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Generating innovation between practice and research

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Author(s)	Alessio Cavicchi , Gigliola Paviotti – UNIMC Cristina Santini – University San Raffaele, Italy
Contributors	The Wine Lab consortium - see next page for full information

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(*) A=Author; C=Contributor; REV= reviewer; EXT = external reviewer



Authors

Alessio Cavicchi , Gigliola Paviotti – University of Macerata, Italy
Cristina Santini – University San Raffaele, Italy

Contributors

Federica Baldoni, Mara Cerquetti – University of Macerata, Italy
Albert Stöckl, David Strasser – IMC FH University Krems, Austria
Federico Lazaridis, Federica Lazaridis, Calliope Mouchtari – Nico Lazaridi Wiac SA, Greece
Pierpaolo Lorieri – Podere La Scurtarola, Italy
Valeria Vigna, Roberto Gaudio – CERVIM, Italy
Judit Sulyok, Eszter Madarász, Alan Clarke – University of Pannonia, Faculty of Business and Economics (GTK), Hungary
Thomas Schuster – Weingut Schuster, Austria
Sara Danelon, Annalisa Bonfiglioli – Melius/Cooperativa Cramars, Italy
Spyridon Mamalis, Kamenidou Irene, Borbotsi Xrysa, Perdiki Fotini – Eastern Macedonia and Thrace Institute of Technology (TEIKAV)

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INTRODUCTION

The Wine Lab project aims at setting the basis for a dialogue among research, business and regional communities, including Universities and small wineries, mainly those located in disadvantaged areas, to stimulate knowledge flow, share challenges and solutions, and jointly generate and accelerate innovation in the wine sector.

Europe is a leading producer of wine. Producing some 175m hl every year, it accounts for 45% of wine-growing areas, 65% of production, 57% of global consumption and 70% of exports in global terms (DG Agriculture data). As the CEEV (Comité Européen des Entreprises de Vin) points out, “the Wine sector permeates many levels of the European life, contributing significantly to society in socio-economic, environmental and societal terms: where vines grace the landscape, the wine sector provides employment to millions, helping to sustain the fabric of rural societies and maintaining a way of life that is central to the very notion of European identity”.

Although it is still impossible today to make an accurate estimation of the percentage of small wineries at a global level, “on the basis of national observations, we may assert that the wine sector remains quite fragmented with several hundred thousand individual producers and thousands of firms, often cooperatives, all over the world” (Cohelo et al, 2006). It is in fact widely recognized that the wine industry is generally fragmented, and this fragmentation is particularly evident in the Old World (Europe) (Anderson, 2004; Visser, 2004). Data from the European Directorate General for Agriculture and Rural Development, also confirms that the Wine sector “is composed by an overwhelming majority of small producers, and is therefore extremely atomised in comparison with other food and drinks industries”. Small size wineries share similar problems with small and micro companies in other sectors, since a small business, is still a business, and it requires sales, marketing, accounting, ordering, collections, compliance, packaging and shipping, etc. In addition to this, small and micro wineries should deal with the specific-sector difficulties, related to territory:

- small size vineyards are not always contiguous and often in terraces and small size vineries;
- labor-intensive (from 800 to 1600 h/ha);
- various grape typologies (high presence of autochthons vines) in small quantity;
- many niche products with high biodiversity;
- vineyards located in areas of relevant environmental interest;
- places where the wine activity is not the principal economic source of income.

Isolation, limited access to learning opportunities against the need of a range of competences different from production itself, and little capacity of networking, characterise this target group. To this respect, it has been widely recognised that in the wine industry small wineries achieve better performance when they are networked or clustered (see among the others, Visser 2004; Porter, 1998; Giuliani & Bell, 2005). Background research has shown that the ability to seize opportunities from the market – that it is a typical trait of entrepreneurs – varies according the style of management of the firm and location (Gilinsky et al., 2008). There is no doubt that smaller companies are much more supported if they belong to a cluster. Thus, networking is more likely to happen if wineries are settled in locations where other groups of companies form a cluster. Since informal networking activity is a typical trait of smaller wineries, as the background theory on SMEs suggests, those companies who are located in areas that are geographically disadvantaged, have difficulties also in establishing those informal relationships that are crucial for their survival.

In the frame of the project, preliminary research activities have been carried out in order to set up the theoretical and practical ground of the following work, in order to learn from the context and be updated on the state of the art in the field, and in order to identify perceived opportunities, constraints and needs of the sector.

This report presents the findings of the research work and concludes with recommendations for following planning.

The document is organised as follows:

Chapter 1, University-Business cooperation in wine, describes the findings of the practices review exercise undertaken by the consortium;

Chapter 2, Building consensus across countries, presents the findings of the Delphi exercises carried out at transnational level;

Chapter 3, Opening dialogue, presents the outcomes of the interviews to policy makers and wine producers;

Chapter 4, Wine with the students' eyes, presents the findings of the transnational survey on students about wine business;

Chapter 5, Understanding and assessing the needs of diverse stakeholders, analyses and discusses the findings described in the previous chapters.

The last chapter summarises the results of the research and provides recommendations for further work in the sector.

Although presenting also data collected from European countries different than those included in the project consortium, The Wine Lab acts directly on specific regions of Europe from 4 countries: an overview of the wine sector in these regions is provided in Annexes.

METHODOLOGICAL NOTE

The Wine Lab project aims at developing a structured university-business cooperation in the field of wine, and at pursuing co-creation of knowledge and innovation between the two fields for local and European development.

Exploratory research has been carried out in order to identify:

- (a) Which are the needs of wineries located in disadvantaged areas, particularly in terms of learning?
- (b) Which techniques have been previously used for cooperation between universities and enterprises (also in other sectors)?
- (c) In which contexts the action will take place? Which opportunities and constraints should be taken into account?

In designing the research approach we have focused on the work by Creswell (2013) who suggests three main questions that must be addressed by researchers: which knowledge claims are made by the researcher? What strategy of inquiry will inform the procedures? What methods of data collection and analysis will be used?

Knowledge claims in this project mix social constructivism with pragmatic knowledge; this would allow the combination of an active role of researchers with their pragmatic approach to research inquiries. Constructivism highlights the social implications of knowledge creation (Perkins, 1999).

Pragmatism is characterised by a high flexibility: researchers are not forced to choose between qualitative or quantitative methodologies and they chose according to the emerging needs and project's aims (Creswell, 2013); scholars (Patton, 1990) highlight that pluralistic approaches are valid in pragmatism.

For what concerns the research approach, both qualitative and quantitative methods have been used, according to the purposes of the project. For what concerns the research strategies associated to quantitative research, the project used surveys.

Desk research

Desk research comprised two main activities: literature review and practices collection.

Literature review

Preliminary literature review aimed at collecting data in order to identify:

- (a) learning/training needs of the wine sector, with specific reference on small producers, and on agribusiness activities, retrievable in secondary sources;
- (b) trends and opportunities of the sector;
- (c) emerging threats from the international context that might affect small wine producers.

Findings of literature review have been used across the chapters, according to the addressed topic and research activity.

Practices collection

Practices collection has been carried out according to the principles of realist review (Pawson, 2006¹). Realist review (or synthesis) has the merit of being exploratory and more flexible than systematic review. Details on how the practice have been carried out are presented in Chapter 1.

¹ Pawson R (2006), Evidence-based Policy. A realist perspective, Sage

Field research

Field research aimed at collecting data from different perspective and target groups, representing the main stakeholders of the project, as follows:

Experts inputs

A consensus building exercise has been carried out with experts: this was aimed particularly at understanding how local needs could be linked at a European level, and at identifying potential critical elements of the planned process. To carry out the exercise, the Delphi technique has been used: details are provided in Chapter 2.

Producers/wineries inputs

The point of view of producers, therefore exploring the local level needs and opportunities, has been collected by means of semi-structured interviews: details are provided in Chapter 3.

Policy makers and public authorities inputs

As for producers and wineries, also policy and decision makers, including local authorities (NUTS 2 and NUTS 3) have been interviewed by means of semi-structured interviews: details are provided in Chapter 3.

Students inputs

The point of view of the sector, as perceived by higher education students, and its potential for employability has been collected through an online survey: details are provided in Chapter 4.

Terminology used in this report

Throughout the text, the terms university and higher education institution (HEI) or simply institutions are used synonymously.

1. UNIVERSITY BUSINESS COOPERATION IN WINE

1.1 Background context

The changing role of universities in past decades has put the relation between higher education and business in the focus of academic and policy debate. Since the middle of the past century, even taking into account that has never been a singular accepted European model of higher education (European Commission 2014), in the overall Europe there has been a shift toward a more societal role of universities (Goddard 2009; Zomer and Benneworth 2011), which includes special attention to links with business. The concept and fundamentals of the “Third Mission”² of universities has been widely discussed and questioned, and still its definition remains unclear, besides as “residual term, encompassing all university activities not covered by the first two missions: teaching and research” (E3M 2010). Most common definition of the Third Mission include:

- knowledge and other university capabilities outside academic environments (Molas-Gallart, Salter, Patel et al., 2002, that refer to Third Stream of universities).
- social, enterprising, innovation activities that universities carry out alongside their teaching and research activities whereby additional benefits are created for society (Montesinos et al., 2008).
- activities of the universities that stimulate and direct the application and exploitation of knowledge to the benefit of the social, cultural and economic development of our society (Council of Wales, 2003).

The focus of university-business cooperation (UBC) in the second half of the 20th Century has tended to be centred around the exploitation of research, based on the dominant paradigm of a technology push, undermining the role played in innovation by other disciplines, such as Arts, Humanities and social sciences (European Commission 2011, 2014). The “triple helix” approach (Etzkowitz, 2008) and its developments (Ranga and Etzkowitz, 2013), which emphasise innovation as result of the links between university, industry and government, has additionally refined the university position, as key player within a territorial system.

A push forward has been the addition of a strong regional dimension also to policies: “countries which wish to mobilise their higher education system or part of it in support of regional development, need to ensure that the higher education policy which embraces teaching, research and third task activities include an explicit regional dimension” (OECD, 2007). In 2011, the European Commission adopted the Agenda for the modernisation of Europe’s higher education system, inviting the Member States at promoting “the systematic involvement of higher education institutions in the development of integrated local and regional development plans, and target regional support towards higher education-business cooperation particularly for the creation of regional hubs of excellence and specialisation” (European Commission 2011a). The European 2020 Growth Strategy, and in particular the “Smart Specialisation Strategy”, gives a significant role to higher education institutions, publishing also the devoted guide “Connecting Universities to Regional Growth” (European Commission, 2011), that, as noted by Goddard (2013) “seeks to ensure that universities are not excluded from (or chose not to engage with) the shaping of regional innovation strategies”.

This ‘new’ role of universities within regional development further developed the concept of third mission toward the concept of co-creation (Trencher et al, 2014; Rinaldi et al., 2018). As pointed out during the 7th European University-Business Forum (2017), regional smart specialization presents key

² Third mission refers to the engagement of the university to the society, in addition to teaching (first mission) and research (second mission).

opportunities [...] allowing universities to move beyond the third mission towards becoming a co-creative transformation agent for sustainable, competitive and inclusive development in a region”.

Even if the value of UBC for universities and business is recognised in literature and in policy discourse, the European Commission’s Report “Measuring the impact of university-business cooperation” (Healy 2014) concluded that “cooperation activities between businesses and universities in the field of education have a relatively low profile”. The Science-to-Business Marketing Research Centre (2011), in analysing engagement of higher education institutions and academics in UBC, summarises drivers and barriers as in the following tables:

Table 1. Drivers of UBC(pages 28-29)

Type of driver	Explanation
Relationship drivers	Drivers that relate to the relationship between the academic/HEI and the business, and these include: <ul style="list-style-type: none"> • Existence of mutual trust, • Existence of mutual commitment, • Having a shared goal, • Understanding of common interest by different stakeholders (e.g. HEIs; business; individuals; students), • Prior relation with the business partner, • Cooperation as effective means to address societal challenges and issues.
Business Drivers	Drivers that relate to the business factors that motivate UBC; and these include: <ul style="list-style-type: none"> • Employment by business of HEI staff and students, • Interest of business in accessing scientific knowledge, • Possibility of accessing funding / financial resources for working with business, • Short geographical distance of the HEI from the business partner, • Flexibility of business partner, • Access to business-sector research and development facilities, • Commercial orientation of the HEI.

Source: Science-to-Business Marketing Research (2011), pages 28-29

Table 2. Barriers of UBC

Type of barrier	Explanation
Usability of results	Barriers that relate to the way the results of UBC (mainly R&D results) are utilised by business; and these include: <ul style="list-style-type: none"> • The focus on producing practical results by business, • The need for business to have confidentiality of research results, • Business fears that their knowledge will be disclosed.
Funding barriers	Barriers that relate to the provision of funds for UBC from both internal and external sources; and these include: <ul style="list-style-type: none"> • Lack of external funding for UBC, • Lack of financial resources of the business, • Lack of HEI funding for UBC, • The current financial crises.
Relational barriers	Barriers that relate to or affect the actual UBC relationship or interactions, occurring between the academic /HEI and the business; and these include: <ul style="list-style-type: none"> • Business lack awareness of HEI research activities / offerings, • The limited absorption capacity of SMEs to take on internships or projects, • Differing time horizons between HEI and business, • Differing motivation / values between HEI and business, • HEIs lack awareness of opportunities arising from UBC, • Bureaucracy within or external to the HEI,

	<ul style="list-style-type: none"> • Limited ability of business to absorb research findings, • Differing mode of communication and language between HEI and business, • A lack of contact people with scientific knowledge within business, • Difficulty in finding the appropriate collaboration partner, • No appropriate initial contact person within either the HEI or business.
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Source: *Science-to-Business Marketing Research* (2011), page 29

Relational drivers and barriers, that affect network building, are particularly important at regional and territorial level. Wilson (2012) argued that “fundamental to business-university collaboration is the process of networking”, defined as “the human process that creates and maintains relationships based on trust for the exchange of valuable knowledge and collaborative working” (quoting Smith). The relational process entails several aspects involved in knowledge exchange and the following co-creation, that should be taken into account: organizational, individual and institutional aspects (Pertuze et al 2010; Phan and Siegel 2006; Wilson 2012). Spatial proximity plays also a role, particularly in cooperation between universities and small firms, in terms of relations establishment and endurance (Lockett 2009; D’Este et al 2012), since it favours bi-directional knowledge transfer (D’Este et al 2012), and it builds on common knowledge base (cognitive and organisation proximity) (Dreyer and Østergaard 2014; Davids and Frenken 2018).

The multidimensional action implied in university-business cooperation thus is primarily based on interpersonal and interinstitutional trust, and within the “community” dimension (Rinaldi et al, 2018; Hakanen, 2017). Promoting links between players can be therefore conceived as a preparation phase enabling the establishment of a more structured UBC.

In the wine business, the relationship between Universities and the Industry has been fruitful. Some authors underlined that Universities run when they establish too intensive linkages with industry (Giuliani & Arza, 2009); it must be defined how to promote the ties between University and Industry, to safeguard researchers’ intellectual freedom. From the literature, it emerges that the wine industry has gained benefit from the relationship with Universities. From the article by Giuliani & Arza (2009) it appears that it is extremely difficult to generalise results about the conditions that enhance the establishment of collaborative relationships between Universities and Industry. It is impossible to say if UBC would be more profitable for companies with a strong knowledge base or Universities with a strong scientific reputation and valuable publications.

Most of the research has underlined that spatial proximity would help UBC (D’Este & Iammarino, 2010), especially with referral to radical innovation (Tödtling et al., 2006).

Nevertheless, it emerges that in the story of the wine business, companies have employed research insights for facing challenges. Research has provided valuable insights for fighting the emerging of phylloxera (Paul, 2002) and today it helps to develop innovative producing and processing solutions for winemakers (Aylward, 2003).

There is a consensus about the importance of UBC for the development of innovative solutions to business problems. It is hard to define what is the most effective method that enables UBC. Research on this topic is still limited: some authors have described successful case studies (see for example Klofsten, M., & Jones-Evans, 1996), but besides the importance given to spatial and organisational proximity in the development of stable cooperative network, few insights have emerged for understanding how to project solutions that can support the development of a profitable collaboration.

Industries that experience a high rate of technological complexity need to adequate their knowledge, competencies and capabilities to new emerging needs.

The emerging of Open Innovation has nurtured the need for the establishment of networks between Universities and Industries (Chesborough, 2003).

Therefore, from high tech industry new methods that facilitate UBC emerge: it is not a case that hubs or hackathon were initially born as tools for defining new solutions or promoting new developments in complex industries.

There is a lack of literature in this field, but there are valuable examples that underline that events, such as Hackathon, fairs or conferences, can enable UBC. The examples of De Montfort University (<http://www.dmu.ac.uk/research/research-faculties-and-institutes/technology/viral/hackathon-events/hackathon.aspx>), Airbus (<http://www.ncub.co.uk/blog/data-hackathon-improving-collaboration-between-universities-and-business.html>); University of Oregon (<https://developers.hp.com/public/blog/collaboration-name-game-universitys-first-hackathon-quackhack>), Harvard (<http://hackharvard.io/>), University of Toronto are only a few. Hackathon have become popular in other businesses than High Tech: the food industry has seen a proliferation of hackathons (see among the various examples the London Food Hackathon: <http://www.foodhack.london/>).

Events can be a tool for enabling UBC collaboration: the Economic & Social Research Council proposes a series of events that are seen as “opportunities to engage with expert researchers and connect with others” (<http://www.esrc.ac.uk>).

1.2 Scope and methodology

In the frame of the project, which represents itself a UBC example, a review of practices on how wineries and the wine sector and the universities cooperates have been carried out. The addressed areas of investigation were fixed as follows:

- (a) practices to foster cooperation between academia and business in agricultural and wine sector,
- (b) practices tackling problems and difficulties that wineries settled in difficult areas (from an economic, social, environmental or geographic point of view) can encounter.

However, during the collection, the opportunity to explore also dimensions of other actions has been considered in order to analyse potential transferability in the project activities, and an additional area of investigation has been added to the research exercise:

- (c) running practices between university and business, also in sectors different than wine, that refer to regional dimension (e.g. territorial cooperation).

To guide search and identification, additional elements has been applied, namely

- the direct relevance of the practice to the project expected outputs,
- structural cooperation established by law (e.g. the mandatory presence in the boards of representatives of enterprises in designing university curriculum) should not be considered.

Limitations of the search activity and of results include the use of desk research only.

Practices collection has been carried out according to the principles of realist review (Pawson, 2006) as exploratory and more flexible than systematic review, by using a common template describing:

- Details on the players involved and reference persons
- Background of the institutions taking part to the practice
- Description of the practice
- Format
- Methods and techniques used to carry out activities

- Advantage for The Wine Lab project
- Conclusions and any other additional comment

The consortium has collected and described 24 practices in total. These have been clustered according to the European Commission identified dimensions of UBC (Science-to-Business Marketing Research Centre, 2011; European Commission, 2014), thus to the following definition:

[UBC includes] “all types of direct and indirect, personal and non-personal interactions between HEIs and business for reciprocal and mutual benefit including: collaboration in R&D, personnel mobility (academics, students and business professionals), commercialisation of R&D results, curriculum development and delivery, lifelong learning, entrepreneurship and governance”.

Types of UBC as classified by the European Commission’s documents are described in Table 3.

Table 3 – Types of UBC

Area #	Type of UBC	Description
1	Collaboration in R&D	Cooperation including joint R&D activities, contract research, R&D consulting, cooperation in innovation, informal and personal networks, joint publications with firm scientists/researchers, joint supervision of theses with firm scientists/researchers (Bachelor, Master, Doctoral Degree [PhD]) in cooperation with business and student projects in cooperation with business.
2	Mobility of academics	Temporary or permanent movement of teaching staff or researchers from HEIs to business; and employees, managers and researchers from business to HEIs.
3	Mobility of students	Temporary or permanent movement of students from HEIs to business.
4	Commercialisation of R&D results	Commercialisation of scientific R&D results with business through spin-offs, disclosures of inventions, patenting or licenses.
5	Curriculum development and delivery	Generally speaking, is the process of creating a learning environment and the development of human resources relevant to modern society. This includes university-business cooperation in the development of a fixed programme of courses, modules, majors or minors, planned experiences as well as guest lectures by delegates from private and public organisations within undergraduate, graduate, PhD programmes or through further professional education.
6	Lifelong learning	The provision of adult education, permanent education and/or continuing education involving the acquisition of skills, knowledge, attitudes and behaviours at all stages of life by HEIs.
7	Entrepreneurship	Actions involving HEIs towards the creation of new ventures or developing and innovative culture within the HEI in cooperation with business
8	Governance	Cooperation between HEI and business at a management level of the HEI or firm. This includes having business leaders involved in HEI decision-making or sitting on the boards of HEIs, as well as being involved at a faculty management level. Conversely, governance also includes academics involved in firm decision-making or sitting on the boards of firms.

Source: Science-to-Business Marketing Research Centre (2011), page 27

An additional cluster has been considered for practices classified as **enablers of university-business cooperation**, including

- a) joint conferences, seminars and events;
- b) joint actions at territorial level in the frame of widening participation actions, smart specialization activities, such as animation and participative processes.

