

Fagioli, Filippo F.; Gallesio, Giorgia; Viganò, Elena

Article

Wineries communication strategies: A text mining analysis

Wine Economics and Policy

Provided in Cooperation with:

UniCeSV - Centro Universitario di Ricerca per lo Sviluppo Competitivo del Settore Vitivinicolo, University of Florence

Suggested Citation: Fagioli, Filippo F.; Gallesio, Giorgia; Viganò, Elena (2022) : Wineries communication strategies: A text mining analysis, Wine Economics and Policy, ISSN 2212-9774, Firenze University Press, Florence, Vol. 11, Iss. 1, pp. 73-87, <https://doi.org/10.36253/wep-11305>

This Version is available at:

<https://hdl.handle.net/10419/284526>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>



Citation: Filippo F. Fagioli, Giorgia Gallesio, Elena Viganò (2022) Wineries communication strategies. A text mining analysis. *Wine Economics and Policy* 11(1): 73-87. doi: 10.36253/wep-11305

Copyright: ©2022 Filippo F. Fagioli, Giorgia Gallesio, Elena Viganò. This is an open access, peer-reviewed article published by Firenze University Press (<http://www.fupress.com/wep>) and distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Competing Interests: The Author(s) declare(s) no conflict of interest.

Wineries communication strategies. A text mining analysis

FILIPPO F. FAGIOLI*, GIORGIA GALLESIO, ELENA VIGANÒ

Department of Economics, Society, Politics – University of Urbino Carlo Bo, Via Saffi 42, 61029 Urbino (PU), Italy. E-mail: filippo.fagioli@uniurb.it; gi.gallesio@gmail.com; elena.vigano@uniurb.it

*Corresponding author.

Abstract. The digital literacy that has developed in recent decades has resulted in internet playing an important role in the communication of wineries. Business websites, initially used as an exhibitor of products, quickly became one of the most important tools to implement communication strategies used to successfully place the wine product in a competitive market. The purpose of this study is to analyse major Italian wineries websites through textual statistics and text mining methods to provide evidence on the storytelling device adopted by these companies to promote and brand themselves. The information contained in the websites of the selected businesses in Northern, Central and Southern Italy, has been analysed in three steps. The first consisted in investigating categories with which the contents were organized, and the second step involved examining the contents' word clouds which are useful for a qualitative analysis on similarities and differences found in the three different areas. Finally, different strategies were formalized, by reconstructing the structure of concepts underlying the communication models of the wineries of the three areas examined. The results demonstrate considerably different approaches adopted by the areas. While the wineries in Central Italy focus on communication concerning the company, in the North and South, more attention is given to production methods and territory respectively. Thanks to the analysis of word clouds it was also possible to expose the construct which is the basis of narratives used by wineries, followed by the typical communication strategy of the different Italian areas.

Keywords: winery, storytelling, promotion, website, text mining.

1. INTRODUCTION

The advent of the internet and related socio-cultural changes have made consumers increasingly digitally addicted, with significant repercussions on the supply of products, marketing, branding, on the communication which has moved online, on corporate websites and on social networks.

Internet has become the most affordable, most easily accessible, and widely available form of media communication also between wine producers and their stakeholders. For this reason, the quality of wine brand websites is now crucial and plays a strategic role in communication campaigns since it

represents a valid effort to build customer loyalty, develop a brand, increase presence in the tasting room, and to encourage direct purchasing [1–4].

The characteristics of the wine, make it particularly suitable to be linked to experiential components that involve consumers emotionally and cognitively, through the symbolic, hedonistic, and aesthetic nature of post-modern consumption [5,6]. This gives the wineries the opportunity to promote and commercialize its products using content that illustrates the history of the company, and its production techniques, linking the company brand name to the wine and the territory of origin through its website [7].

While stories are an effective way of communicating and involving people, the use of this kind of narration is therefore a valid means of differentiation in a very competitive market such as that of wine. This is particularly true in a country like Italy, which has achieved significant results in both qualitative and quantitative terms. As a matter of fact, Italy is the largest global producer with 17,83% of world total production, equal to over 49.1 million hectolitres, followed by France, with 16,92% and Spain with 14,78% [8], while wineries, which are characterized by a strong orientation to regional tradition, produce wines which are often positioned in premium segments.

The aim of this work consists in investigating communication strategies of the major Italian wine producers through the analysis of their websites and highlighting the differences in their use of storytelling. The analysis focused on two different levels, namely the sections of the main page which indicate a storytelling content and the contents of these sections. Using text mining methodologies, word clouds were formulated capable of summarizing the different topics that characterize the storytelling adopted by Italian wineries and analysing differences in concepts and semiotic approaches among the three different country areas.

This paper is structured as follows. Section 2 presents a literature review on selected keywords. Section 3 describes methods used for the analysis and materials. Section 4 presents results followed by the discussion in section 5 and conclusion in section 6.

2. LITERATURE BACKGROUND

In order to conduct a rigorous literature review with the aim of exploring text mining methodologies applied to business storytelling, five keywords have been defined taking into account the particularity of the wine sector and tools for business promotion. On the basis of

Table 1. Keywords interaction table. Performed using Scopus January 2021.

Keywords	Winery	Storytelling	Promotion	Website	Text mining
Winery	-				
Storytelling	4	-			
Promotion	44	28	-		
Website	47	25	612	-	
Text mining	1	2	33	118	-

these keywords, a search was carried out on the Scopus database, to consult papers, books, abstracts, and articles from both academic and professional publishers. Four subject areas have also been chosen: (i) Economics, Econometrics and Finance; (ii) Business, Management and Accounting; (iii) Agricultural and Biological Sciences; (iv) Environmental Science. The final list of keyword combinations used and the number of articles found is shown in Table 1.

The literature review contains some important evidence. The theme of promoting wineries is strongly addressed to regional wine tourism. For example, Alonso [9] investigated the reciprocal promotion of wineries involved in wine trails and tourism in US Southern states. Maumbe and Brown [10] underlined the role of promotion strategies and their interaction with the place of origin and relations with the local community, as a key element in the development of small wineries. Zamparini et al. [11] collected producers' communication materials and applied audit methods to determine the effectiveness of wineries collective promotion, while Festa et al. [12] identified the promotion of the region as one of the most important factors of cohesion for small wineries. Woods et al. [13] studied appropriate marketing strategies which can help local wineries in the Northern Appalachian states (US) to create increased awareness, differentiation, and value in a crowded wine market and Thach and Cogan-Marie [14] analysed winery websites to assess readiness for wine tourism.

The digital literacy that has developed in recent decades has resulted in internet playing an important role in the communication of wineries which, through a website, have the opportunity to make themselves known in a highly competitive market such as that of wine. If at first these websites were found to be "electronic brochures" of products rather than "dynamic relationship marketing tools" [15], in recent years these websites have become one of the principal business communication channels, providing information in the form of text, photos, digital contents, symbolic elements and emotional stimuli linked to the territory, and capable of

establishing a direct relationship with wine lovers and consumers [7,16-19].

The study of websites and their integration with the communication activities of wine businesses, has been dealt with by Kolb and Thach [20] who analysed the adoption of Web 2.0 and social media by German wineries to determine the impact of winery size on the use of social media, and by Sellitto [21] who investigated e-marketing adopted by a small and successful Australian winery. The quality and major features of wine company websites have been analysed in detail by Galati et al. [22] who compared e-commerce and e-marketing approaches. In addition, Treen et al. [23] researched emotions expressed by wine estate websites and whether the emotions conveyed are related to or can significantly predict the positive or negative sentiment expressed by these websites.

