters. They range from basic tools that enhance convenience (e.g. Wi-Fi and digital payments) to sophisticated applications that fundamentally reshape the luxury wine experience (like augmented reality and AI-driven personalisation). Importantly, our findings suggest that, when thoughtfully implemented, technology can enhance rather than detract from the exclusivity and authenticity central to luxury experiences.

Theoretical contribution

This study contributes to the existing body of knowledge on luxury hospitality and wine tourism in several ways. First, it extends Pine and Gilmore's (1998) experience economy model by incorporating technological elements within the context of LWH. This extension provides a more comprehensive framework for understanding how digital and physical experiences can be integrated into luxury settings, thus addressing the gap in literature regarding the role of technology in high-end experiential offerings.

Second, our findings challenge the traditional notion that technology necessarily detracts from the authenticity of luxury experiences in traditional sectors such as wine tourism. Instead, we demonstrate that when thoughtfully integrated, technology can enhance, rather than diminish, the perceived exclusivity and personalisation of LWH experiences. This contributes to the ongoing debate in luxury marketing literature on the role of innovation and technology in maintaining brand prestige and exclusivity (Kapferer and Valette-Florence, 2016; Jain *et al*., 2023). Some wineries refuse to adopt digital technologies because they believe that they cannot reproduce the physical experiences of wine. Other firms integrate digital technologies into the wine experience; however, they assign a secondary role to the physical component, which remains a priority. Looking at the innovators – a group of wineries that have fully

integrated digital technologies into their business models and view the wine experience as the result of a hybridisation of physical and digital activities – these findings confirm the existing dichotomy between tradition and innovation in wineries (Alonso *et al*., 2023) further showing the prevalence of conservative approaches to the integration of digital technology into the wine experience.

This study makes a theoretical contribution to the literature on innovation in wine hospitality by presenting an explanatory framework for the main types of LWH experiences in which physical and virtual activities are combined. The study also systematises and deepens our understanding of the physical and digital building blocks that compose the wine experience in the luxury segment of wine hospitality. In the luxury segment of wine-related hospitality, the strategic design of experiences relies on a mix of activities that emphasise aesthetic and edutainment dimensions and relate to the wine-land-people triad. This includes culture, processes, staff, entrepreneurs, landscapes, and wine-related places (i.e. winery and vineyard). The experiences in question are tailor-made, as they are built around the visitor and focus on the symbolic aspects of the experience – this socialisation or identity – thus promoting consumer well-being. With respect to technology, this study found that producers adopted different approaches to digital tools corresponding to different levels of technology adoption.

Managerial implications

This study has several managerial implications. The proposed framework can help wine producers, wine hospitality managers, and marketing managers to fully understand the principal components of LWH. It also clarifies how physical and digital building blocks can be effectively integrated into a strategic design for hospitality in the wine sector. This can leverage the optimisation of resource use and improve performance, thereby creating excellent experiences for visitors. In this respect, wine hospitality managers should create experiences that go beyond wine tasting and include interactive activities that show what lies behind the glass of wine. This can be achieved by allowing guests to visit the vineyard and designing edutainment activities that allow them to play, act, and make.

The results illustrate how technology is used to enhance customers' experience of virtual content and places by encouraging them to actively participate and interact with them. Technology primarily supports the visitor experience as a complementary element.

This study also has implications for marketing managers. Providing hospitality activities and adopting new technologies applied to visitors' experiences can improve the intangible value attached to wine products. Moreover, adding technology-based wine experiences to traditional activities (e.g. tastings and visits) envisaged in wine luxury hospitality can support marketing strategies aimed at appealing to new market segments of wine tourists and non-wine drinkers.

For marketing managers involved in the management of hybrid digital and physical strategies, this also implies the need to maintain consistent brand positioning across online and offline channels and across brand identity and product features with activities designed for visitors.

A firm's technology adoption depends on its perceived usefulness within the strategic design of the host experience. Thus, policymakers are called upon to invest in digital education by teaching businesses how to recognise the benefits of technology and promote the dissemination and sharing of best practices. In areas where many products have geographical indication certification, such as Sangiovese, consortia can play a crucial role in the spread of digital tools. Furthermore, fostering technology adoption requires improved infrastructure that can enable businesses to take advantage of an environment conducive to technology adoption and experimentation and can help unleash the potential of the integration of digital technologies and physical wine experiences.

Limitations and future research avenues

Although this study provides valuable insights into the experiences of LWH, it has several limitations. First, it focused on Italy, specifically in areas where the Sangiovese grape variety is predominant. However, it is important to note that this research design can be replicated in other geographical contexts. For instance, similar studies could be conducted in regions where Sangiovese are cultivated, such as California and Australia. Such comparative studies could shed light on the similarities and differences between various wine-producing regions, potentially revealing how local factors influence wine experiences and luxury hospitality practices.

Second, this study examines wineries and the accommodations they provide without considering other actors in the hospitality sector. Future studies could adopt a systemic approach and include other actors in the model, such as tour operators, hotels, and restaurants.

Third, this investigation is restricted to e-commerce, connectivity, digital payments, VR and 3D technologies. This excludes other digital tools, such as blockchain, smart apps, AI, and social media. Hence, future studies should include other smart technologies to validate the experiential model. Moreover, regarding the experience, this work analyses the viewpoint of the providers; therefore, further studies should focus on the viewpoint of customers to investigate what they expect from a luxury wine experience and to understand changes in visitors' experiences that result from the integration of technology, as well as the impact of these experiences on brand image and the willingness to buy and pay for luxury wines.

Finally, because this study adopted the experience model as the reference framework, it did not include certain variables that are also relevant to luxury consumption, such as status and conspicuous consumption. Future studies should focus on these variables to verify how they interact with technology and affect luxury experiences.

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