As regards clustering method, since the same practice can include different elements belonging to more than one area, the most prominent retrievable has been applied (i.e. where the cooperation is expressed in common design of a curriculum for MA and includes also mobility of students, the practice has been included anyway in (5) Curriculum development and delivery).

1.3 Findings: practices analysis and description

1.3.1 Practices analysis

Out of 24 practices, 20 are carried out in Europe, the rest in Australia and USA, 3 in cluster (7) Entrepreneurship, related to incubators, 1 in cluster (2) Mobility of academics, related to scholarship. One of the European practices is an incubator of an Australian University with a French Wine Region.

Most of the practices belong to cluster (1) Collaboration in R&D. No practice has been described under cluster (8) Governance.

Table 4. Practices per cluster

#	Cluster	No.	%
1	Collaboration in R&D	7	29%
2	Mobility of academics	1	4%
3	Mobility of students	1	4%
4	Commercialisation of R&D results	1	4%
5	Curriculum development and delivery	3	12,5%
6	Lifelong learning	3	12,5%
7	Entrepreneurship	4	17%
8	Governance	0	0%
O	Enablers of UBC (territorial cooperation)	4	17%

13 practices out of 24 are funded through European programmes:

Table 5. European funding programmes per number of practices and clusters

Programme	No. practices	Cluster
Competitiveness and Innovation Programme (CIP)	1	1
FP7 PEOPLE	2	1
FP7 SME	2	1
FP7 CP	2	1
H2020 SME Instrument	1	4
H2020 Societal Challenge 6 – CSA	1	O
Lifelong Learning Programme	2	6
Erasmus + Programme – Knowledge Alliance	1	7
Erasmus + Programme – Erasmus Mundus	1	5

1.3.2 Practices description

Table 6. Description of 24 practices

Practice	Promoted by	Short description
<u>WINENVIRONMENT</u> 2009-2011	A European project funded under the Eco-Innovation scheme (2009-2011), and carried out by a consortium of 11 partners (one of them university, others institutes in wine sector, companies and policy makers), from 6 European countries	The project demonstrates ecological innovative techniques and an environmental methodology for vine cultivation and wine production which will contribute to the saving of the environment. Indeed, 3 eco-innovations tools are tested in 16 cellars: a specific environmental management system, “Qualenvi”, developed and implemented by the Vignerons Indépendants de France (VIF), a product recovery system technique developed by INOXPA, and an innovative filtration technology by BEGEROW.
<u>VINBOT</u> 2014-2017	Funded under FP7-SME, cooperation between university and one SME.	Vinbot is an all-terrain autonomous mobile robot with a set of sensors capable of capturing and analysing vineyard images and 3D data by means of cloud computing applications, to determine the yield of vineyards and to share this information with the winegrowers. Vinbot responds to a need to boost the quality of European wines by implementing precision viticulture to estimate the yield (amount of fruit per square meter of vine area).
<u>INNOVINE</u> 2013-2016	Funded under FP7-KBBE. The InnoVine consortium is composed of 27 partners combining the expertise of more than 100 grape and wine researchers or producers. Partners come from 7 European countries concentrating most of the European vineyards surface and contrasted environmental, economic and societal conditions. About half of the partnership is public, and half is composed of private organisations, including SMEs, a large winery company and a nursery cooperative.	Aimed at developing knowledge, tools and genetic resources necessary to better adapt viticulture to climate change and to drastically reduce the use of pesticides in the vineyards. The aim of the project was to disseminate its findings to three different categories of end users: academics, technical advisors/service providers and growers. Most of these activities are described in details in the deliverables D6.8, D6.9 and D6.10 and are summarized below, highlighting the potential impacts and within three main topics: (i) adaptation to climate change, (ii) reduction of chemical applications in the vineyard and (iii) assistance to growers for adapting their viticulture systems towards higher sustainability.

Practice	Promoted by	Short description
VINEROBOT 2013-2017	FP7 project coordinated by the University of La Rioja (Spain) and carried out by a consortium of 8 partners (5 SME and 3 RTD organizations) from 4 different vine-growing and winemaking European countries (France, Germany, Italy and Spain).	VineRobot works in smart agriculture, by proposing the design, development and deployment of a novel use-case agricultural robot under the scope of unmanned ground vehicles (UGV), and equipped with several non-invasive sensing technologies to monitor the following parameters as a) Grape yield; b) Vegetative growth; c) Water status; d) Grape composition. The prototype has been tested: a video explains the main working features of the new device. The project has ended on July 2017. No data are available as regards commercialization.
STABIWINE 2012-2015	Project funded by FP7-SME scheme. University business cooperation (universities' labs and SMEs)	The project developed a new technology for wine tartaric stabilization that presents significant qualitative, technological, environmental and economic advantages on practices currently applied by the European wine industry.
WINESENSE 2013-2017	Project funded by FP7-PEOPLE that included cooperation between universities and companies in Spain.	The WINESENSE project has successfully developed a novel extraction process for grape marc, resulting in higher polyphenol content. The consortium is already working on products for the cosmetics industry.
AD-WINE 2011-2015	Funded by FP7-PEOPLE, AD-WINE is a multidisciplinary consortium comprised of scientists from both commercial sector and non-commercial one, representing 5 countries of Europe.	The project developed an anaerobic treatment system, using high performance digesters adapted to the treatment of the medium size wineries' effluents.
EUREKA scholarship Running programme	Regional co-funded PhD scholarships for university-business cooperation (Region Marche, Italy).	Promoted by the Region Marche this PhD scholarship is addressed at the cooperation between companies and universities. The scholarship is shared as follows: 2/5 by the Region and the company, 1/5 by the university. In 2016 one of the scholarship has been in the wine sector.
Wolf Blass scholarship Running programme	Scholarship funded by the Foundation Wolf Blass at the University of South Australia.	This two-year scholarship provides the opportunity to guide marketing innovation and transform the wine industry in Australia. Driven by the vision of renowned wine marketer, winemaker and University of South Australia honorary doctorate

Practice	Promoted by	Short description
		recipient, Wolf Blass, the Foundation has partnered with the University of South Australia Business School to enhance best practice in marketing and innovation in the Australian wine sector.
<u>WINTOUR - Wine Tourism Innovation</u> Running programme	Joint Erasmus Mundus Master between: Rovira i Virgili University (URV), Tarragona, Spain; University Porto (UP), Portugal University of Bordeaux (UBx), France	The academic programme is structured in 120 ECTS divided in two years and 4 semesters. The first 3 semesters are taught each in one University (30 ECTS at URV, 30 ECTS at UB, 30 ECTS at UP) and the last semester is devoted to the development of the Master Thesis and the Professional Internship, which will be developed in one of the associated partners (companies)
<u>Wine Business Management</u> Running programme	Organised by the MIB School of Management of Trieste, Italy, in cooperation with wine companies.	The programme is structured on 9 courses of 3 days of length each, for one academic year.
<u>MBA in food and wine</u> Running programme	MBA programme, 1 year full time, organised by the Bologna Business School of the University of Bologna together with business representatives partners	The Global MBA in Food and Wine is designed to develop leaders and entrepreneurs who will drive growth and internationalization for companies in the food and beverage sector.
<u>FARM-INC</u> 2013-2015	LLP-Leonardo da Vinci TOI project carried out by 7 partners representing business and university in 5 countries.	This is a training programme addressed to agricultural companies, including winemakers, to upgrade the skills to better brand and market rural products and to internationalise the business, taking full advantage of the chances that the EU Common Market has to offer.
<u>ECOWINERY</u> 2012-2014	A LLP-Leonardo da Vinci project carried out by a consortium of 5 partners in 4 European countries + Switzerland.	The ECOWINE project aimed to provide methodological tools for eco-building conception of wineries to growers, winemakers, domain managers, technical consulting, architects or teachers and students in viticulture (initial and continuing training).
<u>Economics in Viticulture and Winemaking</u> Running programme	Lifelong learning course organised by the University of Nova Gorica (Slovenia)	The purpose of this course is the training of winegrowers and winemakers for successful management of their small agricultural enterprises and/or for participation in the management of oenology & viticulture companies.
<u>FOODLAB</u> 2014-2017	An E+ Knowledge Alliance project carried out by a consortium of 15 partners from university and	The Foodlab project will create a European incubator for both innovative projects and the creation

Practice	Promoted by	Short description
	business representing 6 European countries.	of food companies. Foodlab aims to develop innovation, particularly at start-up and SME levels.
ThincLab Châlons Running programme	The University of Adelaide (Australia) runs a business incubator in France, thanks to an agreement with the French city of Châlons-en-Champagne, in the heartland of the champagne wine region.	The incubator is aimed at supporting excellence in innovation and entrepreneurship, and is based on the University of Adelaide's successful ThincLab business incubator model.
Wine business incubator university of Idaho Running programme	The University of Idaho's Center for Entrepreneurial and Market Economic Development has a part devoted to wine.	So far, 9,000 square feet are set aside for production and warehouse space for wineries.
Walla Walla Wine incubator (USA) Running programme (since 2006)	The Walla Walla Community College since mid-2000s providing students with the opportunity to start new companies.	The programme has proved to be successful with the first three wineries, and it continues with others.
ULTRAWINE 2015-2017	H2020-SC5-SME project, in which universities, winemakers and the lead partner (SME) cooperate.	The general objective of ULTRAWINE is to put into the market a high performance equipment to assist the extraction of phenolic compounds in the grape peels based on low frequency high power (LFHP) ultrasound technology, in a period of 24 months, with the aim of selling an accumulated amount of 130 units by 2021
Austrian Day of Sustainable and Organic Viticulture	Organised by the chamber of agriculture of lower Austria (LK - Landwirtschaftskammer NÖ); rural education institute for professionals, and the FH Krems.	Cooperation between wineries, viticulture schools and universities were established. The goal is to monitor organic and biodynamic viticulture on a long-term basis, guarantee quality and sustainable management in the Austrian wine business by creating panels for varietal tastings; introduce fungus resistant grape varieties to the market.
WINETWORK 2015-2017	A Horizon 2020 project. 12 partners from 7 countries, including universities, association of companies, sectorial research institutions.	The project implements a methodology that has been successful in promoting demand-driven innovations in previous regional and European projects. This approach is mainly based on the interactions between a network of facilitator agents, several regional technical working groups and one European scientific working group. A participatory approach is used to translate results from science and practical

Practice	Promoted by	Short description
		knowledge into technical datasheets that are used to prepare materials adapted to end-users. A bottom-up approach is also used to identify a demand-driven innovation agenda.
<u>Day of organic farming</u> Running event	The “Day of Organic Farming” is organised by the University of Agri-business and Rural Development (Bulgaria) is the most significant forum in the Program of the International Agricultural Exhibition “AGRA”. Traditionally the Day is marked by a conference dedicated to special topic from the area of organic farming sector.	The meeting’s rationale is to bring together leading researchers, business representatives and producers to discuss opportunities, obstacles and good practice examples in organic farming.
<u>CWTC - Culinary and Wine Tourism Conference</u> Running event	Organised by the FH Krems.	The conference is held every two years to bring together researchers and practitioners that focus on the field of culinary tourism. In this terms culinary tourism is referred to as tourism related to food drinks and wines.

To appropriately interpret the practices in context, additional elements should be considered, as follows:

1) Cooperation in R&D activities

Retrieved practices belonging to this area refer to technological innovation (new devices or production processes for vineyards, cellars, and wine production). Furthermore, all seven practices are or have been carried out in the frame of European funded projects. This will not necessarily mean that cooperation in R&D takes place only through public funding: most probably, this usually happens between specialised research units at the university and local companies. More focused research, including field activities would be needed to estimate the significance of this type of UBC, that has not been undertaken as out of specific scope.

2) Mobility of academics

Full description has been provided only for one Regional initiative (Region Marche, with the PhD scholarships in university-business, as this specific one is carried out in wine sector: one small producer of wine is funding a PhD scholarship with the University of Macerata, Department of Law. However, many of these instruments are available at regional and provincial level, particularly for Industrial PhDs.

3) Mobility of students

Here only one practice has been described in full, in which the scholarship is provided by a company to the student for 2-years master degree. However, we should consider that internship periods are common in wine, particularly for Universities of Agriculture, Oenology and Agronomy, that include internship as curricular activities, up to six months of mobility to the enterprise.

4) Commercialisation of R&D results

Commercialisation of wine products or devices for vineyards often is not ‘visible’ by using only desk research: the practice described above refers to a European funded project for commercialising a product related to wine-making that had been developed also through the support of public funding.

5) Curriculum development and delivery

This is most probably the most common form of university-business cooperation in the field of wine: the practices chosen among several one retrieved through desk research represent the actual example of cooperation in curriculum development and delivery, as the wine companies are part of the partnership. The role of wine companies, or representatives of wine companies, it is not always clear: if as often happens the companies only ‘host’ interns, even if still we can consider them university-business cooperation as the process of internship management and evaluation has a part of learning and revision of the curriculum, this is likely to be a weak cooperation, where no co-creation take place, but a formula of supply and demand is applied.

6) Lifelong learning

Lifelong learning opportunities provided by universities can be diverse for the target group of wine makers and wine producers, as they run businesses, and also e.g. general accountancy can be a useful path for the target. The collected practices describe only available pathways that clearly state target groups as farms and wineries. As regards lifelong learning courses provision, it should be stressed that the organisation of the education and training system can differ a lot between countries.

7) Entrepreneurship

Funding practices represent the two main ways of supporting entrepreneurship, namely within entrepreneurship education (FOODLAB) and through incubators. Even if in Europe several universities have set up in recent years university-business incubators, and it can be that some experiences of them relates to wine, the only retrievable practices explicitly related to wine were found out of Europe. Use of field research might change this scenario.

8) Governance

No practice has been collected for this item, and given the project aims it is also the less relevant for the purpose. Also in this case, however, as for internships, it can be argued that this already happens according to Law. In example, Italian Law foresees the presence at the Board of Directors of the university external members that represent business, and the acceptance of sectorial business partners of any change to academic curriculum.

O) Enablers of UBC (territorial cooperation)

Some types of cooperation take place between universities and enterprises, particularly at territorial level: this includes e.g. joint organisation of events, territorial projects, also in the frame of regional developments. These actions often are not codified in regular monitoring, but play a role in the building of networks which lead to more structured forms of cooperation.

1.4 Conclusive remarks

The competitive scenario of the wine industry requires companies to seek for new ways for achieving a sustainable competitive advantage. There is no doubt that cooperation can help companies in pursuing their aims. Research and empirical investigations have shown the relevance of stable relationships among firms: the diffusion of knowledge and competencies among wine clusters has helped wineries to introduce an innovation or to increase their profitability. Given the growing complexity of the business, the need of establishing collaboration between Universities and Companies has progressively emerged. Thus, the wine industry is not new to academicians-practitioners cooperation: the sector has benefited from research outcomes in wine processing and vineyard maintenance, as we have seen.

Emerging insights show that policymakers have focused their attention on this issue: from the analysis of the ongoing research project, we can see that Policy Makers recognise the importance of a stable relationship between firms and universities for the development of the wine business. R&D has a pivotal role for wine companies: it emerges that the collaboration between specialised research units of Universities and local firms promote R&D in the wine business. European Programs have a crucial role in the development of research projects that are jointly planned by Universities and Wineries.

We have seen that most of the collaborations between firms and universities are built to improve technological solutions for the business; under this perspective, Universities act as facilitators for borrowing technologies from other fields and for creating adapted solutions for the wine business.

Therefore, it emerges that there is still a lot to do regarding research for understanding which are the most effective tools for stimulating dialogue between Universities and the Business.

Preliminary results from this project show that tools that are primarily employed in other businesses can be efficiently used in the wine industry; therefore, new research needs emerge, and hopefully, the next steps of this project would provide some practical suggestions for fostering the dialogue and cooperation between research and academicians.

2. BUILDING CONSENSUS ACROSS COUNTRIES: THE DELPHI EXERCISE

2.1 Introduction

The use of the Delphi in agri-food sector is not new: as a technique, it allows to overcome some of the typical limitations related to soliciting opinion and identifying consensus among experts from different disciplines, particularly where relevant experts are dispersed geographically (Frewer et al, 2011). Although used mostly to build future possible scenarios (Rikkonen, 2005; Facer and Sandford, 2009) or supporting the definition of policies (Frewer et al., 2011; Tarah and Wright 2007), the Delphi technique can also be used to understand specific elements of a topic (Viassone et al, 2016; Zolingena Cees and Klaassenb, 2003; Costa-Font et al, 2009), or to identify the most relevant issues by crossing different points of view according to exploratory research (Hatak and al, 2015).

2.2 Scope and Methodology

According to the chosen method, a series of questionnaires to collect data from a panel of selected subjects has been administered to develop a consensus of opinions concerning a specific topic, by means of multiple interactions (Hsu et al, 2007).

The exercise proposed in the frame of the project, although planned on four phases - preparation + three rounds of consultation (Hsu et al, 2007), has been reviewed ongoing since the areas of consensus were already clear at the end of the first round, and has been carried out as follows:

Preparation: the Delphi panellists were identified, contacted and involved in the process. A common template for collecting proposed names circulated to collect proposed names, and the final panellists' list has been agreed after discussion among partners.

Round 1: an open-ended questionnaire to soliciting specific information about a content area from the Delphi subjects (Custer, Scarcella, & Stewart 1999) and a short questionnaire based on Likert scale on specific items, have been sent to the panellists, together with the description of the process and the frame in which the exercise was taking place;

Round 2: each panellist received a document with the areas of consensus elaborated from the first round, and was asked to express agreement or disagreement, and to explain in case her/his reasons "for remaining outside the consensus" (Pfeiffer 1968).

The first document used to collect panellists position was composed by five sections as follows:

1. Basic panellist information
2. Introduction to the exercise
3. Open-ended questions exploring the following dimensions
 - a. Relevance of wine sector
 - b. Main problems of small wine producers
 - c. Main opportunities for small wine producers
 - d. Policies relevance
4. Items scoring on Likert scale (1-5), exploring the same dimensions, but with a focus on university-business cooperation

5. Opportunity for panellists to comment

The second document sent to the panellists was composed by a document summarising the key areas of consensus in explored dimensions, as above described (point 3, a-d): for each of them, a space for panellist comments and remarks was provided.

Both documents were completed with an introductory note explaining the reasons, the meaning and the use of data collected. Privacy statement was also provided in this introductory note.

2.3 Findings

2.3.1 Preparation

The preparation phase started in April 2017 and ended in May 2017: a longlist of 40 potential panellists have been set up with the contribution of the partners of the consortium.

Criteria applied to selection of candidates have been:

- Max 30 panellist included in the exercise, to keep it manageable and meaningful;
- Experts consulted for the Delphi will not be in the group of interviewees (each field research exercise should be separated by the other);
- Representation of countries should be balanced as possible;
- Representation of professional profiles (of the panellists) should be balanced as possible.

Plenary discussion took place online through the project mailing list. The final list of panellists to be contacted included 30 experts.

2.3.2 First round

The first round of the Delphi has been carried out between June and October 2017. Out of 30 contacted experts, 24 accepted to be involved in the exercise by answering the first questionnaire.

The panellist team were composed by experts from five countries in Europe. Profile of the panellists is shown in Table 7.

Table 7. Panellist profiles per country

Professional profile	No.	Countries
Academics (professors and researchers)	6	IT (2); PT (1); GR (3)
Policy makers (national and regional levels)	6	IT (3 - 1 national; 2 regional); GR (3 - national)
Winemakers	5	AT (2); GR (3)
Stakeholders: wine representatives (unions, associations, etc.)	1	GR (1)
Stakeholders: wine communication	2	AT (1); GR (1)
Stakeholders: wine tourism	2	HU (2)
Stakeholders: technical companies for wine making	1	AT (1)
Stakeholders: wine distribution	1	GR (1)
Total	24	

Results of the first round highlighted the following elements:

- The area of consensus has been clearly identified among profiles and countries in all four considered dimensions;
- Contextual elements are very relevant to assessing needs and problems of small wineries:
 - o Location plays a key role in needs assessment: being settled in a certain location can represent for people a resource or a problem to overcome. Adverse geographical condition can limit the accessibility of the winery and can improve its running costs;
 - o The presence of a trustworthy supporting relational network can facilitate the cooperation among firms and diffuse an entrepreneurial culture; it can be helpful for mitigating the sense of disappointment towards institutions;
 - o The accessibility to knowledge and resources (financial and physical) shapes small wineries need.

Rating on 7 items, on the basis of a scale from 1 (not at all relevant) to 5 (very relevant) composed the second part of the questionnaire. Results are described here below.