It is interesting to notice that there is a clear lack of research on the themes of wineries and the analysis of their storytelling through the use of text mining methodologies or textual statistics. The concept of storytelling is very broad and has been extensively researched and adapted across many disciplines including psychology [24,25], sociology [26,27], environmental sciences [28,29], education sciences [30,31] and management [32,33].

However, the major applications in the economic fields refer to marketing [34-36], advertising [37,38] and branding of companies [39,40].

According to Sole and Wilson [41] storytelling could be defined as the sharing of knowledge and experiences through narrative and anecdotes in order to communicate lessons, complex ideas, concepts, and causal connections. The main objective of this narrative technique is therefore to involve the recipient, to make concrete what is abstract, and to be remembered over time. In addition, another feature is the spontaneity of writing, which suggests a high degree of diversity in the elements that compose a story [42]. However, Bourion [43] argued that when comparing narratives which have the same aim, the words tend to focus on a short list of topics.

In the wine business context, Frost et al. [44] examined the role of storytelling in the cultural heritage related to wine tourism in Australia, and Parrish and Downing [45] examined wineries in Napa Valley (US) and Stellenbosch (ZA), finding a remarkable symmetry between the types of stories utilised and differences in terminology. Italian wineries were investigated by Kammerlander et al. [46] who analysed the impact of narratives on the family firm's level of innovation.

Although the role of text mining methodologies is widely used in analyses related to the promotion of

product and services [47-49], only two bibliographic results utilized this methodology to analyse a US winery website to identify how businesses communicate family brand identities [50], and to investigate the online narrative of the San Giovese grape variety by examining the characteristics of non-winery-owned online information which may shape wine consumers' behaviour [51].

3. MATERIALS AND METHODS

3.1 *Textual statistics methods*

Textual statistics consists in the analysis of texts using statistical methods. Such texts are intended as a set of distinct elements that have their own frequency and can be compared [52]. This method is largely used especially in linguistic research [53-55] and it has different approaches, ranging from a purely formal analysis, in which the texts are not subjected to any treatment before analysis, to cases in which linguistic information can be used to identify textual forms with specific meaning [56].

The first step of this study was to analyse the frequencies of the section titles extracted from a selected sample of winery websites to assess divergence in the narratives used in the different areas examined.

As suggested by Mora and Livat [42], there is a limited number of topics used in wineries corporate communication. For this reason the titles of the pages have been categorized into six different argumentative dimensions, which represent the most commonly used themes in the websites of the wineries in the selected sample (Table 2).

The first collects all the pages relating to the productive aspects of wine, and pages which explain processes, innovation and production technologies, as well as winemaking and organic certifications. The second category concerns the product and the qualities connected to it. Another important argumentative dimension has been identified in history in which all the titles of the pages concerning heritage, as well as some time references, have been inserted. The last two categories concern the territory and values. As regards the first, all the pages which refer to the land, the landscape, the roots, the resources have been inserted. The last dimension is the most consistent and includes all the pages that refer to values.

3.2 *Text mining methodologies*

The second step of the analysis through text mining methodologies, focused on the investigation of the

Table 2. Argumentative dimensions and related wineries website page titles.

Storytelling Argumentative Dimensions	Page titles (codes)
Production	Production, Process, Research, Technology, Vinification, Winemaking, Innovation, Winegrowers, Facility, Work, Certification, Sustainability, Green, Vegan, Bio
Wines	Wine, Brand, Product, Awards, Grapes, Vine, Vineyard, Cellar, Barrique, Quality
Company	About us, Company, Estate, Group, Market, Marketing, Profile, Projects, Services, Shareholders, Winery
History	History, Today, Tradition, Heritage, Story
Territory	Territory, Terroir, Surroundings, Resources, Roots, Regional, Native, Land, Landscape, Locality, Nature Values, Mission, Union, Vision, World, Thinking, Solidarity, People, Philosophy, Experience, Identity, Knowledge, Art, Determination, Excellence,
Values	Communication, Hospitality, Family, Eco-sustainability, Environment, Biodiversity

elements which characterize the storytelling present on the websites of the major Italian wineries. The term text mining refers to the processes of exploring and analysing large amounts of data in form of texts in order to identify concepts, topics, models and other attributes. According to Feldman and Sanger [57], the use of text mining to probe extracted texts involved three distinct phases: (1) data collection, (2) pre-processing and cleaning, (3) analysis and evaluation of results. Data collection is the processes aimed at identifying a *corpus* of texts relating to the topic, which in our case is represented by the contents of the pages that have been previously identified and which converged into the sets of each area.

The pre-processing and cleaning phase is necessary because some information contained in a corpus may be irrelevant for the analysis and in these cases is removed from the corpus [58,59]. Thanks to the use of specific software, ATLAS.TI, it was possible to remove all the insignificant words that commonly appear in the language, such as prepositions, conjunctions, pronouns, and punctuation.

We decided to use the Word Clouds method to visualize the results. This type of representation is used in various contexts as a means of providing a clear overview of the words that appear most frequently in a given text. For example, Moro et al. [60] use this methodology to establish the breadth of the literature and define the concept of ethnic marketing, characterized by high

heterogeneity. Other applications are in the biomedical field and especially in the emerging field of Big Data and computer science. The method is defined as a useful summary for knowing the number and type of topics present in a body of text [61–63] and is typically obtained by positively correlating the font size of the represented tags, with the text words frequency [64].

After that, it was necessary to carry out a codification of the main concepts which could comprehensively describe the storytelling of the wineries. According to Bazeley [65], coding is a fundamental skill for qualitative analysis and a purposeful step to somewhere. In addition, it provides a means of access to evidence which can be useful to query data, for test assumptions and conclusions. At a descriptive level, naming a code provides a label that connects data to the idea, and from the idea to all the data pertaining to that idea [66].

In our case we decided to develop a codebook common to all three corpora and the choice fell on the text words contained in argumentative dimensions shown in Table 2.

3.3 Data collection

The analysis was based on the major Italian wineries selected using the AIDA database [67]. AIDA offers comprehensive information on the balance sheets of almost all the Italian companies operating in the private sector, enabling a search for individual companies, companies with similar profiles and facilitating detailed analyses. More specifically, dataset contains economic variables such as revenues, value-added, net profits but also additional information such as the address of the company's registered office, its website and a description of its main activity through ATECO 2007 classification¹.

Firstly, Italian companies operating in the beverages sector were selected and, subsequently, those with ATECO code 11.02.10 which identifies companies producing table wines and quality wines. In this way, it was possible to define three territorial contexts according to the legal headquarters of the companies (North, Center, South and Islands). A website availability criterion was subsequently added to the search eliminating those without website. The resulting companies were sorted in decreasing order of 2019 balance sheet revenues, considering successively the first 30 companies for each territorial context.

¹ This classification is the Italian version of the European nomenclature published in the Official Journal of 20 December 2006 (Regulation (EC) no 1893/2006 of the European Parliament and of the Council of 20 December 2006).

Table 3. Descriptive statistics of the wineries selected by geographical area – AIDA database.

Type of company	North				Center				South and Islands			
	No.	Avg. No. of employees	Revenues (€/mil)		No.	Avg. No. of employees	Revenues (€/mil)		No.	Avg. No. of employees	Revenues (€/mil)	
			min	max			min	max			min	max
Public Limited Company (Plc)	14	103	37,90	227,21	4	47	4,67	202,80	5	41	5,96	44,29
Private Limited Company (Ltd)	12	96	32,71	90,08	18	24	1,80	114,22	11	38	4,91	15,34
Cooperative	4	103	45,48	237,18	8	16	1,71	25,92	14	39	4,83	18,78
Total	30	100,66	32,71	237,18	30	29	1,71	114,22	30	39,33	4,83	44,29

With increasing globalization, firms need to build a global marketing strategy to reach customers around the world, and the translation of website contents plays a crucial role in the effectiveness of communication strategies. The dominance of English as a *lingua franca* in international business exchanges is commonly accepted [68], and for this reason, the sample was built with the first thirty companies which had the English version of their website for each area.

Table 3 summarizes the main descriptive characteristics of the sample, from which it is possible to identify the differences among the selected companies in the various areas.

Data shows how in the North there is a clear predominance of more formalized public companies (Plc) with the highest level of revenues compared to those in the Central part of the country, where private companies (Ltd) prevail, and in the South, where cooperatives are predominant.

From a territorial point of view, the Veneto region holds more than 50% of the companies in the North, followed by Tuscany (14) and Marche (10) in the Central regions and in Southern Italy by Puglia (8). In four regions, Liguria, Trentino Alto Adige, Friuli Venezia-Giulia and Molise, no companies matched the selected search criteria (Figure 1).

Once the companies were selected, the websites of each of them was visited. A database was therefore created containing over 270 section titles which explained the narrative adopted by each individual company, and the related content.

4. RESULTS

This investigation allows us to highlight how wine production has a completely different pattern in the three areas considered. Northern Italy is characterized by medium and large enterprises, compared to the



Figure 1. Number of wineries selected by region – Performed in Microsoft Excel.

Center and the South, where less formalized enterprises prevail. This also reflects the reference market of the wineries examined. While those in the North are mostly internationalized with high levels of exports, in Central Italy and the South the reference market remains the national one [69].

The results demonstrate very different communication approaches among the areas. Thanks to the first analysis it was possible to identify the major argumentative dimensions which characterize the storytelling of Italian wineries (Figure 2).

While in the North more reference is made to history and production methods, in Central Italy the narrative focuses on the company and the quality of the wine. In the South however, the wineries mainly base

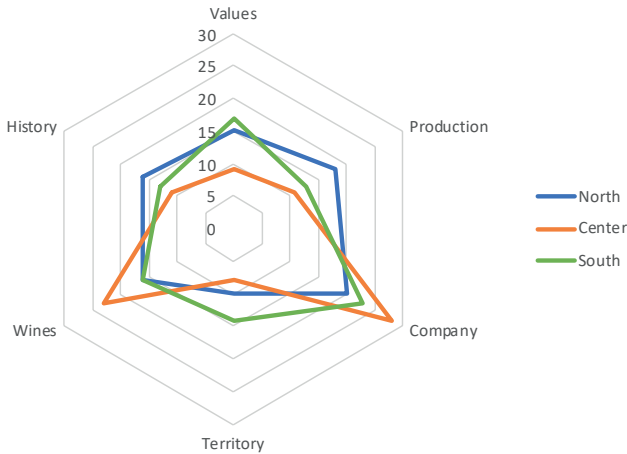


Figure 2. Frequency of wineries pages' title by argumentative dimensions.

their communication on the values and on the territory in which the wine is produced.

The examination of elements which characterize page contents made it possible to formulate three different word clouds referring to the three geographical areas examined. A set of stopwords [70,71] was developed to eliminate all insignificant words for the purpose of the investigation, such as pronouns, verbs, prepositions, conjunctions, spaces, punctuation, which were excluded from the analysis (Appendix A – Tab. A1).

In addition, to obtain meaningful word clouds, we decided to act on the width of the analysis by selecting minimum and a maximum threshold value. According to Xu et al. [72] and Bashri et al. [73] the determination of these values it is decided by the observer. In this case we decided to parameterize this value to the total number of words of each corpus. As regards the minimum value, 0.1% of the total number of words for each corpus has been chosen, while the maximum value was based on the maximum frequency reached by the first word not included in the stopwords list. The result of this process is for the North a frequency between 37 and 18, for Central Italy between 34 and 228, and for South between 29 and 149. The word clouds are shown in Figures 3, 4 and 5. (More detailed information see Appendix A, tables A2-4)

As suggested by Sinclair and Cardew-Hall [74] and Viegas et al. [75], word clouds generated were the starting point for a more in-depth analysis focused on strategies adopted by wineries in the different areas considered.

The codification of the texts based on the words contained in the argumentative dimensions, allow us to extract all sentences which contained those words from the *corpus*.



Figure 3. Northern Italy wineries word cloud - Threshold values (min-max) 37-185 – Performed with ATLAS.TI software.

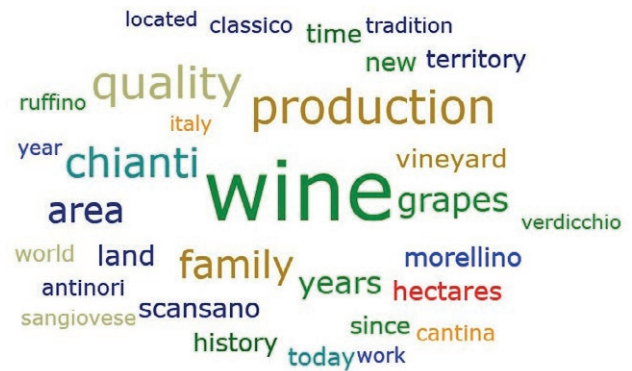


Figure 4. Center Italy wineries word cloud - Threshold values (min-max) 34-228 – Performed with ATLAS.TI software.

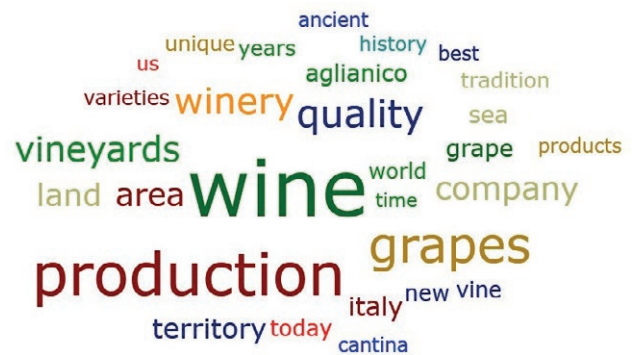


Figure 5. Southern Italy wineries word cloud - Threshold values (min-max) 29-149 – Performed with ATLAS.TI software.

Subsequently, the correspondences between the most commonly used words identified in the word clouds and the encoded sentences were analysed. This analysis was carried out in order to mine sample the most significant quotations in which all the codes that matched up to the

Table 4. Most significant quotation mined from corpus by area.