Table 8. Questionnaire results

	Average	S.D.
1. Universities can support small wineries for research purposes (e.g. agriculture, agronomy, etc.)		
Academics	3,67	1,21
Policy makers	4,17	0,75
Stakeholders	3,71	1,25
Wineries	4,20	1,30
TOTAL respondents	3,92	1,10
2. Universities can support small wineries as learning providers, e.g. by supporting acquisition of skills in different fields than agriculture, such as marketing, communication, etc.		
Academics	3,83	1,47
Policy makers	4,50	0,55
Stakeholders	4,29	0,76
Wineries	3,60	1,14
TOTAL respondents	4,08	1,02
3. Small wineries can perform better in the market if they act together with other territorial stakeholders (e.g. in the frame of smart specialization strategies; place branding strategies; etc.)		
Academics	4,50	1,22
Policy makers	4,67	0,52
Stakeholders	4,71	0,49
Wineries	4,60	0,55
TOTAL respondents	4,63	0,71
4. Small wineries need efficient infrastructures more than improved competences to deal with the market		
Academics	3,67	1,51
Policy makers	3,17	0,75
Stakeholders	3,86	0,69
Wineries	3,00	1,22
TOTAL respondents	3,46	1,06
5. Market performance for small wineries is heavily influenced by their liabilities and their financial performance		
Academics	4,00	1,26
Policy makers	4,17	0,75

Stakeholders	3,43	1,13
Wineries	4,20	0,84
TOTAL respondents	3,92	1,02

6. Ensuring smooth transitions from university to work in the wine sector is a crucial element for future development and for improving small companies performance

Academics	3,67	1,03
Policy makers	4,17	0,41
Stakeholders	4,14	0,90
Wineries	3,20	0,84
TOTAL respondents	3,83	0,87

7. Universities should design curricula on the basis of market needs, by working together with companies

Academics	4,33	1,03
Policy makers	4,33	0,52
Stakeholders	4,29	0,76
Wineries	4,00	0,89
TOTAL respondents	4,25	0,79

2.3.3 Second round

The second round of the Delphi started on December 2017 and ended in January 2018. The 24 panellists were contacted in order to ask for agreement or disagreement on the following statements:

Table 9. List of statements sent for the second round

<i>Dimension</i>	<i>Statements</i>
Relevance of the wine sector, particularly small producers, to local economies	<p>The perception of the importance of small producers for local economies is high, at least in terms of</p> <ul style="list-style-type: none"> - Creation of jobs; - Contribution to the development other related business, such as the tourism industry; - Region relevance: the proximity of wineries to final customers is a mean for creating an interest towards the region and its cultural and touristic offer.
Main problems and main obstacles of small wine producers	<p>Several problems affect small wine producers, the most relevant are identified as follows:</p> <ul style="list-style-type: none"> - Characteristics of the wineries: family estates shows the typical problems that family business have, such as generational transition, leadership recognition, limited flexibility and so on. Others are typical of small size firms, such as a limited capacity of strategic planning or difficulties in product positioning and a general lack in marketing skills; - Location: being settled in a specific area might require an extensive labour for cultivating grapes; - Financial challenges: the access to capital could be limited by their small size and cost management can be

Dimension	Statements
	<p>highly difficult; small size inhibits the exploitation of economies of dimension.</p> <ul style="list-style-type: none"> - Limited production: limited production can inhibit export and the chance of reaching a global market; the size could negatively affect firms' bargaining power towards distributors and retailers; - Bureaucracy: this is seen as a big issue, perceived as inhibitor of entrepreneurial creativity and it is time consuming. - Weak degree of cooperation among local companies and other producers.
<p>Main opportunities that small producers of wine can have in order to succeed in the market</p>	<p>Opportunities can be summarised as follows:</p> <ul style="list-style-type: none"> - Features of the products sold: having high quality wines shapes a positive reputation of small wineries and it contributes to reinforce country image; - Characteristics of wine: the functional aspects of wine and its role in a balanced and healthy diet could represent a marketing leverage; - The internet: the web offers many opportunities for reaching new customers or markets and for improving direct sales; digital competences should be pursued by small companies in order to exploit the opportunities provided by the web. - Location and the set of tradition and culture are an asset for small wineries as well as typical grape varieties. - The presence of a wine tourism industry represents another opportunity. - Be niche players represents a great chance not only for a wider degree of flexibility in terms of margins, but also for the opportunity of carving out new niches where the degree of competition is lower. - Relation with University: even if it is perceived a gap between researchers and professionals (due to a divergence in language or in the aims of the research activity), they understand that they could benefit from a closer relationship.
<p>Policies supporting small wine producers</p>	<p>The issue of policy and more specifically funding is crucial. Forthcoming policy intervention should consider:</p> <ul style="list-style-type: none"> - To better focus interventions to specific needs, that can range from the improvement of sustainable practices to export; - To improve information about policies;

<i>Dimension</i>	<i>Statements</i>
	- To simplify processes and management of funding.

Questioned items have been the following:

Table 10. Remarks from experts (second round)

<i>Dimension</i>	<i>Statements</i>	<i>Remarks</i>
Relevance of the wine sector, particularly small producers, to local economies	- Job creation	<p><i>“small wineries cannot contribute to job creation because they usually do not need additional staff”</i></p> <p><i>“I disagree with that because a small winery usually operates with the personal work of the owners. It definitely can offer some workplaces but they are mainly seasonal and of short duration. So I do not think that small producers are of great importance for job creation in local societies”</i></p>
Main problems and main obstacles of small wine producers	- Characteristics of the wineries: family estates show the typical problems that family business have, such as generational transition, leadership recognition, limited flexibility and so on. Others are typical of small size firms, such as a limited capacity of strategic planning or difficulties in product positioning and a general lack in marketing skills.	<p><i>“We see the small size as a chance to go into the market are of special wines – a small winery will and can never position itself in the volume market. In the special wine market there are many chances for those. Optimism and thinking ahead is here crucial for steady growth”</i></p> <p><i>“I would not say that lack of flexibility is a specific problem of a small winery, it might be the contrary in many cases”</i></p> <p><i>“I disagree because family wineries disseminate knowledge of many generations on the wineries and the cultivation of vines. I also believe that in family businesses, members show greater zeal because it is their own business in which they have grown up and are likely to work and learn the art from young children. Nowadays the new generation will have the opportunity to study for the management of businesses and can provide solutions to strategic planning and marketing issues”</i></p> <p><i>“When small producers try to go out from family business and become big producers they cannot afford it. So, they fail to be producers and traders because they do not have the critical mass to</i></p>

Dimension	Statements	Remarks
		<p>succeed in the market.”</p> <p>“I disagree because there are plenty of successful family businesses. It has to do with the interest that the business executives show, regardless of whether they come from the family”</p>
	<ul style="list-style-type: none"> - Location: being settled in a specific area might require an extensive labour for cultivating grapes; 	<p>“Location often is an opportunity, not a barrier”</p>
	<ul style="list-style-type: none"> - Limited production: limited production can inhibit export and the chance of reaching a global market; the size could negatively affect firms' bargaining power towards distributors and retailers; 	<p>“The limited production characteristic is also not always a barrier, where exclusivity and demand can be built this can be useful”</p> <p>“I think that in some cases, this small production is exactly the key that builds and support the fame of the winery”</p> <p>[limited production] “I don’t really support that this is a negative option or an obstacle, because some small producers maybe obtain this limited production and use it as an advantage in the market”.</p> <p>[limited production] “I disagree because the importance of wine is the product quality and not quantity. If they increase the quantity by purchasing from other producers, they will not be aware and could not control the quality”</p> <p>[limited production] “In some cases, it can help exports because it makes a product unique and rare. It would not help a cheap, low-quality wine that should sell large quantities”</p> <p>“ the limited production may be due to organic farming, or a rare variety, which can provide a much superior product. This creates great demand, export growth, increase in product's value and new markets approach. So it will positively affect the bargaining power of businesses”</p> <p>“Limited production: I think that for a small winery targeted positioning in the market is more critical than production</p>

Dimension	Statements	Remarks
Main opportunities that small producers of wine can have in order to succeed in the market		size” “I disagree because limited production does not prevent exports as we achieve better quality and consequently more exports than a large production. A quality wine which is award-winning and limited in quantity gives you greater bargaining power because of the increased demand it will have”
	- Weak degree of cooperation among local companies and other producers	I disagree that weak cooperation is a problem. There is competition, and every business tries to overcome others rather than co-operate
	- Characteristics of wine: the functional aspects of wine and its role in a balanced and healthy diet could represent a marketing leverage.	“The item Characteristics of wine is a bit dislocated, the health aspects of wine are far from linear and it is difficult to see how a small company would be in a better position to take advantage of these attributes than a large one. As for a marketing leverage, if a small company has generally a less sophisticated approach to marketing (see the section above) it would be wise to avoid this area completely in the current legal and lobby environment. The general area is a useful axis when dealt with at a collective level, but it is very high risk when applied to individual companies” “I am sceptical about the health benefits of wine, otherwise I agree with the above”. “Characteristics of wine: I think this statement applies to both small and large wineries”
	- The internet: the web offers many opportunities for reaching new customers or markets and for improving direct sales; digital competences should be pursued by small companies in order to exploit the opportunities provided by the web.	“The Internet does offer interesting opportunities in as much as it can remove some of the barriers to communicate directly to consumers. But once again these approaches require a high level of sophistication”
	- Be niche players represents a great chance not only for a wider degree of flexibility in terms of margins, but also for the opportunity of	“small winery does not have the luxury to sell only to a particular market share. This would make it unsustainable”

<i>Dimension</i>	<i>Statements</i>	<i>Remarks</i>
	carving out new niches where the degree of competition is lower	
	- Relation with University: even if it is perceived a gap between researchers and professionals (due to a divergence in language or in the aims of the research activity), they understand that they could benefit from a closer relationship	<i>"I disagree because I think that the benefit in such cooperation will be theoretical, with no real practical application"</i>
Policies supporting small wine producers	- To better focus interventions to specific needs, that can range from the improvement of sustainable practices to export	<i>"Where other activities are seen to be complementary or even synergistic to wine business activity it is important that policies related to these are articulated with those directed at the wine sector. For example, where tourism is seen to be an added values to wine (and vice versa) then it is important that tourism and wine policy be articulated"</i>

2.4 Conclusive remarks

The Delphi exercise allowed to find main consensus areas across countries with respect to the tackled dimensions: these consensus areas were almost immediately identified, so the consultation exercise was modified from a three to two rounds.

Emerged items in the first round were basically validated in the frame of the second round, with a few but significant remarks, related mostly to difficulties and opportunities of small wineries (size, location, production, and wine characteristic, above all). Remarks have been made for job creation, which is not considered possible due to small size of wineries.

The outputs of the consultation therefore confirm in general literature in the field, but stresses both the need of contextualise and detail (in place or with relation to the product itself) all statements, that should be considered as broad and not specific areas of consensus.

3. OPENING DIALOGUE: INTERVIEWS TO WINE PRODUCERS AND POLICY MAKERS

3.1 Introduction

The wine industry is facing globalisation and wineries must promptly respond to rapid changes (Cholette et al., 2005). The economic crisis and new emerging consumers' needs have reshaped wineries' strategies. Some authors have underlined how wineries show a resilient behaviour. Background research shows that the competitiveness of SMEs in the turbulent environment is related to the internal characteristics of the companies. Internal resources and adequate organisational behaviours, together with companies' ability to exploit opportunities generated by the competitive context and location, play a pivotal role in SMEs development (Gunasekaran, 2011). These considerations can be extended to small wineries, too (see the work by Duarte & Bressan, 2015). Small wineries have to face all the challenges that small companies must face: difficult access to capital, the typical problems that arise with small size production, and so forth. Small wineries may have issues with balancing their bargaining power: they heavily rely on distributors, and they may encounter difficulties in exporting their products to foreign markets (Taplin, 2006). Furthermore, small producers who are located in disadvantaged areas experience more problems than those who are settled in highly accessible locations. Research shows that location influences firm's capability to innovate (Gilinsky et al., 2008). The presence of a strong supportive network can facilitate wineries in pursuing their development strategy. We have already underlined the decisive role that geographical and organisational proximity can have in the development of a cooperative network that includes wineries and universities. Following emerging insights from the literature, we have investigated wine producers and policymakers as described in the following sections.

3.2 Scope and Methodology

Interviews addressed two target groups, namely small wine producers, and policy makers or including other stakeholders involved in the sector, which can act as key informants. Interviews were delivered using a semi-structured interview format. For both groups, the same research themes have been explored, by defining questions according to the profiles:

- (a) Perceived difficulties of small wineries in disadvantaged areas, particularly in relation to the market;
- (b) Perceived potential of the cooperation with higher education institutions and other stakeholders;
- (c) Perceived potential for territorial development;
- (d) Perceived skills mismatch between the company needs and the newly graduates workers (also not related to hard skills).

Main questions, followed by supplementary and clarifying questions to better explore the topic have been:

Wine makers	Policy makers/key informants
Which are in your opinion the most relevant difficulties for small wineries located in disadvantaged areas?	Which are in your opinion the most relevant difficulties for small wineries located in disadvantaged areas?
What do you think would be helpful for you/your company to improve market performance?	Do you believe that cooperation between university and enterprise is relevant to improve the performance of small wineries?
Do you believe that cooperation between	

university and enterprise is relevant to improve the performance of small wineries?
Do you believe that networking of subjects at local and regional levels can make a difference?

Do you believe that more knowledge and consciousness of the material and immaterial cultural heritage ((history, traditions, theatres, museums, food and culinary habits, folklore) of the territories in which wineries are embedded can make the difference?

Do you believe that cooperation between university and enterprise is relevant to improve the performance of newly hired graduates, and if so, which kind of joint activities you deem important to this aim?

Do you believe that networking of subjects at local and regional levels can make a difference?

Do you believe that more knowledge and consciousness of the material and immaterial cultural heritage ((history, traditions, theatres, museums, food and culinary habits, folklore) of the territories in which wineries are embedded can make the difference?

Do you believe that cooperation between university and enterprise is relevant to improve the performance of newly hired graduates, and if so, which kind of joint activities you deem important to this aim?

Targets for this exercise were fixed as follows:

- Producers and wine stakeholders, exploring the local level needs and opportunities: 10 interviews per country, for a total of 40 interviews;
- Policy and decision makers, including local authorities (NUTS 2 and NUTS 3): 5 interviews per country, for a total of 20 interviews.

3.3 Findings

Interviews collected were 77 in total, 56 from wine makers and stakeholders, and 21 from policy makers:

	Austria	Greece	Italy	Hungary
Wine makers	10	14	26	10
Policy makers	6	5	5	5

Collected data were clustered on the basis of topics' frequency, then further clustered by similarity. Additional relevant topics and quotes were also pointed out to contribute to general understanding of the sector.

3.3.1 Wine makers

Consulted owners and workers of the wineries mainly come from heroic viticulture sector, and are therefore located in disadvantaged areas (Austria – regions of Wagram, Wachau, Kamptal, Traisenthal, and Burgenland; Greece – regions of Drama, Florina, Parnassus, Athens; Hungary – regions of Balatonfüred-Csopak; Badacsony; Nagy-Somlo; Mor; Italy – regions of Tuscany, Marche, and Valle d'Aosta).

Theme 1 – Difficulties of wineries

The most mentioned difficulty for respondents (27 interviewees out of 60) relates to the burden of *bureaucracy*, which affects also in general small companies. Even if paperwork and administrative duties

both for management and certifications are considered as a relevant issue across all countries, clear distinctions emerge in nature and numbers:

- in Italy, the 73% of the sample (19 respondents out of 26) considers that the overall business bureaucracy severely affect small wine makers, and it is even severe in case of certification requirements (like e.g. for organic wineries). Also hiring staff is bureaucratically complicated and time consuming;
- in Austria, 2 out of 10 respondents declare that bureaucracy is a problem, but specifying that this applies to hiring of seasonal workers (one of the two also refers to the organic certification);
- in Greece, 4 out of 14 respondents considers bureaucracy as main problem for small wineries, with no further detail;
- in Hungary, 2 out of 10 respondents claim bureaucracy as a problem, requiring “support from others” (professional support external to family business).

Environmental regulations are considered to burden the wineries with additional bureaucracy:

Following and keeping all the environmental protection rules is very expensive and hard
(Hungary)

Also **limited access to financial resources** is shared among the four groups of respondents: this is particularly relevant in Greece (7 out of 14 respondents), where access to bank credit seems to be a challenge, and in Italy (9 out of 26), where the limited resources are mostly defined as “high costs”. In Austria and Hungary 2 wineries identify this as a problem in a direct way (e.g. difficulty of investments), or indirect way (e.g. difficulties in organising/participating to fairs).

Lack of financial capacity affects both investments in production and selling:

Another big problem is finding machines to work in this areas that are not so easy to find and if you find them, they probably are very expensive because these machines are built only for that kind of soil and only for that area. (Italy)

One winery on its own can't afford the expensive costs of international events (Italy)

They need more resources and because of it they couldn't sell their products in every festival in the region (Hungary)

There is a problem in financing projects (Greece)

In relation to investments, some of the respondents also pointed out a **lack of support (mainly financial) by public providers**, both local, regional and European (10 respondents), as in example:

The problem is the lack of funding from the banks, bureaucracy and unfair competition [...]: investment programs would help the business to improve its position on the market
(Greece)

Large wineries have easier access to financial programs such as those of the European Union (Greece)

In the past decades the majority of the financial support was spent on beach developing in this area (Hungary)

Among the problems related to financial issues, also the low bargaining power with retailers and sales agents is mentioned by 4 respondents, e.g.

Big vineries set the prices, smaller vineries should follow them (Hungary)

Disadvantaged areas create also a **lack of infrastructures** (13 respondents), hindering the easy accessibility of the cellars and selling points, as well an increased cost of transport, or **lack of services** (11 respondents): this problem seems to affect particularly Greece, where 8 out of 14 respondents stress difficulties due to the geographical position of the wineries, and 5 a lack of services, that turns out to be a difficulty in being competitive. Problems due to the lack of infrastructures is also remarked by 2 Austrian and 2 Hungarian wineries.

As consequence, wineries have lower access to direct selling (local and touristic market), but also their prices can increase due to the costs of production and transportation:

Long distance from the big cities, inadequate infrastructures and not so good access to the markets, high costs for the transportation of our goods result in higher prices of our wines (Greece)

The cost of building new winery is higher in remote areas than near big cities (Greece)

The infrastructure is not appropriate locally, everybody should finance the costs by his or her own (electricity, water..) (Hungary)

A common and shared problem, even if slightly different among addressed countries, is represented by **labour shortages and the degree of professionalisation of staff** (20 respondents in total pointed out one of these two elements). This is also interlocked with previously mentioned aspects, such as the disadvantaged location, infrastructural problems (e.g. public transportation), or the lack of financial resources, but it includes also other issues, such as:

difficulties in finding local workers

The most important difficulty is related to the staff. To be more specific, we cannot easily find Greek workers that want to work in the vineyards or inside the winery (Greece)

In Austria it is impossible to find workers for the vineyards, workers come from Eastern Europe (Austria)

high costs and bureaucracy

Skills training for seasonal workers: every year again, costly and timely as the right method needs to be applied (Austria)

Another factor is definitely the recruitment of staff. It is seasonal work, generally concentrated between April and September; there is too much bureaucracy within a complicated system. (Italy)

One of the problems is the expensive and insecure labour force (Hungary)

lack of professionalism

There are many problems in finding the right staff. It is very difficult for people who have the skills to come and work in less developed areas (Greece)

There is no budget for highly educated staff (Austria)

It is difficult to find appropriate personal for the wine industry, students are a cheap option however they can only be a help not a substitute for a real employee (Austria)

Professionals are getting older and older and there is only a few people who want to work in this field (Hungary)

Managers prefer to work in urban or even international known hubs like London, Frankfurt or Vienna (Austria)

It is very problematic to be attractive to highly talented people and to make them stay for long-term (Austria)

To some extent, these problems can be also be considered common with small companies – in example costs of hiring educated staff, some of them are shared with agricultural field in general (e.g. seasonality), however some problems are very specific, such as in example the low attraction of disadvantaged areas for skilled workers, and accessibility issues for seasonal workers (e.g. lack of public transportation).

An additional common difficulty, sometimes differently described but referring to the same problematic area, is the ***need of skills other than wine production*** to succeed the market. Often these skills are not precisely recognised, but their lack is quite clearly identified, as in example with sentences like:

In this moment should be necessary to change the way of thinking of the traditional farmer. We need to invest on commercial issues (Italy)

At least two skills areas can be identified as weak although necessary: business skills - including strategic thinking, organisational planning, management skills - and commercial skills, particularly marketing.

Part of this difficulty is due to the size of the companies:

It is a problem that everybody has to do everything and function in each area of the company (Austria)

To enhance the company performance, human resources should be trained in all fields (Italy)

The vintner must be a multi-talent. From accounting through tax law, to house technician and marketing specialist. (Austria)

Some of respondents identify the exact point related to business skills, someone talking about preparation of students:

The main difficulty that wineries face is the lack of strategic planning. (Greece)

Business management is missing in oenology studies (Austria)

As regards selling, and commercial skills in general, some of the respondents also identify the problem of weak marketing, which is related to missing marketing skills (but in facts, it can be also related to the size of the company, including time available for different activities than production):

Marketing is still incomplete, 50% of sales are done at the cellar. (Hungary)

A few ones, recognise the value of the web as selling channel:

Online sales getting more important (Hungary)

Young generation puts more effort in marketing, elderly generation does not see the importance, they don't understand the "new" media such as internet, social media,... (Austria)

Some (5) also identify the need of more 'visibility', or promotion, even if not mentioning marketing as such:

At the end of the day however only the sale counts. Thus, the notoriety is crucial. A lot of work is still necessary. One possibility for this is to understand the lack of awareness as a niche. (Austria)

The biggest problem is the knowledge of the customer (Austria)

Other mentioned issues, even with less frequency and most probably due to contextual situation of the wineries or of the area where they are located are: costs of raw materials; difficulty of compliance with Appellation rules; tax on wine production.

Theme 2 – Potential of cooperation

Asked about the potential of **cooperation with higher education institutions and research centres**, the answer from respondents is clearly positive by 46 respondents (60% of the sample) across countries. This takes already place in many cases, in terms of research (particularly technical – soil, vineyards, plants diseases, etc.), internship/placements, joint events, like local seminars. In general, there is a positive attitude of respondents to increase cooperation with universities and research centres, particularly in relation to the students, which is the most common form of cooperation, and technical research (e.g. product development). There is less attention to other potential support and share with research field, as support to access the market, or support for specific problems (like visibility, marketing, etc.).

Higher education and closer cooperation between enterprises would be a great help to the profession (e.g. more dual trainings) (Hungary)

Cooperation between wineries and universities is very important. The exchange of skilled worker and students willing to work during a harvest at the winery is a positive effect of the cooperation. (Austria)

In my experiences with projects supported by the university, I perceived reliability, concreteness and more visibility compared to other experiences with other institutions. (Italy)

In Greece, universities are also considered as potential training providers for wineries; this is not mentioned by respondents from other countries.

A few wine makers are frankly sceptical about the potential of cooperation, like in example

I do not believe that cooperation between small wineries and universities will help to improve their position on the market, only large wineries could be helped by such cooperation. (Greece)

We don't want new institutionalised partnerships (Hungary)

I can't see the potential of cooperation with stakeholders that do not share our organic view (Italy)

Also **local and national cooperation** is well considered by the greater part of respondents, and in some area is already taking place between wineries and between wineries and touristic players (e.g. hotels, restaurants, etc.): the wine makers see networking mostly as a form of reciprocal support/help.

There is a good cooperation with the other wineries in Sümege, with the wine region and the Wine and Vineyard Association of Balaton (Hungary)

However one respondent from Austria argues that it could be delivered up to the delivery of common services, e.g. staff sharing

It would make sense, also between wineries and Heuringen (Ed. kind of tavern in Eastern Austria, where a local winemaker serves his or her new wine under a special licence in alternate months during the growing season) share employees, this would be a good way of financing the costs (Austria)

Another interested insight comes from Italy, where a wine maker argued that also local cooperation can be promoted by the university:

It's essential to create collaboration among stakeholders, but in our region is really hard to create relationships between entrepreneurs. It's important that someone (like the University) create a linkage between all the companies in the territory. (Italy)

Some elements are recognised as barriers to the development of any kind of network, as in example:

The limiting factor is the lack of time to intensify cooperation. (Austria)

Wineries are too much focused on the daily work, cooperation lacks, working together more regularly can have a positive effect (Austria)

Theme 3 – Potential for development

Theme 3 sought to explore in particular the linkages of wine with the culture of the territory, as material and immaterial cultural heritage. This was addressed in particular to understand the interest of wineries to put themselves on the line in the creation of networks including also very different stakeholders. The opportunity was in general considered as positive, and somewhat as 'natural evolution', as wine is closely related to cultural heritage as a product itself.

Wine tourism was mentioned in all countries as very important for further development also of the wine sector, particularly in Austria, in which 8 respondents out of 10 seemed to be very aware about the need to invest together toward this goal, but also in other countries as in example

The cooperation of NGOs and local operators with wineries could strengthen their position on the market, by creating better infrastructure for the creation and expansion of wine tourism (Greece)

Gastronomy and local traditions are the most mentioned strengths by all regions involved in the research, even if other opportunities were mentioned, as in example:

However, I believe that local wine and local gastronomy is always winning, while organizing events, for example wine tastings within museums, may be interesting to propose something new, but at a purely commercial level, I have never got great results. (Italy)

In relation to tourism, also lack of **public investments** are sometimes mentioned, and these are considered as indispensable to start the process, in regions that are not considered as touristic yet

Natural conditions are perfect for wine-growing in this county and this activity has long traditions here, but local government and tourism professionals do not emphasize it or see its real potential and local vineries are not invited to local tourism events to sell their products (Hungary)

There is an urgent need for State's support in order to make our region known as wine region (Greece)

Theme 4 – Skills mismatch

The first topic that is shared among respondents is that **internship is very important** as often graduates lack of practical knowledge, that can be offered starting from the university study time during this period. As pointed out by one of respondents, internship and placements are important not only for the student him/herself, but also for universities and companies:

Performance could be improved by placements. The university provides a solid foundation for knowledge; the wineries provide the practical aspect. A major outcome is the stimulus to think for both parties. (Austria)

As introduction to the comments collected from the four countries, it should be stressed that internship is differently organised according to the country and the study course, and it ranges from 200 hours in Italy (for Tourism studies), up to six months in Austria and Greece (for technical studies), to the non-mandatory internship of Hungary (Tourism studies).

This is evident in the average answers about the skills of the graduates, and other questions on this topic: in Italy most of all, but also in Hungary, had no experience of hosting an intern, but generally willing to try, and their suggestions are more vague; in Greece and particularly in Austria, experience with graduate students results in more detailed suggestions and comments in relation to students skills, and to curriculum development.

In general, it should be said that respondents from all countries agree in the following points:

- there is a need of linking theory to practice;
- seasonality plays a role – it is different to have the internship in different moments of the year;
- there is a need of having a shared ‘formative plan’ with established role and tasks of the intern within the company (sometimes expectations are too different).

Respondents from Austria are much more detailed, with comments like:

It is essential that students learn in university how important the region is and what are its pros and cons. Also, financial understanding is important; students should understand the international financial development (Austria)

It is particularly relevant that a huge part of respondents mentions the importance of “personal traits”, or attitudes of the student as a person, more than the skills he or she has: “motivation” is mentioned several times as a key element making the internship period fruitful for both parties but particularly for the student, as well as “open mind”, “flexibility” and “entrepreneurial mindset”.

Motivation as the most important attribute (Austria)

It depends on people who come, and if they want to learn (Italy)

Age of the students makes a huge difference, the older, the better – more focused and sure that they want to learn (Austria)

The motivation must come from the student himself/herself, some general requirements as an entrepreneurial mindset must be given (Austria)

It is not important what the student brings along, no real knowledge is required, it is important to be open-minded, motivated, it can be helpful to know basics to know what you are talking about, but in general motivation is the most essential (Austria)

Higher education students in many cases do not have the necessary expertise but the attitude to work and the human aspect are more important at the beginning (Hungary)

General problems: motivation for work, moral for work (Austria)

Personality plays a greater role here than the training received at the university (Austria)

The attitude of generations is different, the younger "think badly" (money-centric). (Hungary)

Hard skills needs (e.g. technical skills in wine production) are pointed out by some of the respondents, while others stress the importance of transversal skills, as in example foreign languages, and soft skills, such as team working, communication/negotiation, time management, and so forth.

Other important skills: being a team player, being friendly, open-minded,... (Austria)

Negotiation techniques in the practical use, in export with distributors this is very important (Austria)

Knowledge of English and German languages are needed (Hungary)

The need of being “transversal” in terms of skills - a winery is a small company where everyone is expected to do everything needed for the business - is well expressed by the following quote:

People from production have to be capable of representing the company on the market as well as people that represent the company have to understand the processing and should not be a pure theoretical person, for representing the wine international you have to have the knowledge how it is produced, so working hands on the product during the year is the most important aspect (Austria)

Technical skills are also mentioned by a few respondents (7), in particular from one of the addressed Regions (Tuscany). Another issue with regional dimension comes from Greece, where almost all respondents refer about the need of continuous training, both for students and winery workers.

A few critical points that can hinder cooperation between universities and companies through internships are mentioned, e.g.

- the size of the companies, too small to provide an “engaging working environment” (Austria), and to have “the time to train them” (Italy)
- the fact that “wineries and farmers want to work individually and do not want to share their ideas, they are afraid of copy cats” (Austria)

3.3.1 Policy makers

Consulted policy makers represent national, regional and intermediate bodies (e.g. Chamber of Commerce, Development agencies) and key respondents (e.g. Touristic bodies) from the four addressed countries, with the involvement of more than one region in Italy (Tuscany, Valle d’Aosta, Lombardy and Friuli Venezia Giulia), and more than one Department at the Ministry of Agriculture in Greece (Agricultural Policy, Food Policy, Wine Policy).

Theme 1 – Difficulties of wineries

Differently from the winemakers, bureaucracy and heavy taxation are mentioned as difficulties only in Greece (3 out of 5 respondents), while the most relevant issue identified by policymakers is related to staff, both **labour shortages and low degree of professionalisation** (12 out of 16 consider this among the difficulties for a small winery in disadvantaged area).

The reported problem with the staff has different aspects, including

- hiring of temporary staff, that can be difficult for legal/contractual reasons (Italy)
- intergenerational knowledge transfer (Italy)
- not sufficiently trained/qualified staff (Greece, Austria, Hungary)

About the half of respondents, distributed in all four addressed countries, point out also the **size of the company** as a main problem: this relates both to the limited production volume and to the capacity of having specialised staff taking care of marketing and sales.

To this, a lack of investments represents a critical issue, particularly for the **low access to capital and banks loans** (particularly in Greece).

Other difficulties pointed out include lack of infrastructures and services, position (proximity to the markets), low bargaining power with retailers and sales agents, lack of raw materials, global competition (global market), which is hardly accessible to small players, low connection with other local markets, particularly tourism.

A specific difficulty is pointed out by Greek respondents, and others do not share it: this is a technical difficulty related to the **variety of vines**. Lack of investment in local varieties and lack of a national genetic bank of vines is considered a central difficulty for 4 out of 5 respondents.

Theme 2 – Potential of cooperation

The **cooperation between wine companies and universities** is considered significant by the policymakers, and entails actions as

- joint research, e.g. “on phytopathology” (Greece), “vineyard techniques (climate change, diseases, organic production) and cellar technology (yeast, fining and technical innovations)” (Austria), “on tourism” (Austria);
- product development (Greece);
- internships, students mobility and/or field visits, to favour knowledge exchange (Italy, Austria) and young entrepreneurship (Italy);
- lifelong learning and training opportunities for wineries’ staff (Greece, Austria). Greek respondents also mention e-learning as promising training channel for wineries in disadvantaged areas;
- business and marketing plans development (Greece, Austria).

Three respondents from Greece also stress that the cooperation should include policymakers.

The **value of networking** is also recognised by respondents from all countries, with more emphasis from Hungarian and Italian respondents, and focus on tourism by Austrian respondents.

Theme 3 – Potential for development

Additional to the networking relevance, specific potential for development is given to **linkages between tourism and wine** (Austria, Greece) and to **linkages with cultural heritage** (Italy, Hungary, Austria), which are aspects differently named, but interlocked:

I believe that the interaction between the territory, the art, the culture and the wine is essential above all in a territory as ours where the traditions are very strong and felt (Italy)

People are also looking for experiences during their travels and gastronomy. It is important for both older and younger generations to experience local experiences related to the area. This trend in tourism today appreciates the role of small businesses and local producers (Hungary)

Potential obstacles to the development of territorial touristic offer that includes wine could be related to the ‘culture’ of wineries:

People will not go to the wineries that are not open to tourists as they can feel the conservative approach of the wineries and prefer to go to open-minded locations (Austria),

or a not immediate return of investment:

Some wineries report that, according to their experience, also other initiatives are of interest, but then there is not always a commercial response; in other cases it may be that someone interested in a cultural event is not said that is interested also in wine consumption (and vice versa). (Italy)

Among other issues, the most relevant development is deemed to take place by making stronger the relationship between universities and business through *internships and mobility of students* (Greece, Austria), and *by providing training to companies* (Greece, Austria).

Additional suggestions include joint organisation of food and wine festivals (Greece),

Theme 4 – Skills mismatch

The main identified difficulty is again on a *limited link between theory and practice*, that can be better addressed by the increase of quality internship periods.

However, skills mismatch is well identified with regards to a *specific set of skills*, as in example business and marketing skills, which would require a *revision of study curricula*:

Often you risk to put in the cellar young people that don't have developed entrepreneurial skills. This "sacrifices" the potential of the same young people, some of them can be talents that can become key players for the sector and the territory if well supported by the university-business cooperation (Italy)

Graduates' lack of knowledge about the market and consumer demands (Greece)

Finance is a major issue – if you want funding you need to have the knowledge how to get it and how to work when you got funding (Austria)

For study programs it is important to change over time, ask the consumers (wineries that take the graduates) what they need and how the needs to be changed (Austria)

Wineries need to have experience in marketing too (Hungary)

A few also mention the potential role of the students in the frame of *knowledge/innovation transfer*, and in the role of the *alumni as mentors*, or informants, linking the university with the market:

It would be interesting bringing students back as external lecturers sharing experiences with current students (Austria)

Graduates can play a very important role, and their performance in support of local development and innovation transfer can be positively supported if cooperation between universities and business is developed (Italy)

3.4 Conclusive remarks

In general, by comparing the data provided by the two target groups, some elements are identified and shared across regions and countries in all explored dimensions, as follows:

- a) The size of the company makes a considerable difference: small companies have difficulties to access markets and have strong positions in bargaining, to have resources to invest and get loans from the banks, to attract qualified workers, to manage the business necessary beyond production (planning, administration, marketing). This is shared in the views of the two samples. Limited production is mostly considered as a strength (niche, high quality product) by wine makers, while for policy makers is considered more as a weakness, for the lower impact on the market.
- b) Location of the company also plays a relevant role, as disadvantaged locations entail higher costs of transportation, which impact on the price of the final product, difficulties with the attraction of workers, also seasonal workers, and challenging mechanisation.
- c) Networking is considered relevant, or very relevant at all levels, but the meaning and goal of networking are not always shared, as meant mostly as mutual support or considered as a strength for

development by winemakers. Policy makers recognise networking between universities, companies and policymakers as an asset, but seem to consider less crucial local networking.

- d) Most of wine makers are positive toward and increased cooperation with universities, in all fields (from research, to internships and curriculum development).
- e) Development of a territorial-based action (links with identity, cultural heritage, traditions etc.) is considered relevant, but requires investments most probably from policymakers regarding financial support and policy planning, and from winemakers in terms of time and effort. Tourism, including wine tourism, is considered the most promising field for development.
- f) Mismatch of skills is mostly related to a missing link between theory and practice, and a lack of educational offer in business, marketing, and financial skills, which are fundamental for a small company. Transversal and soft skills are also considered important.

Some divergent view can be retrieved in the evaluation of the impact of bureaucracy and taxation (policymakers do not consider these among the main issues, while the companies pinpoint this as difficulty).

Contextual elements, national or regional-based, make a difference in evaluating difficulties particularly much more than opportunities, as are related to the geographical position or climate, or to legal frameworks (appellations, regulations, bureaucracy, taxation etc.).

4. WINE WITH STUDENTS EYES: THE SURVEY

4.1 Introduction

The student survey aimed at including the point of view of higher education students to the exploratory research, and to assess the potential of the wine sector as a future sector of employment, directly in small wineries, indirectly as agribusiness or in other segments of the chain for the target.

4.2 Scope and Methodology

The survey has been implemented through a self-administered, online-based questionnaire that has been provided in the languages of the consortium and English.

To reduce respondent variability and reduce the time and resources taken up by translating responses, the questionnaire has included as many questions as possible in the form of checklists (tick-boxes) and multiple-choice questions; Likert scales, minimising the use of closed-constructed response items (which require one word or short phrase answers) and open-constructed response items (which require more extensive writing).

The scope of the questionnaire was to cover the following areas/contents:

Table 11. Student survey content

Area	Content
Respondent Profile	Country Age group Gender Student status (undergrad; masters; post-grad) Current course subject
Work experience (if any)	Paid/unpaid work (seasonal work; volunteering; etc.) Sector of work
Experience of the sector	As worker (wine, agriculture, tourism) As customer (wine, agriculture, tourism)
Perceptions about the sector	Perceived relevance of the sector for local development Perceived relevance of the sector for job creation Perceived weaknesses/strengths of the sector Perceived employment potential of the sector
Expectations of future employability	Perceived competences need Perceived relevance of relations between university and enterprises of the sector

Formal validation of the questionnaire has been carried out cognitive interviews to a sample of the target population (4 students), to identify problematic questions that may elicit response error (Willis, 2015): verbal probing has been used as technique for this process.

The survey was launched in May 2017 and closed in June 2017.

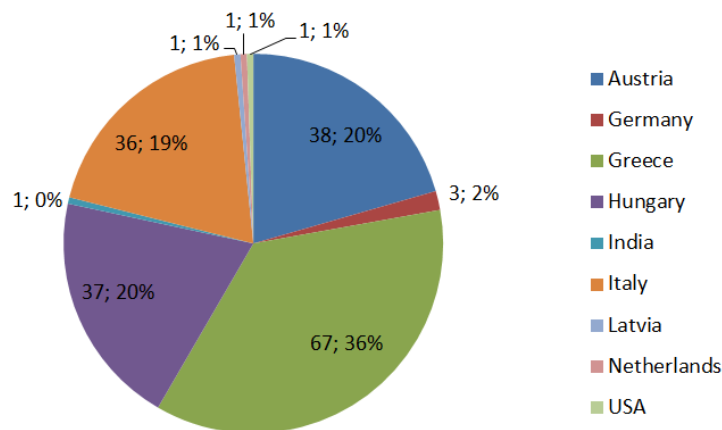
4.3 Findings

Sample

185 filled questionnaires were collected (male 71;38%, female 114;62%). Participants were mostly BA students (128;69%), followed by MA students (45;24%) and post grad (12;7%). The half of respondents declared to be aged 18-24 (123;50%), 105 (43%) aged 25-32, and 18 (7%) over 32 years old.

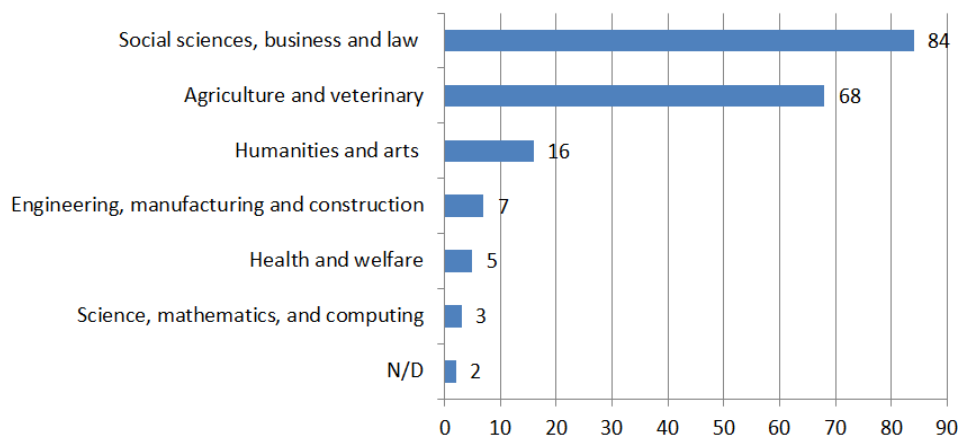
Geographical distribution included 9 countries, as in figure 1. 15 out of the total were not studying in the country of nationality (Erasmus students or other); 3 were nationals of a Third Country.

Figure 1. Collected questionnaires by geographical distribution



Most of the respondents are studying subjects included in disciplinary area Social Sciences, Business and Law (45%), including Tourism and related subjects. About the 37% is enrolled in degrees courses related to Agriculture (including Oenology).

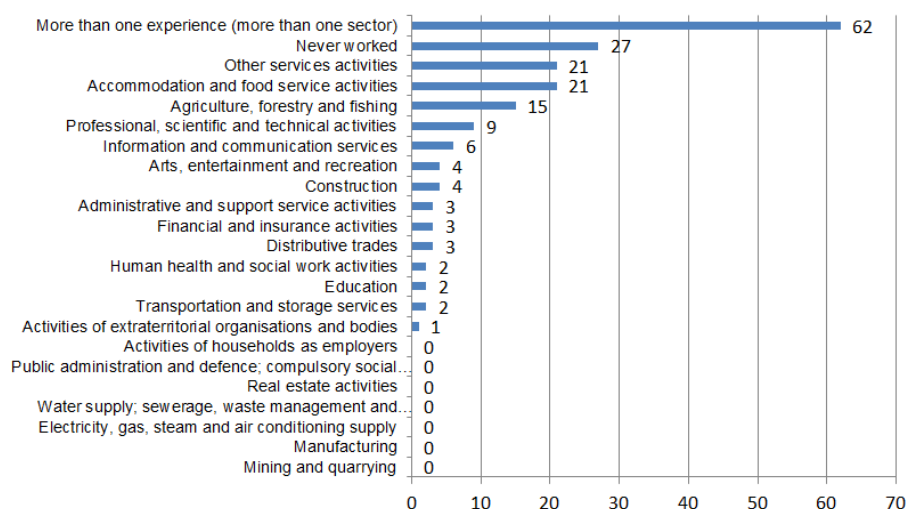
Figure 2. Sample by study area (in numbers)



Work experience

The 14,50% (27) of respondents did not have a previous working experience; the majority (62;33,50%) had experiences in more than one sector, as in Figure 3.