Area	Code	Quotations
North	“wine” AND “production” AND “quality”	<p>Nero d’Avola organic wine 2017 is the first Italian organic wine whose production processes, thanks to Blockchain technology, have been fully tracked to guarantee quality, provenance and supply chain.</p> <p>The finest eastern Veneto production Bosco Viticoltori is the reference key to place on foreign markets high quality bulk wine, produced directly in the nine wine cellars of the Group</p> <p>Active participation, independence, spirit of cooperation and experience are the values and the intrinsic characteristics of our members, thus guaranteeing the quality of the fruit and of the finished products, productivity and constant care for the consumer, that allow the cooperative to grow” To promote a healthy cooperation in order to achieve the best possible results with the grapes contributed by its members, passing the values and know-how of the wine growing on to the new generation while preserving the natural and environmental surroundings in the production areas.</p> <p>Customer satisfaction is at the heart of our philosophy, and this is achieved through: - management and monitoring of the production chain in order to obtain high quality standards in all typologies of wine produced; - preservation of the typicality of all productions and exaltation of the local terroir in order to maintain its specific characteristics; - differentiation of characteristics of productions through constant research aimed at improving company processes.</p> <p>Complementing this is its system of total quality and hygiene supervision over every phase and place of production, assuring uncompromised wine stability and purity.</p> <p>For the first time in 26 generations, the winery inaugurated a new winery designed to welcome wine enthusiasts inviting them to come into direct contact with their production philosophy based on passion, patience and the continual pursuit of high quality.</p> <p>For many years, the most respected wine guides of Italy have been awarding the winery, praising the transparency and quality of its production.</p>
Center	“wine” AND “production” AND “quality”	<p>The region boasts a great biodiversity from a viticultural point of view, producing both native and international grapes.</p> <p>Always focused on the production of quality wine products, over the years we have organized our traceability system: all stages of production are followed by our trusted employees, our farmers suppliers are followed in all stages of production of the vine and invited promptly to keep in order all the documentation concerning the treatment of the grapes, the appropriate production report and the correct declaration in the case of Igp - Dop grapes.</p> <p>With a capacity of 250,000 hectoliters in steel storage silos and reinforced concrete tanks, the company is one of the most important wineries in Southern Italy for the processing and wholesale of quality wine made from common grapes, PDO and IGP as well as concentrated musts certified for the production of very high quality vinegars.</p>
South	“wine” AND “production” AND “grapes”	<p>The region boasts a great biodiversity from a viticultural point of view, producing both native and international grapes.</p> <p>Always focused on the production of quality wine products, over the years we have organized our traceability system: all stages of production are followed by our trusted employees, our farmers suppliers are followed in all stages of production of the vine and invited promptly to keep in order all the documentation concerning the treatment of the grapes, the appropriate production report and the correct declaration in the case of Igp - Dop grapes.</p> <p>With a capacity of 250,000 hectoliters in steel storage silos and reinforced concrete tanks, the company is one of the most important wineries in Southern Italy for the processing and wholesale of quality wine made from common grapes, PDO and IGP as well as concentrated musts certified for the production of very high quality vinegars.</p>

most commonly used words for each area are present (Table 4).

These quotations were subsequently analysed to look for the correspondences with other codes. Figures 6, 7 and 8 show the results of the analyses in the top down graphs, in which it is possible to examine the differences in the storytelling that characterizes the communication of the wineries of the three areas considered.

5. DISCUSSION

The results of the analyses carried out demonstrate a very different approach in the communication strategies of the wineries of Northern, Central and Southern Italy. In general, communication strategies are based on different aspects, often neglecting the link existing between the quality of wines and the specific characteristics (nat-

ural, but also social and cultural) of their geographical area of origin, considered an essential element for the enhancement of wine productions [76–81].

Through textual analysis of each company’s website, and in particular of titles pages, it emerged that, in all three areas, wineries “Company” webpage is a predominant characteristic of websites. Nevertheless the three areas differ from each other in terms of communication approaches (Figure 2). Northern Italy companies tend to focus on the production processes webpages, while Central Italy wineries give more attention to the description of wines quality. In the South wineries tend to describe values related to their productions.

The wordclouds allowed us to add an additional layer of analysis. If the terms Wine, Production, Quality and Grapes characterise the communication of wineries in the three areas, each of them has specific fea-

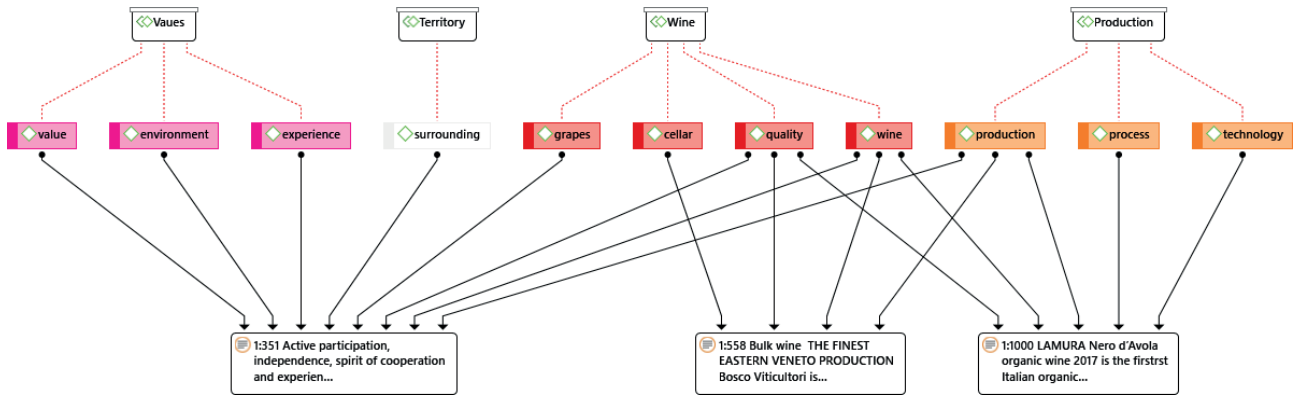


Figure 6. North Italy wineries communication strategy – Performed with ATLAS software.

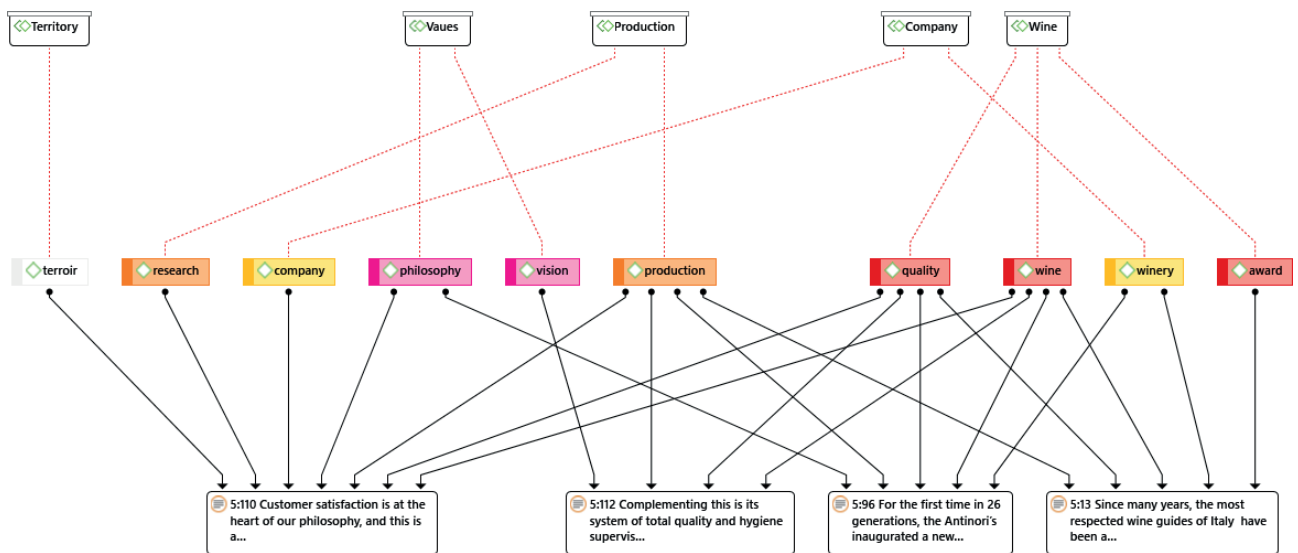


Figure 7. Central Italy wineries communication strategy - Performed with ATLAS software.