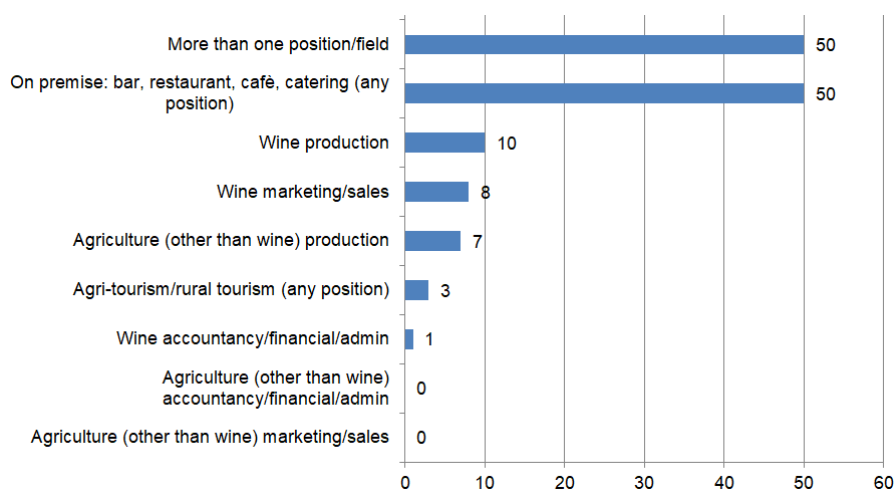
Figure 3. Previous work experience per sector (in numbers)



Experience of the sector

As regards specific sector, about the 70% (129) had an experience in a position related to agriculture, including wine, and related fields such agri-business, distribution and retailing, as in Figure 4.

Figure 4. Previous work experience in agriculture and related fields (in numbers)



As regards knowledge of the sector in their area, the 83% (153) of respondents declare that their area is a wine producer, the 73% have visited at least one winery in the area, and the 79% (146) declare to know some of the wines produced in the area.

Perceptions about the sector

Asked about their perception of the wine sector in their area, the respondents show a rather homogeneous feeling that the country of origin and the uniqueness of grapes and products are strengths of the sector. On the contrary, it appears that links with industry and centres of research are considered weaker than other elements.

As well, it is quite homogeneous the perception about the relevance of the wine sector overall for local development, while on the contrary, job opportunities – actual and perspective – are not considered to have enormous potential, even if in general it is estimated that the sector has not fully exploited its potential yet.

Table 11. Perceptions about the wine sector

	Average	S.D.
Most relevant strengths of the wine sector in the area (scale 5 - very relevant; 1 - very irrelevant/weakness)		
Country of origin	4,19	0,90
Networks of producers	3,75	0,97
Wine Tourism	3,92	0,97
Communication	3,96	0,94
Export orientation	3,66	1,03
Link with industry association	3,42	0,91
Link with Research Centres and Universities	3,22	1,15
Capability to organizing events	4,08	0,97
Uniqueness of grapes and products	4,18	0,95
Perception about the area (Rating of statements on scale from 5 - fully agree to 1 - fully disagree)		
The wine sector is relevant for local development	4,31	0,88
The wine sector has a high potential for employment (in this moment)	3,77	1,01
The wine sector has a high potential for job creation (in the future)	3,90	1,04
In this area the potentialities of the wine business are fully exploited	3,19	1,05
Companies in the area that operate in the wine business are innovative	3,44	0,87

Looking at disaggregated data by country, the comparison does not provide remarkable differences on the above figures, at least as regards strengths of the wine sector, as in the following table.

Table 12. Perceived strengths of the wine sector by country

Most relevant strengths of the wine sector in the area (scale 5 - very relevant; 1 - very irrelevant/weakness)										
	AT (20%)		GR (36%)		HU (20%)		IT (19%)		Other (5%)	
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD
Country of origin	4,18	0,87	4,09	0,88	4,41	0,79	4,25	0,91	3,71	1,60
Networks of producers	3,63	1,08	3,79	0,84	3,62	0,92	4,03	1,00	3,29	1,50
Wine Tourism	3,74	1,03	3,99	0,88	4,16	0,83	3,97	1,00	2,86	1,35
Communication	4,11	0,86	3,79	0,84	4,19	0,81	3,94	1,15	3,57	1,40
Export orientation	3,58	1,13	3,93	1,03	3,32	0,88	3,78	0,90	2,71	0,76
Link with industry association	3,21	1,02	3,54	0,88	3,35	0,82	3,58	0,91	2,14	0,69
Link with Research Centres and Univ.	2,74	1,13	3,42	1,13	3,32	0,94	3,47	1,23	2,14	0,69
Capability to organizing events	3,89	1,01	4,10	1,05	4,38	0,59	3,97	1,06	3,86	1,07
Uniqueness of grapes and products	4,03	1,13	4,30	0,82	4,51	0,65	3,89	1,06	3,57	1,27

Some difference is retrievable in the perceptions regarding the employment potential, that ranges from the 2,78 in Hungary to the 4,17 in Italy.

Table 13. Perceptions about the area (development and employment potential) by country

Perception about the area (Rating of statements on scale from 5 - fully agree to 1 - fully disagree)										
	AT (20%)		GR (36%)		HU (20%)		IT (19%)		Other (5%)	
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD
The wine sector is relevant for local development	4,11	1,06	3,42	1,13	3,92	0,86	4,44	0,77	4,14	0,69
The wine sector has a high potential for employment (in this moment)	3,63	0,94	4,10	1,05	2,78	0,92	4,17	0,85	3,14	0,38
The wine sector has a high potential for job creation (in the future)	3,29	0,92	4,30	0,82	3,38	1,21	4,08	0,97	3,57	0,53

In this area the potentialities of the wine business are fully exploited	3,08	0,94	3,60	1,06	2,70	1,05	3,14	0,93	2,71	2,95
Companies in the area that operate in the wine business are innovative	3,11	0,98	3,72	0,88	3,57	0,73	3,14	0,72	3,43	0,53

The same slight differences are observable by looking at the perceptions by field of study: no remarkable differences can be retrieved, except for the scoring of the employment potential, that ranges from the mean value of 2,86 for the Engineering, manufacturing and construction area, to the 4,20 of Health and Welfare are. However, as these represent a small portion of the sample, it is more important to stress the substantial homogeneity of perceptions between the disciplinary area Agriculture and Veterinary, which is addressed at providing more technical skills to the wine companies, and the Social Sciences, Business and Law, which usually provides all other professionals necessary to run a business (e.g. to manage administration, marketing, commercial, etc.), with 0,5 of difference in the average score.

Table 14. Perceptions about the area by field of study³

Most relevant strengths of the wine sector in the area (scale 5 - very relevant; 1 - very irrelevant/weakness)												
	SSB&L (45%)		A&V (37%)		H&A (9%)		ENG (4%)		H&W (3%)		Other (2%)	
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD
Country of origin	4,18	0,92	4,12	0,88	4,63	0,62	4,00	1,41	4,40	0,89	4,00	0,71
Networks of producers	3,17	1,03	3,98	0,92	3,69	0,87	3,86	1,35	4,60	0,55	3,40	0,55
Wine Tourism	3,84	1,01	3,99	0,90	4,19	0,98	3,57	1,27	4,40	0,89	3,80	0,84
Communication	3,95	0,97	3,85	0,87	4,63	0,62	3,57	1,27	3,80	0,84	4,00	1,00
Export orientation	3,52	1,00	3,87	1,04	3,56	1,03	3,43	1,27	4,20	0,84	3,40	0,89
Link with industry association	3,54	0,92	3,52	0,89	3,38	0,96	3,00	0,82	3,80	0,84	3,60	0,89
Link with Research Centres and Univ.	3,09	1,19	3,43	1,16	3,31	0,79	2,57	0,98	3,00	1,22	3,40	1,14
Capability to organizing events	3,95	0,99	4,15	1,00	4,50	0,63	4,14	1,07	4,00	0,71	4,00	1,22
Uniqueness of grapes and products	4,04	1,07	4,37	0,78	4,31	0,79	3,86	1,35	4,00	0,71	4,20	0,84

Perception about the area (Rating of statements on scale from 5 - fully agree to 1 - fully disagree)												
	SSB&L (45%)		A&V (37%)		H&A (9%)		ENG (4%)		H&W (3%)		Other (2%)	
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD
The wine sector is relevant for local development	4,08	0,98	4,57	0,74	4,44	0,81	4,29	0,49	4,40	0,89	4,40	0,55
The wine sector has a high potential for employment (in this moment)	3,53	1,04	4,21	0,81	3,69	1,01	2,86	0,90	4,20	0,84	3,20	1,10
The wine sector has a high potential for job creation (in the future)	3,65	1,01	4,36	0,93	3,69	0,79	3,71	1,50	3,80	0,84	3,00	1,22
In this area the	3,06	0,94	3,51	1,15	2,81	1,11	3,14	1,21	3,00	0,71	2,60	0,55

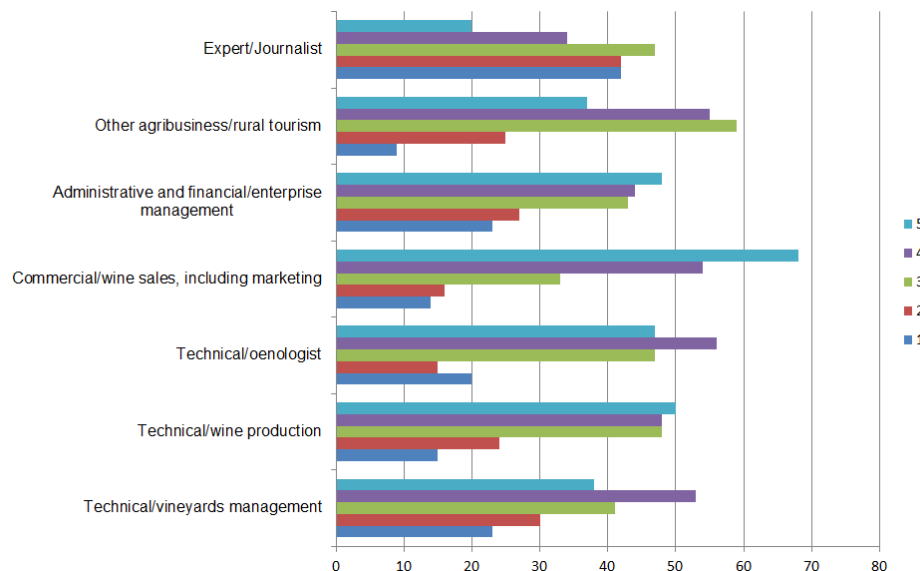
³ Legend: SSB&L Social Sciences, Business and Law; A&V Agriculture and Veterinary; H&A Humanities and Art; ENG Engineering, manufacturing and construction; H&W Health and Welfare; Other (other disciplines or not specified)

potentialities of the wine business are fully exploited												
Companies in the area that operate in the wine business are innovative	3,27	0,88	3,69	0,89	3,50	0,82	3,29	0,49	3,40	0,55	3,00	0,71

Expectations of future employability

Asked about their willingness to work in the wine sector (intended at a large, then also agri-business and rural tourism), in any position, the 73% (135) declare that they would consider a career in wine. The overall sample responses to the possible position is shown in Figure 5.

Figure 5. Desired position in a potential wine career (in numbers)



Competencies and skills

Students have also been asked to assess the relevance of different competencies to work in the wine sector: the proposed list included technical skills, specific and transversal skills, and soft skills. Respondents scored all skills as relevant or very relevant, with slight predominance (4,84 as mean, with 0,81 of standard deviation) of organisation and planning.

It is important to notice however that in general soft skills (strategic planning, entrepreneurial thinking, organisation and planning, negotiations, communication, teamwork, problem solving, decision making, time management and creativity) are all scored above 4, with Creativity reaching the mean of 4,47 on maximum 5, with a minimum standard deviation.

Table 15. Perceived competences and skills relevant to the wine sector

	Average	S.D.
Competences considered relevant for working in the field of wine, in any role mentioned in the previous question, on a scale from 5 (very relevant) to 1 (very irrelevant)		
Marketing	4,31	0,84
Strategic Planning	4,19	0,82
Entrepreneurial Thinking	4,32	0,82
Organisation and Planning	4,84	0,81

Talent Management	3,93	0,92
Finance/Accounting	3,64	1,11
Information Technology	3,80	1,07
Sales Experience	4,09	0,99
Social Media Savvy	4,08	0,91
Scientific Knowledge	4,08	1,05
Negotiations/Bargaining	4,06	0,96
Communication and Presentation Skills	4,43	0,80
Foreign Languages	4,25	0,96
Technical Knowledge (e.g. vineyards, soil, grapes, etc.)	4,49	0,96
Teamwork	4,43	0,76
Problem Solving	4,44	0,79
Decision making and Leadership	4,28	0,88
Time Management	4,39	0,81
Creativity	4,47	0,78

Disaggregated data by country confirm in general the previous picture, with no significant difference among countries.

Table 16. Relevant competencies for the wine sector, by country

Competences considered relevant for working in the field of wine, in any role mentioned in the previous question, on a scale from 5 (very relevant) to 1 (very irrelevant)										
	AT (20%)		GR (36%)		HU (20%)		IT (19%)		Other (5%)	
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD
Marketing	4,50	0,75	4,06	0,95	4,57	0,60	4,31	0,92	4,29	0,86
Strategic Planning	4,32	0,62	3,96	0,93	4,43	0,73	4,33	0,79	3,86	0,90
Entrepreneurial Thinking	4,50	0,73	4,21	0,79	4,41	0,83	4,25	0,91	4,43	1,13
Organisation and Planning	4,39	0,68	4,28	0,90	4,43	0,80	4,25	0,84	4,43	0,53
Talent Management	3,68	0,87	4,10	0,84	3,86	0,89	4,03	1,06	3,43	0,98
Finance/Accounting	3,58	1,13	3,54	1,00	3,78	1,06	3,89	1,17	2,86	1,57
Information Technology	3,58	0,98	4,00	1,03	3,81	1,10	3,78	0,96	3,14	1,86
Sales Experience	4,34	0,91	4,00	0,97	3,97	0,93	3,89	1,12	3,43	1,72
Social Media Savvy	4,03	0,82	3,96	0,99	4,03	0,93	4,33	0,86	4,57	0,53
Scientific Knowledge	3,66	0,81	4,52	0,82	4,16	1,01	3,89	1,12	2,71	1,70
Negotiations/Bargaining	4,11	0,92	3,90	0,92	4,41	0,72	4,17	1,0	3,14	1,57
Communication and Presentation Skills	4,55	0,99	4,31	0,74	4,46	0,93	4,53	0,84	4,29	0,95
Foreign Languages	4,29	0,87	4,28	0,92	4,16	1,07	4,28	1,00	4,00	1,29
Technical Knowledge (e.g. vineyards, soil, grapes, etc.)	4,42	0,76	4,66	0,73	4,59	0,69	4,36	1,13	3,43	1,72
Teamwork	4,21	0,66	4,58	0,68	4,51	0,69	4,28	0,97	4,43	0,79
Problem Solving	4,34	0,81	4,48	0,70	4,73	0,53	4,25	1,00	4,00	0,82
Decision making and Leadership	4,34	0,78	4,10	0,89	4,54	0,61	4,36	1,02	3,71	1,25
Time Management	4,55	0,65	4,36	0,73	4,41	0,90	4,28	1,03	4,29	0,76
Creativity	4,21	0,81	4,55	0,63	4,59	0,80	4,44	0,94	4,67	0,79

Looking at the figures provided by field of study, again there is no significant differences across the sample: slight and obvious differences, although not very high, can be retrieved between the area Social Sciences, Business and Law that consider as Marketing the most important competence for the sector (mean 4,58), where Agriculture and Veterinary consider Technical Knowledge, e.g. vineyards, soil, grapes, etc., as the most important (4,69).

Table 17. Perceived competences and skills relevant to the wine sector, by field of study⁴

Competences considered relevant for working in the field of wine, in any role mentioned in the previous question, on a scale from 5 (very relevant) to 1 (very irrelevant)												
	SSB&L (45%)		A&V (37%)		H&A (9%)		ENG (4%)		H&W (3%)		Other (2%)	
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD
Marketing	4,58	0,71	4,09	0,95	4,25	0,68	3,71	0,49	4,20	0,84	3,80	0,84
Strategic Planning	4,39	0,71	3,97	0,92	4,25	0,68	4,14	0,69	4,00	1,22	4,00	1,00
Entrepreneurial Thinking	4,47	0,73	4,25	0,77	3,60	1,14	3,86	1,35	3,60	1,14	3,60	1,34
Organisation and Planning	4,42	0,71	4,33	0,89	3,80	0,84	4,00	1,15	3,80	0,84	3,80	1,10
Talent Management	3,87	0,92	4,07	0,88	3,80	0,84	3,29	1,38	3,80	0,84	3,60	0,89
Finance/Accounting	3,78	1,07	3,58	1,05	3,60	1,52	3,14	1,35	3,60	1,52	3,20	1,10
Information Technology	3,84	0,92	3,94	1,09	3,40	1,34	2,71	1,50	3,40	1,34	3,60	0,89
Sales Experience	4,22	0,90	4,03	0,97	4,20	0,84	3,29	1,70	4,20	0,84	3,80	1,10
Social Media Savvy	4,27	0,75	3,94	0,98	4,00	1,00	3,00	1,41	4,00	1,00	3,80	1,30
Scientific Knowledge	3,88	0,98	4,48	0,86	4,60	0,55	3,43	1,72	4,60	0,55	4,00	1,00
Negotiations/Bargaining	4,22	0,93	3,90	0,82	3,80	1,30	4,14	0,90	3,80	1,30	3,80	1,10
Communication and Presentation Skills	4,56	0,78	4,37	0,94	4,20	0,45	4,29	1,50	4,20	0,45	3,60	0,89
Foreign Languages	4,35	0,90	4,31	0,92	3,80	1,64	3,57	1,51	3,80	1,64	4,00	0,71
Technical Knowledge (e.g. vineyards, soil, grapes, etc.)	4,48	0,87	4,69	0,66	3,80	1,64	4,00	1,53	3,80	1,64	4,40	0,89
Teamwork	4,36	0,72	4,52	0,75	4,40	0,89	3,71	1,38	4,40	0,89	4,80	0,45
Problem Solving	4,44	0,81	4,52	0,68	4,20	0,45	3,57	1,40	4,20	0,45	4,60	0,89
Decision making and Leadership	4,42	0,78	4,15	0,87	3,60	1,14	3,57	1,62	3,60	1,14	4,20	0,84
Time Management	4,48	0,75	4,37	0,71	4,20	0,84	3,57	1,81	4,20	0,84	4,00	1,00
Creativity	4,42	0,81	4,61	0,58	4,20	0,84	4,29	1,50	4,20	0,84	4,60	0,89

Students as future workers

The final section of the questionnaire was intended to investigate on the wine sector as a market for employment specifically, and the perceived employability by students in relation to that, including the role of Universities for employability purposes. In general, respondents stressed the importance of university curricula that should be consistent with the expectations from enterprises and tuned through co-design.

A slight discouragement can be seen in the perceived perspectives as graduates (3,33) and the feeling of being prepared for the market (3,42), according to the companies' needs.

Table 18. Perceived market and employability in the wine sector, general

Rating of statements from 5 (strongly agree) to 1 (strongly disagree) on perceptions of respondent as future worker		
Agri-food and agri-tourism are promising job markets	3,79	0,96
Universities should design curricula on the basis of market needs, by working together with companies	4,38	0,88
Universities provide links to the labour market and support students and graduates to	3,69	1,24

⁴ Legend: SSB&L Social Sciences, Business and Law; A&V Agriculture and Veterinary; H&A Humanities and Art; ENG Engineering, manufacturing and construction; H&W Health and Welfare; Other (other disciplines or not specified)

find a job

There is generally a strong demand for graduates at present

3,33 1,03

The skills and the abilities that I will possess as graduate are what employers are looking for.

3,42 1,05

Data by country appear quite similar to general data, and generally homogenous, except for the perception as agri-food and agri-tourism as promising job markets, for which Italian respondents seems to be more confident. This can depend by national policies and related communication about the potential of food and tourism as promising fields for economic development.

The importance of joint development of university curricula between universities and business is confirmed in all countries.

Table 19. Perceived market and employability in the wine sector, by country

Rating of statements from 5 (strongly agree) to 1 (strongly disagree) on perceptions of respondent as future worker											
	AT (20%)		GR (36%)		HU (20%)		IT (19%)		Other (5%)		
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD	
Agri-food and agri-tourism are promising job markets	3,50	0,80	3,91	0,90	3,30	1,15	4,39	0,69	3,71	0,49	
Universities should design curricula on the basis of market needs, by working together with companies	4,29	1,01	4,22	0,95	4,54	0,56	4,56	0,88	4,57	0,53	
Universities provide links to the labour market and support students and graduates to find a job	3,95	0,98	3,40	1,28	4,65	0,72	2,94	1,22	3,71	1,11	
There is generally a strong demand for graduates at present	3,21	0,84	3,43	1,09	3,30	1,10	3,22	1,05	3,71	0,95	
The skills and the abilities that I will possess as graduate are what employers are looking for.	3,68	0,84	3,55	1,02	3,11	1,17	3,19	1,09	3,43	1,13	

Also taking into account field of studies, and particularly the two most representative fields (Social Sciences, Business and Law and Agriculture and Veterinary, that represent together the 82% of the sample), the overall scoring does not provide evidence of what already said for previous analysis.

Table 20. Perceived market and employability in the wine sector, by field of study⁵

Rating of statements from 5 (strongly agree) to 1 (strongly disagree) on perceptions of respondent as a future worker												
	SSB&L (45%)		A&V (37%)		H&A (9%)		ENG (4%)		H&W (3%)		Other (2%)	
	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD	Av.	SD
Agri-food and agri-tourism are promising job markets	3,81	0,92	3,87	0,94	3,63	0,96	3,57	1,27	4,20	1,10	2,80	1,10
Universities should	4.46	0.89	4.27	0.91	4.31	0.79	4.43	0.79	4.20	0.84	4.80	0.45

⁵ Legend: SSB&L Social Sciences, Business and Law; A&V Agriculture and Veterinary; H&A Humanities and Art; ENG Engineering, manufacturing and construction; H&W Health and Welfare; Other (other disciplines or not specified)

design curricula on the basis of market needs, by working together with companies												
Universities provide links to the labour market and support students and graduates to find a job	3,86	1,12	3,48	1,26	4,19	1,22	3,14	1,35	1,80	0,84	4,60	0,89
There is generally a strong demand for graduates at present	3,27	0,88	3,42	1,14	3,06	1,12	3,86	1,21	3,00	0,81	3,60	1,52
The skills and the abilities that I will possess as graduate are what employers are looking for.	3,40	0,98	3,54	1,08	3,12	0,96	3,54	1,08	3,20	0,84	2,60	1,52

4.4 Conclusive remarks

The survey data provide a quite homogeneous picture on how the wine sector is “seen with the student's eyes”, as a general view on the sector in different wine areas, as perceived strengths and weakness of it, and as the potential for employment and employability.

This is particularly relevant considering that the sample is composed of a major representation of four countries, which are the countries of the consortium, having different territories and type of production: despite this, in fact, students see similar or common problems, such as the potential of the sector in terms of local development, with a good quality of products, and a potential not exploited yet, but with a less performant export orientation, capability of innovation and local networking, and ability to provide employment in upcoming years.

Looking at themselves, students declare their willingness to work in the wine business (either production, or any other position), but believe that there will not be relevant opportunities for them in the sector.

They recognise some skills as useful to work in wine, mainly technical skills related to production and sales, but also soft skills, however their perception about the potential of the sector as job provider in the future. It is particularly important to point out that the links between universities and business in terms of joint curricula development are considered crucial for the students, which are less convinced instead that in the present situation their skills are suitable for the market.

5. UNDERSTANDING AND ASSESSING NEEDS OF DIVERSE STAKEHOLDERS

The comparison of data from different target groups highlights main common elements that are recurrent in all countries and in each group of respondents. There is generally a clear perceived relevance of the sector for regional economies, particularly in terms of job creation; positive contribution to other sectors, particularly tourism; influence on regional brand definition. This is confirmed in different ways by all consulted targets – experts, wine makers, policy makers, students.

Analysis of perceived strengths and weaknesses for development are also mostly shared in the view of the addressed targets, and mostly confirm literature findings:

Strengths for development	Weaknesses to development
<ul style="list-style-type: none"> - High quality of products, niche products. - Location as set of tradition and culture, which also relates to wine tourism in the frame of rural tourism. 	<ul style="list-style-type: none"> - Wineries size, as most of the wineries are micro-companies, family businesses with little capacity of creating jobs or increase their production. - Location, which entails more costs for production, transportation, etc. - Financial challenges, as access to capital and cost management, including management of bureaucracy duties.

The value of networking for development is instead less clearly shared among target groups: both local/regional networking, and university-business cooperation are considered generally important, but with differences in their meanings and goals.

	Panellists/experts	Wine makers	Policy makers	Students
Networking with peers and stakeholders	Local networking as leverage for regional development	Local networking relevant for reciprocal support	Local networking not relevant as national networking (system level)	Local networking relevant, but the quality of product much more relevant
University-Business cooperation	Relevant in all areas of UBC	Relevant in particular for technical research (e.g. agronomy, mechanisation, etc.)	Very relevant for research, lifelong learning, and students mobility	Relevant mostly for curriculum design

Looking at the needs of the companies in terms of workforce, a preliminary differentiation should be made between seasonal workers, and permanent workers. Wine makers focus mostly on the first group, as this represent a key necessity for harvesting period; policy makers, and to some extent also experts, instead focus mostly on the second group, taking a more wide perspective on territorial development and job creation, and considering the sector in its potential of direct employment, and indirect employment source (e.g. agri-business, wine tourism, rural tourism).

Relations between university-business in terms of students transitions obviously focus on permanent job, to which several areas of UBC contribute (mobility of students; curriculum development; entrepreneurship). While this has not been deeply explored through the Delphi, specific questions on required competencies and skills have been administered to winemakers, policymakers and students, to understand how cooperation can be improved and deployed to the aim of facilitating transitions between education and work.

Generally, there is consensus among the three addressed targets:

	Wine makers	Policy makers	Students
Hard skills/technical (agronomy, production, etc.)	Relevant, but most is learned in the company	Relevant as minimum standard, but the learning on the job is more important	Very relevant, curricula should be reviewed
Hard skills/business, financial, marketing	Very relevant	Very relevant	Relevant, but not always (e.g. financial deemed not very important)
Soft skills	Very relevant	Very relevant	Very relevant
Transversal skills	Relevant, particularly foreign languages	Relevant	Relevant, but not as others (in particular digital skills not very important)

The most relevant trait that can be identified by analysing data is in any case the need of better linking theory and practice: internship are a powerful tool to this aim, however often expectations between wineries and students are not sufficiently aligned.

Furthermore, both wineries and policy makers point out the need of business skills for students, stressing that a small business is still a business which requires management skills. Both targets refer about weaknesses in students preparation in facing the ‘business environment’ much more than the work itself, for which soft skills and motivation are more determinant to succeed. To the other side, students agree on the relevance of soft skills, but are still convinced that technical skills are more relevant, underestimating in example the need of financial/accountancy skills.

6. CONCLUSIONS AND RECOMMENDATIONS

Research activities within The Wine Lab project aimed to set up the theoretical and practical ground of the following work, to learn from the context and be updated on state of the art in the field, and to identify perceived opportunities, constraints and needs of the sector.

Different target groups have been consulted by using different instruments, namely the Delphi technique for experts, semi-structured interviews for winemakers, policymakers, and key local respondents; an online survey for students. These have been designed on the basis of a preliminary literature review, which has also been the starting point for comparison with collected data in the areas of investigation, and which has been enriched with data analysed through desk research on running practices in university-business cooperation in the field of wine.

Area of the investigation, differently deployed across targets and applied methods for collection, have been:

- Difficulties of wineries located in disadvantaged areas
- Potential of university-business cooperation, and networking action at local/regional level between wineries and other stakeholders;
- The potential for territorial development, as actions based on the cultural heritage and identity strengths;
- Skills mismatch and employability.

A policy-focused inquiry was transversal to the areas.

Key conclusions can be summarised as follows:

Difficulties of wineries located in disadvantaged areas

In general, data confirm the difficulties of wineries already identified by the literature on small businesses, agricultural business, and particularly family business:

- Characteristics of the wineries: family estates show the typical problems that family businesses have, such as generational transition, leadership recognition, limited flexibility and so on.
- Size of the companies: small companies have difficulties to access markets and have strong positions in bargaining, to have resources to invest and get loans from the banks, to attract qualified workers, to manage the business necessary beyond production (planning, administration, marketing).
- Location of the company: being settled in a specific area might require extensive labour for cultivating grapes, higher costs of transportation, which impact on the price of the final product, difficulties with the attraction of workers, also seasonal workers, and difficult mechanization.
- Limited production: limited production can inhibit export and the chance of reaching a global market; the size could negatively affect firms' bargaining power towards distributors and retailers;
- Bureaucracy: this is seen as a big issue, perceived as inhibitor of entrepreneurial creativity, too much time consuming, and also a barrier to hiring new/seasonal workforce;
- Labour shortages: this applies both to seasonal and permanent workers, and it is considered dependent from the above-mentioned difficulties (e.g. disadvantaged location; little capacity of investment, then of attraction; the size of the company that has few senior positions etc.).

However, alongside difficulties, also strengths of small wineries have been highlighted, such as:

- Features of the products sold: having high quality wines shape a positive reputation of small wineries and it contributes to reinforce country image;
- Location and the set of tradition and culture are an asset for small wineries as well as typical grape varieties.
- Be niche players represents a great chance not only for a wider degree of flexibility in terms of margins, but also for the opportunity of carving out new niches where the degree of competition is lower.

University-business cooperation and networking

- Almost all respondents understand that they could benefit from a closer relationship, however it also appears clear that the gap between researchers and professional is still high, and the aim of cooperation is not completely shared;
- Relational drivers are confirmed as fundamental for the establishment of positive relations: building cooperation means therefore build trust between players;
- Producers and policy makers do not share the same view on local networking and its potential: producers are more focused on reciprocal support with peers and stakeholders, and useful cooperation with universities mostly for applied research tackling present problems, then looking at a short term impact; policy makers see networking at a system level, as combined cooperation in research, lifelong learning opportunities, preparation of future workforce (students), then looking at a long term impact;
- Internships, which is the most typical and easier form of UBC, is widely recognised as important, but also in this case there is a different perception by the target groups of the student him/herself, as “an employee” (producers) or as a “mediator of innovation” (universities), or as “future worker” in individual terms (student) or socio-economical terms (policy makers): this affects expectations and meanings of the internship experience of all involved players;
- Networking requires time: this is considered a barrier for a smooth development of regional networks.

Territorial development on cultural heritage

- Tourism is widely recognised as the most promising field for development;
- Region relevance: the proximity of wineries to final customers is recognised as mean for creating an interest towards the region and its cultural and touristic offer;
- Wine makers do not count very much on networking as mean for territorial development, but stress the need of financial investments from policy players.

Skills mismatch and employability

- Mismatch of skills is perceived above all on a missing link between theory and practice;
- Lack of business, marketing and financial skills, intended as transversal to all disciplines, is pointed out both by wine makers and policy makers, while students seem to be less aware about this aspect;
- Soft skills are widely recognised as crucial for employability by all targets;
- Job creation is not seen probable, neither by the producers, nor by the students: both of the targets however focus on the present situation, and not on a prospective opportunity (e.g. creation of jobs related to wine tourism);
- Students are not confident about their potential as graduates for the market, in general and also in

the specific sector.

Policies

- From the wine makers perspective, policies are not enough focused on interventions for specific needs (e.g. support for sustainable practices; support for export);
- Information about policies and their funding programmes are not enough clear for companies;
- Management of funding is perceived as too complicated for a small company.

On this background, the following **recommendations** are formulated, for the next stages of The Wine Lab project, but above all for contributing to the sector development:

- University business cooperation should be pursued in the wine sector, by taking advantage of all forms of joint work (joint research, product development, mobility of academics and students, etc.): the most important investment however should be put in **building trust** between players, and the organisation of joint activities should be designed to contribute to that;
- Networking at a territorial level should also be pursued: this can be done by the universities through the **involvement of tourism and cultural players**, such as companies, associations, and other concerned audiences, to the hubs meetings, or to events organised for the purpose. Also working with already existent events or networks by bringing in wine players can contribute to the purpose;
- Particularly universities need to work more effectively on **students awareness**, and on their capacity of understanding the territory and the business environment, and on the development of soft and transversal skills;
- Universities and business should deepen cooperation for **curriculum design**: this applies mostly to not-specific technical skills, as in example business skills. This will require support also from educational policymakers;
- **The internship** should be reinforced: the project behind the internship period should be defined, both sides (students and companies) should tune their expectations on the basis of a shared programme. Universities should be in charge of this process of improvement.
- Policymakers need to create more “**dialogue spaces and places**” with **local players**: even regional strategies such as the smart specialisation require local implementation, then common understanding and joint effort. To this aim, it could be considered that also not official events (e.g. consultations), but sectoral events can be spaces for sharing, understanding, and collect useful data for policy planning;
- Policy makers and intermediate bodies need to formulate more **effective communication** strategies on policies and make aware local players about their role in regional development.

REFERENCES

7th European University-Business Forum University-Business Cooperation - For Innovation And Modernisation Forum Report, 2017

Anderson, K. (Ed.). (2004). *The world's wine markets: Globalization at work*. Edward Elgar Publishing.

Aylward, D. K. (2003). *A documentary of innovation support among New World wine industries*. Journal of Wine Research, 14(1), 31-43.

Carayol, N. (2003). *Objectives, Agreements and Matching in Science–Industry Collaborations: Reassembling the Pieces of the Puzzle*. Research Policy, 32(6), 887-908

Cholette, S., Castaldi, R., & Frederick, A. (2005). *Globalization and the emergence of new business models in the wine industry*. International Business and Economics Research Journal, 4(3), 21-30.

COELHO, A., MONTAIGNE, E., & RASTOIN, J. (2006). Globalization of the World Wine Market and Restructuring of the Supply-Side. Research in Economics and Rural Sociology, INRA Social Sciences, (5-6).

European Commission (2011a), COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. *Supporting growth and jobs – An agenda for the modernisation of Europe's higher education systems*. COM (2011) 567 final. Brussels.

Costa-Font M., Serra T., Gil M., Gras A., (2009). *Explaining low farm-gate prices in the Catalan wine sector*, International Journal of Wine Business Research, 21(2), 169-184

Custer, R. L., Scarcella, J. A., & Stewart, B. R. (1999). *The modified Delphi technique: A rotational modification*. Journal of Vocational and Technical Education, 15

D'Este P., Guy F. and Iammarino S. (2012). *Shaping the formation of university–industry research collaborations: what type of proximity does really matter?* Journal of Economic Geography, 13(4), 537–558.

Davids M. and Frenken K. (2018) *Proximity, knowledge base and the innovation process: towards an integrated framework*, Regional Studies, 52(1), 23-34.

D'Este, P., & Iammarino, S. (2010). *The spatial profile of university-business research partnerships*. Papers in regional science, 89(2), 335-350.

Drejer I. and Østergaard C.R. (2014). *The role of geographical, cognitive and social proximity in university-industry collaboration on innovation*, Paper prepared for the 9th Regional Innovation Policy Conference 16-17 October 2014, Stavanger, Norway.

Duarte Alonso, A., & Bressan, A. (2015). *Resilience in the context of Italian micro and small wineries: an empirical study*. International Journal of Wine Business Research, 27(1), 40-60.

E3M Consortium (2010). *Needs and constraints analysis of the three dimensions of third mission activities*, <http://e3mproject.eu/Three-dim-third-mission-act.pdf> (retrieved 18.01.2018)

European Commission (2011). *Connecting Universities to Regional Growth: A practical guide*. DG Regio.

Facer K. & Sandford R. (2009). *The next 25 years?: future scenarios and future directions for education and technology*, Journal of Computer Assisted Learning, 74–93.

- Foray, D., Goddard, J., Beldarrain, X. G., Landabaso, M., Mccann, P., Morgan, K., Nauwelaers, C. And Ortegaargilés, R. (2012). *Guide to Research and Innovation Strategies for Smart Specialisation*, European Commission, Brussels.
- Frewer L.J. , Fischer A.R.H., Wentholt M.T.A., Marvin H.J.P., Ooms B.W., Coles D., Rowe G. (2011). *The use of Delphi methodology in agrifood policy development: Some lessons learned*, *Technological Forecasting & Social Change*, 78, 1514–1525
- Gilinsky, A., Santini, C., Lazzeretti, L., & Eyler, R. (2008). *Desperately seeking serendipity: Exploring the impact of country location on innovation in the wine industry*. *International Journal of Wine Business Research*, 20(4), 302-320.
- Giuliani, E., & Arza, V. (2009). *What drives the formation of 'valuable' university–industry linkages?: Insights from the wine industry*. *Research policy*, 38(6), 906-921.
- Giuliani, E., & Bell, M. (2005). *The micro-determinants of meso-level learning and innovation: evidence from a Chilean wine cluster*. *Research policy*, 34(1), 47-68.
- Goddard (2009). *Reinventing the Civic University*, London: NESTA.
- Goddard, J., Kempton, L. & Vallance, P. (2013). *Universities and Smart Specialisation: challenges, tensions and opportunities for the innovation strategies of European regions*. *Basque Economic Review*
- Gunasekaran, A. , Rai, B.K. & Griffin, M. (2011), “Resilience and competitiveness of small and medium size enterprises: an empirical research”, *International Journal of Production Research* , 49(18), 5489-5509
- Hakanen M. (2017). *The Development and Management of Interpersonal Trust in a Business Network in Health, Exercise, and Wellbeing Markets*, Jyväskylä Studies in Business and Economics, 173.
- Hatak, I., Floh, A. & Zauner (2015). *Working on a dream: sustainable organisational change in SMEs using the example of the Austrian wine industry*. *Review of Managerial Science*, 9: 285.
- Healy A., Perkmann M., Goddard J. and Kempton L. (2014). *Measuring the impact of university-business cooperation*, Brussels
- Hsu, Chia-Chien & Sandford, Brian A. (2007). *The Delphi Technique: Making Sense of Consensus*. *Practical Assessment Research & Evaluation*, 12(10).
- Klofsten, M., & Jones-Evans, D. (1996). Stimulation of technology-based small firms—A case study of university-industry cooperation. *Technovation*, 16(4), 187-213.
- Lockett, N. et al. (2009). *The Influence of co-location in higher education institutions on small firms' perspectives of knowledge transfer*. *Entrepreneurship & Regional Development*. 21(3), 265-283.
- Molas-Gallart, J., Salter, A., Patel, P., Scott, A. and Duran, X. (2002), *Measuring Third Stream Activities. Final Report to the Russell Group of Universities*. Brighton: SPRU, University of Sussex.
- OECD (Organisation for Economic Co-operation and Development) (2007). *Higher Education and Regions: Globally Competitive, Locally Engaged*. Paris: Organisation for Economic Cooperation and Development.
- Paul, H. W. (2002). *Science, vine and wine in modern France*. Cambridge University Press.
- Pawson R. (2006). *Evidence-based policy. A Realist Perspective*. Thousand Oaks, CA. Sage.
- Pertuze, J. at al. (2010). *Best practice for industry-university collaboration*, MIT Sloan Management Review. 51(4).
- Pfeiffer, J. (1968). *New look at education*. Poughkeepsie. NY. Odyssey Press

- Phan, P., & Siegel, D. (2006). *The effectiveness of university technology transfer*. Foundations and Trends in Entrepreneurship. 2(2), 77-144
- R. Smith (2007). *The VIEW Journal Xplor European edition*, Issue 2, Oct 2007
- Ranga, M. & Etzkowitz, H. (2013). *Triple Helix Systems: An Analytical Framework for Innovation Policy and Practice in the Knowledge Society*, Industry and Higher Education, Volume: 27 issue: 4, page(s): 237-262
- Rikkonen P. (2005). *Scenarios for future agriculture in Finland: a Delphi among agri-food sector stakeholders*, Agricultural and Food Science, Vol. 14 (2005), 205-223
- Rinaldi C., Cavicchi A., Spigarelli F., Lacchè L. & Rubens, A. (2018), *Universities and smart specialisation strategy: From third mission to sustainable development cocreation*, International Journal of Sustainability in Higher Education, 19(1), 67-84
- Science-to-Business Marketing Research Centre (2011). *The State of European University Business Cooperation*, European Commission
- Taplin, I. M. (2006). *Competitive pressures and strategic repositioning in the California premium wine industry*. International Journal of Wine Marketing, 18(1), 61-70.
- Tarah S.A. Wright. (2007). *Developing research priorities with a cohort of higher education for sustainability experts*, International Journal of Sustainability in Higher Education 8(1), 34-43.
- Tödtling F, Lehner P, and Trippel M (2006) *Innovation in knowledge intensive industries: The nature and geography of knowledge links*. European Planning Studies 14: 1035–1058
- Trencher, G., Yarime, M., McCormick, K. B., Doll, C. N., and Kraines, S. B. (2014a), *Beyond the third mission: Exploring the emerging university function of co-creation for sustainability*, Science and Public Policy, 41(2), 151-179.
- Viassone M., Vrontis D. and Papasolomou I. (2016). *The relationship between wine sector and regional competitiveness*, Global Business and Economics Review, 18(3/4).
- Visser, E. J. (2004). *A Chilean Wine Cluster?: Governance and Upgrading in the Phase of Internationalization* (Vol. 156). United Nations Publications.
- Whitener, E.M., Brodt, S.E., Korsgaard M.A. and Werner, J.M. (2006). *Managers as Initiators of Trust: An Exchange Relationship Framework for Understanding Managerial Trustworthy Behaviour*, The Academy of Management Review, 23(3), 513-530.
- Wilson, T. A. (2012). *Review of business-university collaboration*. United Kingdom Department for Business, Innovation and Skills.
- Zolingena Cees (van) Simone J. and Klaassenb A. (2003). *Selection processes in a Delphi study about key qualifications in Senior Secondary Vocational Education*, Technological Forecasting and Social Change, 70(4) 317-340
- Zomer, A. & Benneworth, P. (2011) *The rise of the university's Third Mission*, in J. Enders, H. F. de Boer & D. Westerheijden (eds) *Reform of higher education in Europe*, Rotterdam, Sense Publishers.