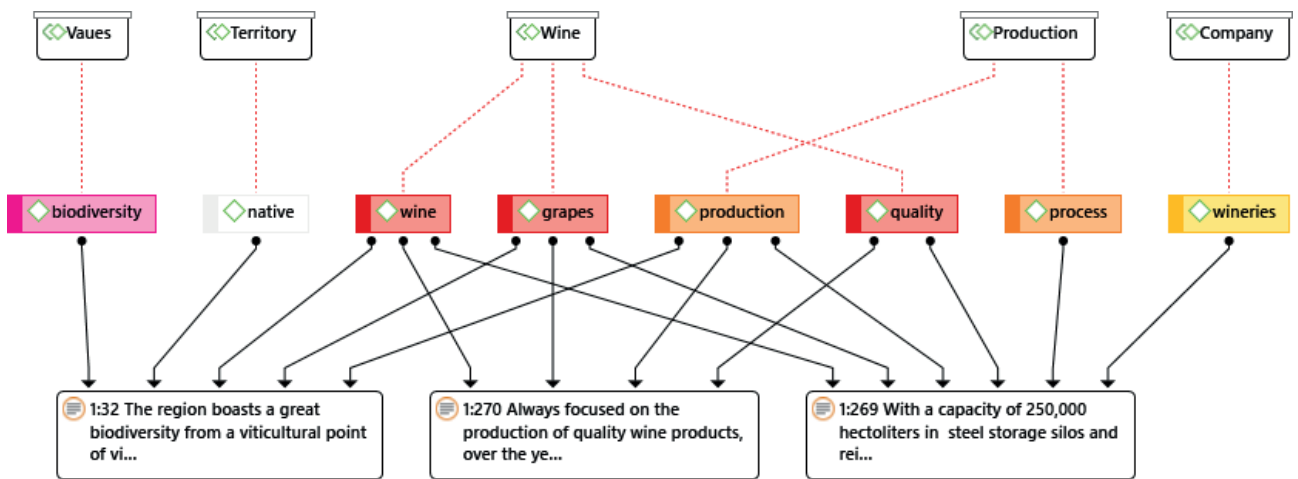


Figure 8. South Italy wineries communication strategy - Performed with ATLAS software.

tures. In the wineries of the North, the term Company stands out, associated with Group and Family (Fig. 3). This seems to be coherent with results shown in Table 3, which indicate a substantial equivalence, in this area, of Public Limited Companies (Plc) and Private Limited Companies (Ltd). In Central Italy, the presence of the term Family could be justified by the fact that here the wineries are mostly Ltd and family managed.

The value of Made in Italy emerges through the terms Italian and/or Italy in all areas considered, however with different modalities and levels of specification. If in the North there are no explicit references, in Central Italy there are more words linked to unequivocally Italian types of wine as Chianti, Sangiovese, Morellino, Verdicchio (Fig. 4), while in the South, also in this case, there is a constant reference to aspects linked to the territory (Land, Area, Territory) and the landscape element is leveraged (Fig. 5).

The world of wine is inextricably linked to the concept of time, which is expressed in various forms: the life cycle of the vine; the vegetative sub-cycle that leads to the ripening of the grapes; the production and aging phase in the cellar; and, for some wines, aging (Grainger and Tattersall, 2007). Not surprisingly, the term Years is a constant in all areas (Figures 3, 4, 5).

The Central and Southern word clouds also reveal a marked contrast between the present and the past, therefore between terms such as Today, and History, Tradition. In the North, on the other hand, there is an orientation towards the future, with terms like New and Innovation. This long-term vision is also accompanied by the communication of values related to sustainability (Environment, Sustainability) and internationalization (World, Market, International).

The use of argumentative dimensions, the mining of quotations and the identification of the most significant ones, allowed us to reconstruct a scheme of the communication strategies used in the three areas, systematising the differences characterising them. The strategies of Northern Italy (Fig. 6) appear less complex than those of Central and Southern Italy. In fact, in this area there are only 4 of the argumentative dimensions as identified in table 2, that is, values, territory, wine and production, while in the Center (Fig. 7) and in the South (Fig. 8), the “company” dimension is added to these.

However, the strategy of Northern Italy appears more detailed.

With regard to value argumentative dimension, it can be noted how in the North, aspects such as the environment and experience are given greater importance, while in the Center the values are declined in the philosophy and vision that characterise the production of

wine. In the South, however, this aspect is declined only in the dimension of biodiversity.

The wine dimension, on the other hand, is communicated by focusing on different aspects, depending on the area considered. More attention is given to the types of grapes and cellars in the North and South, whereas in Central Italy more importance is paid to national and international awards won by wines.

From the point of view of production methods, in Northern and Southern Italy the aspects connected to production processes and technologies are predominant, whereas in Central Italy there is also evidence of research activities connected to the production.

Territory is the least important aspect in all three areas and it is declined differently. While in the North there is a clear reference to territory, in the Center the focus is on terroir. In the South, instead, the winery strategy heads towards the strong connection between wine and territory.

6. CONCLUSION

This work achieves the aim of adding the point of view of wineries in the broader context of wine communication. A detailed analysis of the major Italian wineries' communication strategies was carried out both from a formal and qualitative point of view, allowing us to have a clear picture of the elements which characterize the storytelling of wine companies. The application of text mining methodologies has allowed us to observe a substantial difference in strategies adopted by wineries in North, Central and Southern Italy, and such differences could be a starting point for future research on varying aspects, particularly those regarding the assessments on the effect that these strategies can have on the wine added value or on consumers' preferences [82].

In this regard, an aspect which needs to be examined further is undoubtedly the link with the different dimensions of sustainability, and in particular with the environment, which has been specifically mentioned only by the wineries of Northern Italy. For example, the use of organic farming techniques or the offer of products with low, or no, sulfite content are particularly relevant both for improving the quality of common goods (especially water and soil) at the level of specific territories, meeting the demand of consumers who are increasingly attentive to environmental and health protection [83–85], but who do not seem to be particularly present in the communication strategies of the sample of wineries considered.

Based on the result of this work, future studies could also analyse the evolution of these strategies in

specific local contexts [86,87], or integrate the analysis through the application of text mining methodologies on additional wineries communication tools to evaluate characteristic elements in relation to tourism [88] or wine quality perceptions [89].

REFERENCES

- [1] N. Velikova, J. B. Wilcox, & T. H. Dodd, Designing Effective Winery Websites: Marketing-Oriented versus Wine-Oriented Websites. *6th AWBR International Conference* (2011).
- [2] D. C. Taylor, D. V. Parboteeah, & S. Michael, Winery Websites: Effectiveness Explored. *Journal of Business Administration Online*, 9 (2010).
- [3] N. Leighann & M. Judith, Using winery web sites to attract wine tourists: an international comparison. *International Journal of Wine Business Research*, 26 (2014) 2–26. <https://doi.org/10.1108/IJWBR-07-2012-0022>.
- [4] B. J. Triana, Use of Culture in the Website Brand Management of Kentucky Wine Producers. *The Qualitative Report*, 24 (2019) 2372–2400. <https://doi.org/1052-0147>.
- [5] E. Viganò, G. Antonelli, G. I. Bischi, & F. Tramontana, Consumo e consumatori di prodotti alimentari nella società postmoderna. *ECONOMIA AGRO-ALIMENTARE*, 17 (2015) 59–80. <https://doi.org/10.3280/ECAG2015-001004>.
- [6] G. Sortino, A. Allegra, P. Inglese, S. Chironi, & M. Ingrassia, Influence of an evoked pleasant consumption context on consumers' hedonic evaluation for minimally processed cactus pear (*Opuntia ficus-indica*) fruit. In M.I. Cantwell, ed., *Acta Horticulturae* (2016). <https://doi.org/10.17660/ActaHortic.2016.1141.41>.
- [7] S. Chironi, L. Altamore, P. Columba, S. Bacarella, & M. Ingrassia, Study of wine producers' marketing communication in extreme territories—application of the AGIL scheme to wineries' website features. *Agronomy*, 10 (2020) 721. <https://doi.org/10.3390/agronomy10050721>.
- [8] OIV, *State of the world vitivinicultural sector in 2020* (2020).
- [9] A. D. Alonso, “Standing Alone You Can't Win Anything”: The Importance of Collaborative Relationships for Wineries Producing Muscadine Wines. *Journal of Wine Research*, 22 (2011) 43–55. <https://doi.org/10.1080/09571264.2011.550761>.
- [10] B. M. Maumbe & C. Brown, Entrepreneurial and buyer-driven local wine supply chains: Case study of acres of land winery in Kentucky. *International Food and Agribusiness Management Review*, 16 (2013) 135–157.
- [11] A. Zamparini, F. Lurati, & L. G. Illia, Auditing the identity of regional wine brands: the case of Swiss Merlot Ticino. *International Journal of Wine Business Research*, (2010). <https://doi.org/10.1108/17511061011092429>.
- [12] G. Festa, M. V. Ciasullo, D. Vrontis, & A. Thrassou, Cooperating for competing –A small Italian wineries' internationalisation strategy case study. *Global Business and Economics Review*, 19 (2017) 648–670. <https://doi.org/10.1504/GBER.2017.086607>.
- [13] T. A. Woods, L. Nogueira, & S. H. Yang, Linking wine consumers to the consumption of local wines and winery visits in the Northern Appalachian States. *International Food and Agribusiness Management Review*, 16 (2013) 181–205.
- [14] L. Thach & L. Cogan-Marie, Wine tourism in Burgundy, France: An analysis of marketing practices. *Tourism Review International*, 22 (2018) 2018. <https://doi.org/10.3727/154427218X15202734130468>.
- [15] J. J. Yuan, A. M. Morrison, S. Linton, R. Feng, & S. M. Jeon, Marketing small wineries: An exploratory approach to website evaluation. *Tourism Recreation Research*, 29 (2004) 15–25. <https://doi.org/10.1080/02508281.2004.11081453>.
- [16] D. Rebecca, C. Jodie, F. John, & G. Steve, Social media: communication strategies, engagement and future research directions. *International Journal of Wine Business Research*, 29 (2017) 2–19. <https://doi.org/10.1108/IJWBR-04-2016-0013>.
- [17] J. M. Brás, C. Costa, & D. Buhalis, Network analysis and wine routes: the case of the Bairrada Wine Route. *The Service Industries Journal*, 30 (2010) 1621–1641. <https://doi.org/10.1080/02642060903580706>.
- [18] C. Laurence & J. Alain, The effects of expertise and brand schematicity on the perceived importance of choice criteria: a Bordeaux wine investigation. *Journal of Product & Brand Management*, 26 (2017) 80–90. <https://doi.org/10.1108/JPBPM-11-2015-1030>.
- [19] R. Davidson, A longitudinal study of Australian winery websites. *Asia Pacific Management Review*, 14 (2009) 379–392. <https://doi.org/10.6126/APMR.2009.14.4.01>.
- [20] D. Kolb & L. Thach, Analyzing German winery adoption of Web 2.0 and social media. *Journal of Wine Research*, 27 (2016) 226–241. <https://doi.org/10.1080/09571264.2016.1190324>.
- [21] C. Sellitto, A framework for electronic marketing: Experiences of an early Internet adopting Austral-

- ian winery. *Market Management*, 8 (2008) 48–61. <https://doi.org/10.3917/mama.052.0048>.
- [22] A. Galati, M. Crescimanno, S. Tinervia, & D. Sig-
gia, Website quality and internal business fac-
tors: An empirical investigation in the Italian
wine industry. *International Journal of Wine Busi-
ness Research*, 28 (2016) 308–326. <https://doi.org/10.1108/IJWBR-08-2015-0026>.
- [23] E. Treen, S. Lord Ferguson, C. Pitt, & J. Vella,
Exploring emotions on wine websites: finding joy.
Journal of Wine Research, 29 (2018) 64–70. <https://doi.org/10.1080/09571264.2018.1433139>.
- [24] N. De Vecchi, A. Kenny, V. Dickson-Swift, & S.
Kidd, How digital storytelling is used in mental
health: A scoping review. *International Journal of
Mental Health Nursing*, 25 (2016) 183–193. <https://doi.org/https://doi.org/10.1111/inm.12206>.
- [25] M.-J. Perrier & K. A. Martin Ginis, Changing
health-promoting behaviours through narra-
tive interventions: A systematic review. *Journal of
Health Psychology*, 23 (2016) 1499–1517. <https://doi.org/10.1177/1359105316656243>.
- [26] D. Andersen, Stories of change in drug treatment:
a narrative analysis of ‘whats’ and ‘hows’ in insti-
tutional storytelling. *Sociology of Health & Illness*,
37 (2015) 668–682. <https://doi.org/https://doi.org/10.1111/1467-9566.12228>.
- [27] F. Polletta, Characters in Political Storytelling. *Sto-
rytelling, Self, Society*, 11 (2015) 34–55. <https://doi.org/10.13110/storselfsoci.11.1.0034>.
- [28] M. Beck, Telling stories with models and making
policy with stories: an exploration. *Climate Policy*,
18 (2018) 928–941. <https://doi.org/10.1080/14693062.2017.1404439>.
- [29] M. Jayaratne, G. Sullivan Mort, & C. D’Souza,
Sustainability Entrepreneurship: From Consumer
Concern Towards Entrepreneurial Commitment.
Sustainability, 11 (2019). <https://doi.org/10.3390/su11247076>.
- [30] H. U. Fuchs, From Stories to Scientific Models and
Back: Narrative framing in modern macroscopic
physics. *International Journal of Science Education*,
37 (2015) 934–957. <https://doi.org/10.1080/09500693.2015.1025311>.
- [31] E. Tikhonova & L. Raitskaya, An Overview of
Trends and Challenges in Higher Education
on the Worldwide Research Agenda. *Journal of
Language and Education*, 4 (2018). <https://doi.org/10.17323/2411-7390-2018-4-4-4-7>.
- [32] E. Dalpiaz & G. Di Stefano, A universe of sto-
ries: Mobilizing narrative practices during trans-
formative change. *Strategic Management Journal*,
39 (2018) 664–696. <https://doi.org/https://doi.org/10.1002/smj.2730>.
- [33] J. Hayes & S. Maslen, Knowing stories that matter:
learning for effective safety decision-making. *Jour-
nal of Risk Research*, 18 (2015) 714–726. <https://doi.org/10.1080/13669877.2014.910690>.
- [34] W. Alistair, A. Glyn, & B. Douglas, Developing a
storytelling experience: the case of craft spirits dis-
tilleries in Chicago. *International Journal of Wine
Business Research*, 32 (2020) 555–571. <https://doi.org/10.1108/IJWBR-06-2019-0040>.
- [35] J. Pulizzi, The Rise of Storytelling as the New Mar-
keting. *Publishing Research Quarterly*, 28 (2012)
116–123. <https://doi.org/10.1007/s12109-012-9264-5>.
- [36] T. Chautard & I. Collin-Lachaud, Introducing
the storytelling analysis methodology in mar-
keting: Principles, contributions and implemen-
tation. *Recherche et Applications en Marketing
(English Edition)*, 34 (2019) 27–46. <https://doi.org/10.1177/2051570719841225>.
- [37] S. Hong, J. A. Kang, & G. T. Hubbard, The effects
of founder’s storytelling advertising. *International
Journal of Entrepreneurship*, 2 (2018) 9.
- [38] D. A. Gilliam & K. E. Flaherty, Storytelling by the
sales force and its effect on buyer–seller exchange.
Industrial Marketing Management, 46 (2015) 132–
142. <https://doi.org/https://doi.org/10.1016/j.indmarman.2015.01.013>.
- [39] K. Leissle, “Artisan” as Brand: Adding Value In A
Craft Chocolate Community. *Food, Culture & Soci-
ety*, 20 (2017) 37–57. <https://doi.org/10.1080/15528014.2016.1272201>.
- [40] G. Pereira, Brand storytelling: A three-dimension-
al perspective. *Journal of Brand Strategy*, 8 (2019)
146–159.
- [41] D. Sole & D. G. Wilson, Storytelling in Organiza-
tions : The power and traps of using stories to
share knowledge in organizations. *LILA*, (1999).
- [42] P. Mora & F. Livat, Does storytelling add value
to fine Bordeaux wines? *Wine Economics and
Policy*, 2 (2013) 3–10. <https://doi.org/https://doi.org/10.1016/j.wep.2013.01.001>.
- [43] C. Bourion, No Title. *La Revue des Sciences de Ges-
tion*, 217 (2006) 123–137. <https://doi.org/10.3917/rsg.217.0123>.
- [44] W. Frost, J. Frost, P. Strickland, & J. Smith Magu-
ire, Seeking a competitive advantage in wine tour-
ism: Heritage and storytelling at the cellar-door.
International Journal of Hospitality Management,
87 (2020) 102460. <https://doi.org/https://doi.org/10.1016/j.ijhm.2020.102460>.