ANNEXES

ANNEX I – COUNTRY PROFILE: AUSTRIA

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1 Country profile

Geographical presentation

Austria can be divided into three unequal geographical areas. The largest part of Austria (62%) is occupied by the relatively young mountains of the Alps. In the east, these give way to a part of the Pannonian plain. North of the Danube river lies the Bohemian Forest, an older, but lower, granite mountain range. (Wikipedia.org, 2017)

The major landform in Austria is alpine, namely the Alps. Only 28% of Austria are moderately hilly and flat. This includes the Northern Alpine Foreland, which includes the Danube Valley; the lowlands and hilly regions in north-eastern and eastern Austria, which include the Danube Basin; and the rolling hills and lowlands of the South-eastern Alpine Foreland. The parts of Austria that are most suitable for settlement run north of the Alps through the provinces of Upper Austria and Lower Austria in the Danube Valley and then curve east and south of the Alps through Lower Austria, Vienna, Burgenland, and Styria. (Wikipedia.org, 2017) These areas are also the ones where the most wine producers in Austria are located. A more detailed description of the different wine areas you find in chapter 2.

Wine from Austria is a 1,000-year-old cultural asset and takes on a central theme with the ongoing discussions related to the consumption of alcohol. Wine is an agricultural product, with natural, annual variations and plays an essential role in the preservation and heritage of the landscape. (Austrian Wine, 2017)

Socio-economic analysis

Austria is one of the 14 wealthiest countries in the world in terms of GDP (Gross domestic product) per capita, has a well-developed social market economy, and a high standard of living. (Wikipedia.org, 2017) As well as having a very high standard of living, Austria enjoys relatively low unemployment, combined with low inequality, high environmental standards and steadily increasing life expectancy. (Famira-Mühlberger & Leoni, 2013)

2 Region profiles

Geographical presentation “Lower Austria”

With a land area of 19,174km² Lower Austria it is the largest state of the nine federal states of Austria. It is located in the northeast of the country. With its 1.64m population (2015) it ranks second only to Vienna. Geographically, it encloses Vienna, which in juridical terms is not part of the region, but has a substantial influence on its economy. Since 1986, its capital is Sankt Pölten. (European Commission, 2017)

Lower Austria is Austria’s largest quality-wine-growing area. This designation stands for a big variety of different wine styles of international and indigenous grape varieties with “Grüner Veltliner” covering 44%. There are eight specific wine-growing regions in Niederösterreich, stretching from the Wachau in the west to Carnuntum in the east. These can be divided into three major climatic zones: the Weinviertel in the north, the region along the river Danube, with its adjoining valleys to the west of Vienna, and the warmer Pannonian part in the south-east of Lower Austria. (Austrian Wine, 2017)

Socio-economic analysis “Lower Austria”

In 2014, regional GDP in Lower Austria was € 51.2b, accounting for about 15.5% of Austrian GDP. GDP per capita reached € 31,400 amounting to 81.6% of the national average. Lower Austria’s 5.1% unemployment rate was low by national standards (5.6%). With exports of €20.4b (2014), Lower Austria ranks second nationally (after Upper Austria) accounting for 15.9% of national total. Up to today, Lower Austria suffers from historical legacies such as its former location at the iron curtain, and the region has been significantly affected by the industrial restructuring. The region has a long industrial tradition that is

still reflected in its sectoral structure (e.g. metal or wood processing and food or construction materials). (European Commission, 2017)

2.1.1 Wine in the regions

Official name	Wachau
Other names	Wachau Cultural Landscape, Niebelungengau
Type	Self-reglemented quality system “Vinea Wachau” categories: Steinfeder (light, crispy), Federspiel (medium bodied) and Smaragd (rich and lucious)
Year established	1983 (quality system)
Years of wine industry	Since Roman times
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	see following regions
Sub-regions	none
Location	North West of Lower Austria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	652mm
Soil conditions	Mostly weathered rocks from primeval time on the steep slopes are mixed with loess in lower positions. In the valley partly also sandy soils
Total area	4.600 km ² (Waldviertel – political district)
Size of planted vineyards	1.350 ha
No. of vineyards	502
Grapes produced	In three quality categories as mentioned above: light, medium and reserve quality. Depending on the sugar content in the grape and the vineyard (Cru)
Varietals produced	More than 50 varietals. Most important: Grüner Veltliner, Riesling
No. of wineries	233
Wine produced	88.838 hectoliters
Official designation(s)	Wachau
Comments	Austria’s flagship wine region in terms of quality, consistency and international reputation. Highest average wine prices.

Official name	Kremstal
Other names	Krems
Type	DAC
Year established	2007 (Designated and Protected Area of Origin: DAC (Districtus Austriae Controllatus))
Years of wine industry	Since Roman times
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	See following regions
Sub-regions	none
Location	In and around the medieval city of Krems and Stein
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	1085mm
Soil conditions	Mostly weathered rocks from primaeval time in the west, Loess and clay in the east and south
Total area	4.600 km ² (Waldviertel – political district)
Size of planted vineyards	2.368 ha
No. of vineyards	747
Grapes produced	In three categories: not regionally classified (Niederösterreich), DAC (classified) and DAC Reserve
Varietals produced	More than 50 varietals. Most important: Grüner Veltliner, Riesling
No. of wineries	306
Wine produced	96.233 hectoliters
Official designation(s)	Kremstal DAC
Comments	Home of two of the biggest wine producers of Austria: Winzer Krems (cooperative, approx. 1,000ha) and Lenz Moser (producer and trader, approx. 8m litres/year)

Official name	Kamptal
Other names	Langenlois (main wine city, wine “capital” of Austria)
Type	DAC

Year established	2008 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	See following regions
Sub-regions	none
Location	Central North of Lower Austria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	646mm
Soil conditions	Loess and clay, partly weathered rocks from primaeval time
Total area	4.600 km ² (Waldviertel – political district)
Size of planted vineyards	3.906 ha
No. of vineyards	823
Grapes produced	In three categories: not regionally classified (Niederösterreich), DAC (classified) and DAC Reserve
Varietals produced	More than 50 varietals. Most important: Grüner Veltliner, Riesling
No. of wineries	336
Wine produced	131.720 hectoliters
Official designation(s)	Kamptal DAC
Comments	Langenlois (located in the Kamptal) together with Gols (Burgenland) are the biggest wine producing communities in Austria. High density of organic and/or biodynamic classified wine makers. Wine tourism landmark: the Loisium in Langenlois

Official name	Traisental
Other names	/
Type	DAC
Year established	2006 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	See following regions
Sub-regions	none
Location	Central Lower Austria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	612mm
Soil conditions	Sandy loess soils, conglomerates
Total area	19.186,27 km ² (Mostviertel, political district)
Size of planted vineyards	814 ha
No. of vineyards	451
Grapes produced	In three categories: not regionally classified (Niederösterreich), DAC (classified) and DAC Reserve
Varietals produced	More than 50 varieties. Most important: Grüner Veltliner, Riesling
No. of wineries	163
Wine produced	38.897 hectoliters
Official designation(s)	Traisental DAC
Comments	White wine dominated

Official name	Wagram
Other names	Donauland (old name)
Type	Wine growing area
Year established	2007 (winegrower's association establishes new name: Wagram)
Years of wine industry	Since Roman times
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	See following regions
Sub-regions	none
Location	Central East of Lower Austria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	640mm
Soil conditions	Rich on loess and calcareous soils
Total area	4.900 km ² (Weinviertel – political district)
Size of planted vineyards	2.720 ha
No. of vineyards	926
Grapes produced	According to the Federal Austrian Wine Laws
Varietals produced	Grüner Veltliner, Riesling, Roter Veltliner
No. of wineries	311
Wine produced	83.965 hectoliters
Official designation(s)	Wagram
Comments	White wine dominated

Official name	Weinviertel
Other names	/
Type	DAC
Year established	2003 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	See following regions
Sub-regions	Retzer Land, Poysdorf, Mailberg (unofficial sub-regions)
Location	North East of Lower Austria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	600mm
Soil conditions	Sandy loess soils, partial clay and weathered rocks from primeval time
Total area	
Size of planted vineyards	13.857 ha
No. of vineyards	3.791
Grapes produced	In three categories: not regionally classified (Niederösterreich), DAC (classified) and DAC Reserve for Grüner Veltliner
Varietals produced	More than 50 varietals. Most important and only variety with DAC status: Grüner Veltliner
No. of wineries	1.653
Wine produced	810.315 hectoliters
Official designation(s)	Weinviertel DAC
Comments	Biggest and most productive wine region of Austria. Low average prices. Highest proportion of bulk wine sales.

Official name	Carnuntum
Other names	none
Type	Wine growing area
Year established	1992 (foundation of the Rubin Carnuntum regional committee)
Years of wine industry	Since Roman times. Petronell-Carnuntum was the capital city of the province Pannonia
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	See following regions
Sub-regions	none
Location	South-East of Lower Austria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	644mm
Soil conditions	Clay, sand and gravel
Total area	4.186 km ² (Industrieviertel – political district)
Size of planted vineyards	906 ha
No. of vineyards	282
Grapes produced	According to the Federal Austrian Wine Laws
Varietals produced	Zweigelt, Blaufränkisch
No. of wineries	146
Wine produced	46.003 hectoliters
Official designation(s)	Carnuntum
Comments	Very close to Vienna. Little consumer awareness of the area as such but very well-known wine makers such as Markowitsch, Grassl, Netzl or Taferner.

Official name	Thermenregion
Other names	Südbahn
Type	Wine growing area
Year established	1986 (after the Austrian glycol wine scandal)
Years of wine industry	Since Roman times
Country	Austria
Part of	Lower Austria
Other regions in Lower Austria	See following regions
Sub-regions	None
Location	South of Lower Austria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	690mm
Soil conditions	Stony limestone soils, formed by a volcanic fracture line
Total area	4.186 km ² (Industrieviertel – political district)
Size of planted vineyards	2.181 ha
No. of vineyards	693
Grapes produced	According to the Federal Austrian Wine Laws
Varietals produced	Zierfandler, Rotgipfler, St. Laurent, Pinot Noir
No. of wineries	312
Wine produced	65.626 hectoliters
Official designation(s)	Thermenregion
Comments	

2.2 Geographical presentation “Burgenland”

In terms of its population, Burgenland is the smallest of the nine states in Austria and located in the east of the country. In 2015, its total population was 288,356 persons representing approximately 3.4% of the national total. Burgenland’s capital city is Eisenstadt (14,241 inhabitants, 2016). Burgenland borders on Slovenia, Hungary and Slovakia as well as on the Austrian states of Lower Austria and Styria and has a strong north-south expansion. While the northern part belongs to the wider Vienna area, the southern part is rather peripheral and has stronger linkages to the Graz area. Burgenland has a total surface area of 3,965.5 km² and is strongly shaped by agriculture, viniculture, and has a focus on renewable energies, particularly in wind energy that reached a share of more than 40%. Most important economic sectors are retail, manufacturing, tourism and foreign trade. (European Commission, 2017)

Full-bodied and rich red wines are produced under the influence of the hot, continental Pannonian climate, in the eastern region of Burgenland. Within this area, there are many distinctions that play an equally important role. For example, the Eisenberg hill in the most southerly part of Burgenland, enjoys a complex soil structure and touch of refreshing climatic influences from neighbouring Steiermark, that provide ideal growing conditions for Blaufränkisch and other red wine varieties with fine mineral characters and unmatched elegance. The legendary Ruster Ausbruch, the internationally renowned noble sweet dessert wine, epitomizes the strong identity of the region. (Austrian Wine, 2017)

2.2.1 Socio-economic analysis “Burgenland”

In 2014, the regional GDP in Burgenland was €7.64b, accounting for 2.3% of the Austrian GDP. The economic development of the region has been heavily influenced by Burgenland's eventful history as a peripheral region between Austria and Hungary. Following the downfall of the Austrian-Hungarian monarchy in the aftermath of World War I, the current Austrian region lost vital economic hubs to its Hungarian counterpart region. Burgenland’s largest enterprises are in steel construction (Unger Stahlbau), energy supply (Bewag), telecommunications (Nokia Austria), real estate (Designer Outlet Parndorf), the hotel sector (Reiter’s), sweets industry (Mars Austria), and automotive supply (Delphi Packard Austria). Services branches mainly include retail, and the tourism sector plays an increasingly important role. (European Commission, 2017)

2.2.2 Wine in the regions

Official name	Neusiedlersee
Other names	Seewinkel (unofficial)
Type	DAC
Year established	2012 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Burgenland
Other regions in Burgenland	See following regions

Sub-regions	/
Location	North-East of Burgenland
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	609mm
Soil conditions	Sandy, gravel, some clay in the south
Total area	3.962 km ² (Burgenland – Federal Province)
Size of planted vineyards	7.098 ha
No. of vineyards	1.339
Grapes produced	In three categories: not regionally classified (Burgenland), DAC (classified) and DAC Reserve for Zweigelt
Varietals produced	Zweigelt, Welschriesling (for dry and noble rot sweet wines)
No. of wineries	751
Wine produced	416.263 hectoliters
Official designation(s)	Neusiedlersee DAC
Comments	Some of the world's best and highest awarded sweet wines are produced here

Official name	Leithaberg
Other names	Neusiedlersee-Hügelland
Type	DAC
Year established	2009 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Burgenland
Other regions in Burgenland	See following regions
Sub-regions	/
Location	North-West of Burgenland
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	628mm

Soil conditions	Loess, sand, black earth, partly stony
Total area	3.962 km ² (Burgenland – Federal Province)
Size of planted vineyards	3.576 ha
No. of vineyards	924
Grapes produced	In three categories: not regionally classified (Burgenland), DAC (classified) and DAC Reserve for Blaufränkisch and Leithaberg weiß
Varietals produced	Weissburgunder, Chardonnay, Blaufränkisch
No. of wineries	11
Wine produced	116.537 hectoliters
Official designation(s)	Leithaberg DAC
Comments	

Official name	Mittelburgenland
Other names	Blaufränkischland
Type	DAC
Year established	2006 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Burgenland
Other regions in Burgenland	See following regions
Sub-regions	/
Location	Center of Burgenland
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	659mm
Soil conditions	Heavy clay soils
Total area	3.962 km ² (Burgenland – Federal Province)
Size of planted vineyards	2.117 ha
No. of vineyards	358
Grapes produced	In three categories: not regionally classified (Burgenland), DAC (classified) and DAC Reserve for Blaufränkisch
Varietals produced	Blaufränkisch

No. of wineries	122
Wine produced	117.483 hectoliters
Official designation(s)	Mittelburgenland DAC
Comments	Redwine dominated area

Official name	Eisenberg
Other names	Südburgenland
Type	DAC
Year established	2009 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Burgenland
Other regions in Burgenland	See following regions
Sub-regions	/
Location	South of Burgenland
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	714mm
Soil conditions	Sandy and clayey soils, ferruginous
Total area	3.962 km ² (Burgenland – Federal Province)
Size of planted vineyards	515 ha
No. of vineyards	708
Grapes produced	In three categories: not regionally classified (Burgenland), DAC (classified) and DAC Reserve for Blaufränkisch
Varietals produced	Blaufränkisch
No. of wineries	291
Wine produced	16.050 hecoliters
Official designation(s)	Eisenberg DAC
Comments	Redwine dominated area

2.3 Geographical presentation “Styria”

Styria (Steiermark) is the second largest of the nine states in Austria and is located in the southeast of the country. In 2011 its total population was 1.2 million, approximately 14.4% of the national total. Its capital city is Graz. Styria borders on Slovenia as well as on the federal states of Carinthia, Salzburg, Upper Austria, Lower Austria and Burgenland. (European Commission, 2017)

Styria is one of the world’s best Sauvignon blanc terroirs. There are undoubtedly other wine-growing regions with more weighty and alcohol-rich wines, but seldom does a region offer such a brilliantly fresh and elegant style of region-typical wines as in southern Steiermark. (Austrian Wine, 2017)

2.3.1 Socio-economic analysis “Styria”

In 2011, regional GDP in Styria was €37.4bn, accounting for 12.5% of the Austrian GDP. Notwithstanding the relative importance of its agricultural sector, Styria's economic sector has undergone significant structural changes over the past decades towards a more diversified industry and services landscape. Until the late 1980s, the iron and steel industry, as well as automotive industry, were the dominant economic branches. However, these sectors suffered from a dramatic decline during the 1990s. Only the latter sector (automotive suppliers) has fully recovered and regained international visibility. Major industries (or: core sectors) nowadays include the automotive industry, mechanical engineering, electronics, and paper. Major MNEs include Andritz AG, voestalpine Metal Engineering Division, and Magna Steyr Fahrzeugtechnik AG & Co.KG. (European Commission, 2017)

2.3.2 Wine in the regions

Official name	Vulkanland Steiermark
Other names	Süd-Oststeiermark (old name)
Type	Wine growing area
Year established	2016 (renaming)
Years of wine industry	Since Roman times
Country	Austria
Part of	Styria
Other regions in Styria	See following regions
Sub-regions	/
Location	East of Styria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	849mm
Soil conditions	Clay, volcanic weathering rock
Total area	16.401 km ² (Styria – Federal Province)
Size of planted vineyards	1.400 ha
No. of vineyards	1.199
Grapes produced	According to the Federal Austrian Wine Laws
Varietals produced	Welschriesling, Weissburgunder, Sauvignon Blanc,
No. of wineries	212
Wine produced	70.595 hectoliters
Official designation(s)	Vulkanland
Comments	

Official name	Südsteiermark
Other names	none
Type	Wine growing area
Year established	1986
Years of wine industry	Since Roman times
Country	Austria
Part of	Styria
Other regions in Styria	See following regions
Sub-regions	/
Location	South of Styria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	915mm
Soil conditions	Opok (Slate, sand, marl, primeval rock and lime)
Total area	16.401 km ² (Styria – Federal Province)
Size of planted vineyards	2.340
No. of vineyards	623
Grapes produced	According to the Federal Austrian Wine Laws
Varietals produced	Sauvignon Blanc, Muskateller, Weissburgunder, Morillon (Chardonnay), Sausal: Riesling
No. of wineries	269
Wine produced	118.827 hectoliters
Official designation(s)	Südsteiermark
Comments	Strong regional identity. High wine prices. Wine tourism hot-spot. Important regional association: Steirische Klassik

Official name	Weststeiermark
Other names	Schilcherland
Type	Wine growing area
Year established	1986
Years of wine industry	Since Roman times
Country	Austria
Part of	Styria
Other regions in Styria	See following regions
Sub-regions	/
Location	South-West of Styria
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	948mm
Soil conditions	Opok
Total area	16.401 km ² (Styria – Federal Province)
Size of planted vineyards	538 ha
No. of vineyards	261
Grapes produced	According to the Federal Austrian Wine Laws
Varietals produced	Blauer Wildbacher, Sauvignon Blanc, Weissburgunder
No. of wineries	128
Wine produced	24.621 hectoliters
Official designation(s)	Weststeiermark
Comments	Schilcher is a rosé wine with high acidity and a unique, spicy characteristic.

2.4 Geographical presentation “Vienna”

Vienna is the capital of Austria and one of its nine states. The city of Vienna covers 415 km². It has a population of about 1.78m at the end of 2014 and is the cultural, economic, and political centre of Austria. It has obtained the status of a federal state in 1921 and since then the mayor has also the role of the state governor. The city is administered by a multitude of departments under the supervision of the mayor and the state government. Geographically, Vienna lies in the east of Austria very close to Slovakia, the Czech Republic and Hungary. It is surrounded by the federal state of Lower Austria. (European Commission, 2017)

In some parts of the world, vines are planted just for show, a mere tourist attraction. But Vienna is different. The 637 hectares of planted vines play a significant economical role, provide a sustainable amount of greenery around the city, and form the basis for high quality wines. Right up until the late Middle Ages, vineyards also flourished within the inner city walls of Vienna, in today's prestigious First District, yet nowadays, vines are cultivated in the outer districts and the outskirts of Vienna. Wine producers from the northern wine-growing villages of Strebersdorf, Stammersdorf and Jedlersdorf also have vineyards planted on the Bisamberg, north of the Danube, with its favourable conditions for the Pinot varieties. (Austrian Wine, 2017)

2.4.1 Socio-economic analysis “Vienna”

Vienna is characterised by a strong economy that draws its strengths from high productivity and a highly qualified work force in combination with low wage costs per unit of output. In 2014, the GDP of Vienna amounted to €84.2b (i.e. 25.6% of the national total) and regional GDP reached €47,300 per inhabitant. Economically, Vienna is able to attract many foreign enterprises from different sectors and is now location for many headquarters of MNEs or their foreign subsidiaries. Especially, the industrial sector relies on international knowledge sources.