- [45] D. Parrish & J. Downing, Stories a world apart: storytelling differentiation in Napa and Stellenbosch. *International Journal of Entrepreneurship and Small Business*, 41 (2020). <https://doi.org/10.1504/IJESB.2020.110801>.
- [46] N. Kammerlander, C. Dessi, M. Bird, & M. Floris, The Impact of Storytelling on Innovation: a Multi Case Study. *Academy of Management Proceedings*, 2015 (2015) 16902. <https://doi.org/10.5465/ambpp.2015.66>.
- [47] U. Takaho, Creating Value with Sales Promotion Strategies that Avoid Price Discounting. In G.E. Smith, ed., *Visionary Pricing: Reflections and Advances in Honor of Dan Nimer* (Emerald Group Publishing Limited, 2012), pp. 213–256. [https://doi.org/10.1108/S1069-0964\(2012\)0000019016](https://doi.org/10.1108/S1069-0964(2012)0000019016).
- [48] Z. Yang, T. Xiao, J. Liu, & Y. Jiang, Promotion depth versus breadth: The effect of mobile promotion and the moderation of social closeness and technical smoothness. *Electronic Commerce Research and Applications*, 44 (2020) 101005. <https://doi.org/https://doi.org/10.1016/j.elerap.2020.101005>.
- [49] T. Kuntner & T. Teichert, The scope of price promotion research: An informetric study. *Journal of Business Research*, 69 (2016) 2687–2696. <https://doi.org/https://doi.org/10.1016/j.jbusres.2015.11.004>.
- [50] B. F. Canziani, D. H. B. Welsh, L.-P. Dana, & V. Ramadani, Claiming a family brand identity: The role of website storytelling. *Canadian Journal of Administrative Sciences / Revue Canadienne des Sciences de l'Administration*, 37 (2020) 68–81. <https://doi.org/https://doi.org/10.1002/cjas.1543>.
- [51] N. Costanza, M. Alberto, & S. Fabiola, Online wine ecosystem: the digital narrative of Sangiovese. *British Food Journal*, 121 (2019) 2683–2695. <https://doi.org/10.1108/BFJ-05-2019-0379>.
- [52] L. L. Lebart, A. Salem, & L. Barry, *Exploring Textual Data*, 1st ed (Springer Netherlands, 1998). <https://doi.org/10.1007/978-94-017-1525-6>.
- [53] J. Savoy, Lexical Analysis of US Political Speeches. *Journal of Quantitative Linguistics*, 17 (2010) 123–141. <https://doi.org/10.1080/09296171003643205>.
- [54] C. Labbé & D. Labbé, How to Measure the Meanings of Words? Amour in Corneille's Work. *Language Resources and Evaluation*, 39 (2005) 335–351. <https://doi.org/10.1007/s10579-006-9002-8>.
- [55] D. Kosmajac & V. Keselj, Twitter user profiling: Bot and gender identification. *CEUR Workshop Proceedings* (0th Working Notes of CLEF Conference and Labs of the Evaluation Forum, 2019).
- [56] F. Lucidi, F. Alivernini, & A. Pedon, *Metodologia della ricerca qualitativa*, 1st ed (Bologna: Il Mulino, 2019).
- [57] R. Feldman & J. Sanger, *The Text Mining Handbook*, 1st ed (Cambridge: Cambridge University Press, 2007). <https://doi.org/10.1017/CBO9780511546914>.
- [58] M. W. Berry & J. Kogan, *Text Mining* (Chichester, UK: John Wiley & Sons, Ltd, 2010). <https://doi.org/10.1002/9780470689646>.
- [59] J. C. Cegan, A. M. Filion, J. M. Keisler, & I. Linkov, Trends and applications of multi-criteria decision analysis in environmental sciences: literature review. *Environment Systems and Decisions*, (2017). <https://doi.org/10.1007/s10669-017-9642-9>.
- [60] S. Moro, G. Pires, P. Rita, & P. Cortez, A text mining and topic modelling perspective of ethnic marketing research. *Journal of Business Research*, (2019). <https://doi.org/10.1016/j.jbusres.2019.01.053>.
- [61] M. Burch, S. Lohmann, D. Pompe, & D. Weiskopf, Prefix Tag Clouds. *2013 17th International Conference on Information Visualisation* (IEEE, 2013), pp. 45–50. <https://doi.org/10.1109/IV.2013.5>.
- [62] J. Feinberg, Wordle. In J. Steele, & N. Iliinsky, eds., *Beautiful Visualization: Looking at Data through the Eyes of Experts*, 1st ed, (Sebastopol, 2010), pp. 37–58.
- [63] B. Y. L. Kuo, T. Hentrich, B. M. Good, & M. D. Wilkinson, Tag clouds for summarizing web search results. *16th International World Wide Web Conference, WWW2007* (2007). <https://doi.org/10.1145/1242572.1242766>.
- [64] F. Heimerl, S. Lohmann, S. Lange, & T. Ertl, Word cloud explorer: Text analytics based on word clouds. *Proceedings of the Annual Hawaii International Conference on System Sciences* (2014). <https://doi.org/10.1109/HICSS.2014.231>.
- [65] P. Bazeley, *Qualitative Data Analysis: Practical Strategies*, 1st ed (London: SAGE Publications Ltd, 2013).
- [66] J. M. Morse & L. Richards, *Readme First for a Guide to Qualitative Methods*, 1st ed (SAGE Publications, 2002).
- [67] Bureau van Dijk, AIDA - Italian company information and business intelligence. (2021).
- [68] J. House, Communicating in English as a lingua franca. *EUROSLA Yearbook*, 2 (2002) 243–261. <https://doi.org/10.1075/eurosla.2.15hou>.
- [69] ISTAT, Wine export data. (2019).
- [70] K. V Ghag & K. Shah, Comparative analysis of effect of stopwords removal on sentiment classifi-

- cation. *2015 International Conference on Computer, Communication and Control (IC4)* (2015), pp. 1–6. <https://doi.org/10.1109/IC4.2015.7375527>.
- [71] W. J. Wilbur & K. Sirotkin, The automatic identification of stop words. *Journal of Information Science*, 18 (1992) 45–55. <https://doi.org/10.1177/016555159201800106>.
- [72] J. Xu, Y. Tao, & H. Lin, Semantic word cloud generation based on word embeddings. *2016 IEEE Pacific Visualization Symposium (PacificVis)* (2016), pp. 239–243. <https://doi.org/10.1109/PACIFICVIS.2016.7465278>.
- [73] M. F. A. Bashri & R. Kusumaningrum, Sentiment analysis using Latent Dirichlet Allocation and topic polarity wordcloud visualization. *2017 5th International Conference on Information and Communication Technology (ICoICT7)* (2017), pp. 1–5. <https://doi.org/10.1109/ICoICT.2017.8074651>.
- [74] J. Sinclair & M. Cardew-Hall, The folksonomy tag cloud: When is it useful? *Journal of Information Science*, (2008). <https://doi.org/10.1177/0165551506078083>.
- [75] F. B. Viegas, M. Wattenberg, F. Van Ham, J. Kriss, & M. McKeon, Many Eyes: A site for visualization at internet scale. *IEEE Transactions on Visualization and Computer Graphics*, (2007). <https://doi.org/10.1109/TVCG.2007.70577>.
- [76] S. F. Thode & J. M. Maskulka, Place-based marketing strategies, brand equity and vineyard valuation. *Journal of Product & Brand Management*, 7 (1998) 379–399. <https://doi.org/10.1108/10610429810237673>.
- [77] E. Vaudour, The Quality of Grapes and Wine in Relation to Geography: Notions of Terroir at Various Scales. *Journal of Wine Research*, 13 (2002) 117–141. <https://doi.org/10.1080/0957126022000017981>.
- [78] G. Antonelli & E. Viganò, L'economia dei prodotti agroalimentari tipici tra vincoli tecnici e sfide organizzative. *Italian Journal of Agronomy*, 3 (2009) 125–136.
- [79] G. Antonelli & E. Viganò, Global Challenges in Traditional Food Production and Consumption. In A. Cavicchi, & C.B.T.-C.S. in the T.F.S. Santini, eds., *Woodhead Publishing Series in Food Science, Technology and Nutrition* (Woodhead Publishing, 2018), pp. 25–46. <https://doi.org/https://doi.org/10.1016/B978-0-08-101007-5.00003-8>.
- [80] B. Rocchi & M. Gabbai, Territorial identity as a competitive advantage in wine marketing: a case study. *Journal of Wine Research*, 24 (2013) 291–310. <https://doi.org/10.1080/09571264.2013.837382>.
- [81] L. Camanzi, C. Grazia, E. Giraud-Héraud, & G. Malorgio, Quality differentiation in the Italian wine industry: terroir-based vs. brand-based strategies. *International Journal of Globalisation and Small Business*, 9 (2017) 86–104. <https://doi.org/10.1504/IJGSB.2017.088920>.
- [82] S. Sillani, A. Miccoli, & F. Nassivera, Different preferences for wine communication. *Wine Economics and Policy*, 6 (2017) 28–39. <https://doi.org/https://doi.org/10.1016/j.wep.2017.03.002>.
- [83] IWSR, *The Global Organic Wine Market 2012-2022* (2018).
- [84] G. Di Vita, G. Pappalardo, G. Chinnici, G. La Via, & M. D'Amico, Not everything has been still explored: Further thoughts on additional price for the organic wine. *Journal of Cleaner Production*, 231 (2019) 520–528. <https://doi.org/https://doi.org/10.1016/j.jclepro.2019.05.268>.
- [85] A. Sturla, E. Viganò, & L. Viganò, The organic districts in Italy. An interpretative hypothesis in the light of the common pool resources theory. *Economia Agro-Alimentare*, (2019). <https://doi.org/10.3280/ECAG2019-002013>.
- [86] A. Riviezzo, A. Garofano, J. Granata, & S. Kakanavand, Using terroir to exploit local identity and cultural heritage in marketing strategies: An exploratory study among Italian and French wine producers. *Place Branding and Public Diplomacy*, 13 (2017) 136–149. <https://doi.org/10.1057/s41254-016-0036-4>.
- [87] K. Riscinto-Kozub & N. Childs, Conversion of local winery awareness. *International Journal of Wine Business Research*, 24 (2012) 287–301. <https://doi.org/10.1108/17511061211280338>.
- [88] A. Maizza, F. Cavallo, & L. Iaia, Web communication e destinazioni enoturistiche: un modello di comunicazione. *13th International Marketing Trends Conference* (Venezia: Università Ca' Foscari, 2014).
- [89] S. Shanmuganathan, P. Sallis, & A. Narayanan, Unsupervised artificial neural nets for modelling the effects of climate change on New Zealand grape wines. *18th World IMACS Congress and MODSIM 2009 - International Congress on Modelling and Simulation: Interfacing Modelling and Simulation with Mathematical and Computational Sciences, Proceedings* (2009), pp. 803–809.

APPENDIX A

Table A1. Stopword list (extract).

a	doing	it's	that's	with
about	don't	itself	the	won't
above	down	i've	their	would
actually	during	Largely	theirs	wouldn't
after	each	let's	them	you
again	effectively	more	themselves	you'd
against	especially	moreover	then	you'll
ahead	essentially	most	there	your
all	estate	mustn't	Therefore	you're
almost	extremely	my	there's	yours
also	few	myself	these	yourself
always	finally	no	they	yourselves
am	for	nor	they'd	you've
an	from	normally	they'll	...punctuation
and	further	not	they're	...spaces
any	generally	of	they've	...numbers
anyway	had	off	this	
are	hadn't	on	those	
aren't	has	once	through	
as	hasn't	only	to	
At	have	or	too	
be	haven't	other	under	
because	having	ought	until	
been	he	our	up	
before	he'd	ours	us	
being	he'll	ourselves	usually	
below	her	out	very	
Below	here	over	was	
between	here's	own	wasn't	
both	hers	primarily	we	
briefly	herself	profile	were	
but	he's	regularly	we're	
by	him	same	weren't	
can	himself	service	we've	
cannot	his	shan't	what	
can't	how	shareholder	what's	
carefully	however	she	when	
certainly	how's	she'd	when's	
clearly	i	she'll	where	
completely	i'd	she's	where's	
could	if	should	which	
couldn't	i'll	shouldn't	while	
currently	i'm	so	who	
did	in	some	whom	
didn't	into	Specially	who's	
Directly	is	Successfully	why	
do	isn't	such	why's	
does	it	than	Widely	
doesn't	its	that	wines	

Table A2. Northern Italy words frequencies.

Word	Frequency
Stop words	> 185
wine	185
quality	144
production	138
company	92
vineyards	72
italian	60
new	58
family	55
grapes	53
world	53
environmental	51
area	50
sustainability	49
work	49
international	48
best	46
years	45
group	43
land	42
innovation	39
market	39
respect	38
Stop words	< 37

Table A3. Center Italy words frequencies.

Word	Frequency
Stop words	> 228
wine	228
production	115
quality	111
chianti	98
family	89
area	80
grapes	75
years	68
land	58
scansano	54
vineyard	53
hectares	52
morellino	51
new	51
time	50
history	49
territory	48
today	47
since	46
world	41
antinori	40
cantina	40
classico	40
sangiovese	37
tradition	37
ruffino	36
located	35
work	35
year	35
italy	34
verdicchio	34
Stop words	< 34

Table A4. South Italy words frequencies.

Word	Frequency
Stop words	> 149
wine	149
production	110
grapes	89
quality	68
winery	65
vineyards	61
company	56
area	55
land	54
territory	48
italy	44
grape	40
aglianico	39
sea	39
new	37
today	37
vine	36
tradition	35
world	35
years	35
varieties	33
vines	33
history	32
us	32
ancient	31
best	31
cantina	31
products	31
time	30
unique	29
Stop words	< 29