2.4.2 Wine in the regions

Official name	Wien (Vienna)
Other names	Wien Gemischter Satz
Type	DAC
Year established	2013 (DAC)
Years of wine industry	Since Roman times
Country	Austria
Part of	Vienna
Other regions in Vienna	none
Sub-regions	Vienna's vineyards are located in different Viennese districts. Most importantly: 19th (Döbling) and 21st (Floridsdorf).

Location	North of the City and South-West of the City
Growing season	Spring/Summer
Climate region	Ia
Heat units	GST (°F) 58.5 / GDD(F° units) 1821
Precipitation (annual average)	623mm
Soil conditions	Slate, gravel and loess soil
Total area	414,6 km ² (city of Vienna)
Size of planted vineyards	637 ha
No. of vineyards	276
Grapes produced	In three categories: not regionally classified (Wien), DAC (classified) and DAC Reserve for Gemischter Satz
Varietals produced	Gemischter Satz
No. of wineries	155
Wine produced	22.082 hectoliters
Official designation(s)	Wiener Gemischter Satz DAC
Comments	A Gemischter Satz is a wine made from a variety of grapes. In contrast to a cuvee, up to 20 different grape varieties are planted in the same vineyard, and harvested and pressed together. Originally, growers used the varying degrees of ripeness and acidity as a way to ensure consistent quality and guard against the risk of poor harvests. The Italy-based Slow Food Foundation for the promotion of biodiversity has included the Viennese Gemischter Satz in its Ark of Taste, also making it one of its Presidia products. Only 300 products worldwide have been honored with this award.

2.5 Geographical presentation “Bergland”

A geographical overview cannot be given as the so-called “Bergland” region includes 5 federal states of Austria which all have different geographical settings and different types of landscape.

2.5.1 Socio-economic analysis “Bergland”

A socio-economic overview cannot be given as the so-called “Bergland” region includes 5 federal states of Austria which all have different social and economic backgrounds through out history.

2.5.2 Wine in the regions

Kärnten (Carinthia – 100 ha)

In recent years, the area under vines has increased from 32 hectares to over 100. There are currently 85 wine producers with a registration number, of which some ten are larger-sized estates. The centre of Kärnten’s viticulture is located in the Sankt Veit District, at the Längesee and the area around Hochosterwitz Castle, in the Lavan Valley, in the neighbourhood of Feldkirchen and around the city of Klagenfurt. The goal for the year 2020 is that of having an area under vines of 140 ha, with a production of 750,000 bottles at the Qualitätswein level. Wine from Kärnten will be promoted as the recommended beverage of the state’s tourism industry. (Austrian Wine, 2017)

Oberösterreich (Upper Austria – 20 ha)

There are 25 winegrowers in the sunny localities of the Danube River Valley, the Machland, the Linzer Gaumberg, on the rim of the Eferding Basin, in the airy purlieu of the Mühlviertel and in the south of the Salzkammergut. Upper Austria used to be known for wine and the “Renaissance” of wine growing in this region has only begun. (Austrian Wine, 2017)

Salzburg (3 ha)

The first Salzburg vineyard of the modern era was planted in Grossgmain am Untersberg in the year 2001. On the Mönchsberg, a wine known as the ‘Paris Lodron Zwinger’ has been produced since 2008, a Frühofter Veltliner with a yield of some 500 bottles, which sell for the handsome price of 40€ apiece – much to the joy of the Salzburg youth scouting groups that receive the profits. The Benedictine Abbey at Michaelbeuern has also begun work on a project, encompassing 4,000 vines. (Austrian Wine, 2017)

Tirol (9 ha)

While viticulture is of paramount importance in the Südtirol (a.k.a. Alto Adige), the ‘Nordtirol Winegrowers’ Association’ (chairman, Peter Zoller) still has barely two dozen members enrolled at the current time. Even the old vineyard of Zirl, well known since the 14th century, lies fallow at the moment. And yet there is a sign of new life in North Tirol’s viticulture. The best-known active producers are to be found in Haiming, Tarrenz and Silz. (Austrian Wine, 2017)

Vorarlberg (20 ha)

Once upon a time there were 500 hectares of grapevines growing in Vorarlberg, primarily in the Walgau and the Rheintal. Thanks to the phylloxera crisis and the overwhelming competition of the Südtirol's (South Tirol/Alto Adige) wines after construction of the Arlberg Railway, grapevines dwindled down almost entirely, to a single vineyard in Röthis. Today the 'Union of Vorarlberg Wine Producers' includes some 70 members. (Austrian Wine, 2017)

In total the Bergland Region Produced 3.252 hectoliters of wine. (Austrian Wine, 2017)

List of Reference

Austrian Wine. (2017, August 02). *Austrian Wine in Depth*. Retrieved from austrianwine.com: <http://www.austrianwine.com/facts-figures/training-documents/>

European Commission. (2017, August 02). *Regional Innovation Monitor Plus*. Retrieved from ec.europa.eu: <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/region/%C3%B6sterreich>

Famira-Mühlberger, U., & Leoni, T. (2013). *The economic and social situation in Austria*. European Economic and Social Committee.

Wikipedia.org. (2017, August 01). *Economy of Austria*. Retrieved from Wikipedia.org: https://en.wikipedia.org/wiki/Economy_of_Austria

Wikipedia.org. (2017, August 01). *Geography of Austria*. Retrieved from Wikipedia.org: https://en.wikipedia.org/wiki/Geography_of_Austria

ANNEX II – COUNTRY PROFILE: GREECE

Wine profile of Greece



Source of the picture: <https://www.infokids.gr/trygos/>

Author: Spyridon Mamalis

2018

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2.4.2 Wine in the regions Southern Greece

1 Country profile

1.1 Geographical presentation

Located at the southernmost tip of the Balkan Peninsula, Greece combines the high mountains of the mainland with more than 1,400 islands, the largest of which is Crete.⁶

The country is divided into three geographical regions: the Mainland, the Islands and the Peloponnese, and the Peninsula in the south of the Mainland. With eighty percent of its territory consisting of mountains or hills, Greece is one of the most mountainous countries in Europe.⁷

Mount Olympus is Greece's highest mountain at 9,570 feet (2,917 meters) above sea level. In antiquity, it was considered the home of the gods and has become the first national park in Greece. The Pindus mountain range on the mainland contains one of the world's deepest gorges, Vikos Gorge, which plunges 3,600 feet (1,100 meters). Furthermore, Greece has the longest coastline in Europe and constitutes the southernmost country in Europe. The mainland is characterized by forests, rugged mountains, and lakes, but the country is well known for the thousands of islands dotting the blue Aegean Sea to the east, the Mediterranean Sea to the south, and the Ionian Sea to the west⁸.

⁶ <http://www.bbc.com>

⁷ https://en.wikipedia.org/wiki/Greece#Geography_and_climate

⁸ <https://kids.nationalgeographic.com>

Greece, with its Mediterranean climate, is located throughout its extent within the favorable climate and geographical area for viticulture (35 ° to 41 ° North latitude). It also receives the beneficial influence of the sea, which surrounds the large number of the islands and due to its volume decisively influences the climate of the Mainland areas and particularly that of the coastal vineyards.

Greek vineyard is found on soils and reliefs/terrains that vary greatly and at altitudes ranging from the sea level and reaching over 1,000 m. However, its biggest parts extend in mountainous and semi-mountainous territories and the smaller ones in territories with continental characteristics.⁹

1.2 Socio-economic analysis

According to the Hellenic Statistical Authority, the estimated population of Greece on 1st January 2015 was 10,858,018, of which 5,268,390 were men and 5,589,628 women. With regard to the country's economic situation Greece, in recent years, has been through a severe financial crisis which began in late 2009.¹⁰

In recent years, Greece has been showing signs of recession after a series of austerity measures launched by 2009. Concerning the employment indicators, according to data from the Hellenic Statistical Authority, the level of unemployment in the year 2016 ranged to 23.6 %, i.e., 1,104,604 people were not working.

The year 2017, according to the Foundation of Economy and Industrial Research (IOBE) latest quarterly report, ended positively in terms of fiscal balance but lower than the expected growth rate. The Greek economy moved into recovery, after the stagnation and the slight retreat of the two previous years, under conditions of fiscal consolidation, which, as the report mentions, is an important and welcome development. Furthermore, in agreement with the estimates of the same foundation and as reported on the 7th page of the same report, the recovery and strengthening of the country's economy are expected to continue.¹¹

According to the same source, The Economic Climate Index in Greece recorded stable on the October-December 2017 quarter with the July-September quarter, moving again on average to 99.2 (from 99.3 units in the previous quarter), at a higher level than the average of last year's same quarter (94.1 percent on average).

Overall in 2017, the index stood at 96.6 points, higher than the average of 2016 (91.3 percent). At the same time, regarding the financial situation of households, the same report states that 63% indicates they were "just about managing to make ends meet on their income"; 14% of them are indebted; 13% are "drawing on their savings"; while only 10% is saving money.

Greek vineyard ¹²

Greece is indisputably one of the oldest wine-producing regions in the world and among the top wine-producing regions in Europe. The earliest confirmation of the existence of Greek wine was dated 6,500 years ago. It continues to cultivate until today, leading to the production of wine for thousands of years. Geographically, it is made up of individual wine-growing regions, which cover almost every part of Greece.

⁹ <http://www.newwinesofgreece.com/>

¹⁰ <http://gr.euronews.com>

¹¹ IOBE (Τριμηνιαία Έκθεση Αρ. Τεύχους 90, Ιανουάριος 2018)

¹² http://www.newwinesofgreece.com/el/the_vineyard_of_greece/index.html

Dividing the Greek vineyard, we distinguish four major wine-growing zones: Northern Greece, Central Greece (including Attica), Peloponnese and the islands of the Ionian Sea, the islands of the Aegean Sea and Crete. These areas include individual smaller vineyards that have particular soil-climatic and topographic features, thus giving a unique diversity; a feature that makes Greek wines exceptional and unique.

TABLE 1: NUMBER OF VINEYARD FARMS BY TYPE OF PRODUCTION AND REGION 13

REGION (PERFECTURES)	TOTAL	VINEYARDS			RAISIN
		TOTAL	From which		
			FOR THE PRODUCTION OF PDO WINES	FOR THE PRODUCTION OF PGI WINES	
TOTAL GREECE	188.873	162.330	29.927	104.995	46.304
EASTERN MAKEDONIA AND THRACE	4.456	4.456		2.140	
CENTRAL MACEDONIA	9.170	9.170	840	5.500	
WESTERN MACEDONIA	7.944	7.944	531	5.808	
EPIRUS	5.830	5.830	445	4.445	
THESSALY	9.692	9.692	483	4.457	
STEREA ELLADA	14.699	14.699		12.503	
IONIAN ISLANDS	11.579	10.894	708	8.193	2.129
WEST GREECE	23.096	20.588	4.669	12.113	6.721
PELOPONNESE	26.896	19.938	3.848	13.904	11.788
ATTICA	7.365	7.365		7.116	
NORTH AEGEAN	7.921	7.921	4.274	2.730	
SOUTH AEGEAN	8.017	8.017	3.573	2.668	
CRETE	52.289	35.895	10.560	23.418	25.666

(source Hellenic Statistical Authority)

TABLE 2. NUMBER OF VINEYARD FARMS BY TYPE OF PRODUCTION AND REGION

PREFECTURE	TOTAL	VINEYARDS		RAISIN
		TOTAL	From which	

¹³ <http://www.statistics.gr/el/statistics/-/publication/SPG63/-table> 03

			FOR THE PRODUCTION OF PDO WINES	FOR THE PRODUCTION OF PGI WINES	
TOTAL GREECE	1.030.821	633.262	145.187	396.712	397.559
EASTERN MAKEDONIA AND THRACE	21.133	21.133		13.886	
CENTRAL MAKEDONIA	45.839	45.839	8.080	27.057	
WESTERN MAKEDONIA	24.388	24.388	4.656	16.093	
EPIRUS	7.814	7.814	1.377	4.438	
THESSALIA	41.215	41.215	3.819	26.075	
STEREA ELLADA	68.023	68.023		62.023	
IONIAN ISLANDS	47.540	30.075	3.291	21.462	17.465
WEST GREECE	164.446	86.617	19.022	54.321	77.829
PELOPONNESE	255.537	101.317	36.031	53.780	154.220
ATTICA	60.700	60.700		59.820	
NORTH AEGEAN	29.065	29.065	18.651	7.584	
SOUTH AEGEAN	39.574	39.574	23.895	7.755	
CRETE	225.548	77.503	26.366	42.418	148.045

(source Hellenic Statistical Authority)

TABLE 3: AREAS WITH VINEYARDS BY SPECIALIZATION AND SIZE OF THE FARM

STANDARD OF EXPLOITATION OF THE FARM	TOTAL	CLASS SIZE OF THE TOTAL EXTENT OF THE FARM AREA						
		< 1 acre	1 - 4,9 acres	5 - 9,9 acres	10 - 29,9 acres	30 - 49,9 acres	50 - 99,9 acres	> 100 acres
TOTAL OF VINEYARD FARMS	1.030.821	17.753	215.954	181.742	380.287	134.587	68.040	32.458
FARMS EXCLUSIVELY WITH VINES	547.805	16.305	173.837	98.399	147.549	50.718	33.884	27.115
INTENDED EXCLUSIVELY FOR THE PRODUCTION OF WINES PDO-PGI	413.337	11.205	123.790	77.089	122.963	40.834	25.039	12.417
CLASS SIZE OF TOTAL AREA OF THE FARMS	64.643	4.271	36.631	12.542	8.157	1.765	978	300
INTENDED FOR THE PRODUCTION OF VARIOUS WINE SPECIES	69.826	830	13.417	8.767	16.429	8.119	7.867	14.397
FARMS EXCLUSIVELY WITH RAISIN	206.472	1.360	28.528	45.223	96.095	26.326	8.485	457

FARMS WITH VINEYARDS INTENDED FOR DIFFERENT TYPES OF PRODUCTION	276.543	88	13.588	38.120	136.644	57.544	25.672	4.887
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(source Hellenic Statistical Authority)

In Greece, there are also many wine grape varieties. The most important varieties are cultivated in more than 5000 acres and are listed in the table below.¹⁴

TABLE 4: WINEMAKING VARIETIES WITH AT LEAST 5,000 ACRES ACROSS THE COUNTRY. NUMBER OF FARMS PER AGE

VARIETY	NUMBER OF FARMS				
	TOTAL	AGE OF VINEYARD			
		<3 years	3 - 9 years	10 - 29 years	>30 years
SAVATIANO	18.138	158	331	4.914	14.481
RODITIS	28.436	606	919	12.820	16.398
AGIORGITIKO	4.179	181	261	2.838	2.152
LIATIKO	14.672	37	102	5.972	9.760
MOSHATO HAMBURG	8.641	82	272	3.382	5.477
XINOMAVRO	6.698	49	316	3.013	3.977
CABERNET SAUVIGNON	5.603	107	962	3.646	1.131
ASIRTIKO	2.656	277	460	574	1.524
MAVROUDI	8.937	13	50	3.134	6.132
MOSCHATO WHITE	4.068	126	181	1.438	3.035
MERLOT	3.211	183	977	1.928	316
KOTSIFALI	8.326	35	72	4.917	3.691
ROMEIKO	6.712	45	147	2.522	4.638
FOKIANO	4.522	40	29	1.666	3.110
MOSCHOFILERO	2.105	99	319	845	1.260
SYRAH	2.425	191	840	1.340	213
RAZAKI	5.626	24	16	1.918	3.824
MANDILARIA	4.383	42	111	1.634	2.839
MOSCHATO OF ALEXANDRIA	2.528	111	132	1.359	1.366
SAUVIGNON BLANC	863	79	342	436	120
CHARDONNAY	1.273	80	328	684	258
FILERY	3.260	3	13	848	2.491
ATHIRY	1.135	25	72	366	833
VILANA	3.734	17	37	2.498	1.406
MALAGOUZIA	726	151	406	199	48

¹⁴ http://www.statistics.gr/el/statistics/-/publication/SPG63/-table_07

ASPROUDES	3.302	9	9	1.209	2.163
MAVRODAFNI	2.292	44	52	932	1.338
SKIADOPOULO	2.352		3	768	1.729

(source Hellenic Statistical Authority)

TABLE 5: MORE IMPORTANT WINE VARIETY PER REGION. NUMBER OF FARMS AND AREA

PREFECTURE	MAIN VARIETY	NUMBER OF FARMS	AREA in acres
TOTAL GREECE	Savatiano	18.138	103.555
EASTERN MAKEDONIA AND THRACE	Sovinion blanc	178	3.157
CENTRAL MACEDONIA	Xinomayro	1.742	7.443
WESTERN MACEDONIA	Xinomayro	4.596	12.836
EPIRUS	Dempina	4.233	4.462
THESSALIA	Muscat hamburg	6.454	21.025
STEREA ELLADA	Savatiano	8.191	40.905
IONIAN ISLANDS	Skiadopoulo	2.329	5.000
WEST GREECE	Roditis	10.617	46.334
PELOPONNESE	Agiorgitiko	3.579	31.734
ATTICA	Savatiano	6.868	54.684
NORTH AEGEAN	Moschato white	2.923	12.699
SOUTH AEGEAN	Assyrtiko	1.471	12.878
CRETE	Liatiko	14.648	26.144

source:(Hellenic Statistical Authority)

Greece produces wines for every taste. The producing wines vary depending on the gastronomic traditions and habits of the regions. In respect of supply in the Greek territory, white and red wines appear to be in perfectly balanced production as bottled products, while rosé wines lag behind in production numbers. Regarding wines with designation of origin certification their production ranges at a rate of 10% on the total amount. Bottles with Geographical Indication are clearly more, reaching 44.8% relative to total production.¹⁵

Table 6. Greek Bottled Wines

White Wines: 1872 (125 of white vinification of pink or red varieties)
Reddish Wines (Rose): 430
Red Wines: 1877

¹⁵<https://winesurveyor.weebly.com/pialpharhoalphagammaomegagammaomicron943--omicron943nuomicroniota.html> 2,07/1904/2018

PDO (OPAP) Wines: 471 (white wines 226, rosé wines 13, red wines 232)

PDO (OPE) Wines: 84 (white wines 46, red wines 38)

PGI Wines (Local Wines): 1871 (White 832, Rosé 190, Red 849)

PGI Region Wines: 649 (white 269, rose 80, red 300)

PGI Prefecture Wines: 737 (white 317, rose 81, red 339)

PGI Area Wines: 485 (white 246, rose 29, red 210)

Designated Wines by Tradition: 105 (Retsina 97 [1 rosé], Verdea 8)

Table Wines: 1648 (white wines 664, rosé wines 226, red wines 758)

Total codes of Greek bottled wines: 4179

(source: winesurveyor.weebly.com (2009-2018 George Makris)

2 Region profiles

2.1 Geographical presentation Northern Greece. (Epirus, Macedonia, and Thrace)

The region's climate is more continental with colder winters and areas with high winds, rain, and snowfall in the mountains as a result of the slight climate impacts it has from the Mediterranean. For instance, Epirus has tall mountains covered with pine trees. Since it's substantially cooler here, Zitsa, the main wine producing region, focuses on white and sparkling wines with the delicate floral-and-citrusy white grape called Debina.

To the northwest of Epirus with direction to Macedonia you'll find Xinomavro, one of Greece's most important red wines, that grows in the regions of Naoussa and Amyndeio. Vineyards in Naoussa are found prevalently on limestone-rich clay soils (marl), which enrich this region's Xinomavro wines with additional structure (tannin) and stronger fruit characteristics. These wines are very good for the cellar! Including Assyrtiko and Roditis, the other grapes cultivated in Northern Greece, are frequently blended with Sauvignon Blanc, Chardonnay, or Malagousia to produce rich, fairly smoky white wines with gooseberry, starfruit, and melon flavors.

Other imported grapes, including Merlot and Syrah, are often blended in varying portions with the Greek native vines to make them more familiar to a growing international following¹⁶.

The wine region of Northern Greece includes four large regions with different economic and social characteristics.

- A. Prefecture of east Macedonia and Thrace
- B. Prefecture of Central Macedonia
- C. Prefecture of West Macedonia
- D. Prefecture of Epirus

¹⁶ <http://winefolly.com/review/the-wine-regions-of-greece-map/>

2.1.A. Prefecture of East Macedonia and Thrace

2.1.A.1 Geographical presentation

According to the last census in 2011 conducted by the Hellenic Statistical Authority, its population is 608,182 inhabitants, (Source ELSTAT - Greek census 2011). Its capital is Komotini and Alexandroupolis the largest town. It includes the 5.6% of the country's population. The region of Thrace has as peculiarity the coexistence of people of different communities, those of Turkish origin, Pomaks and Roma which all compose the so-called and recognized by the Treaty of Lausanne (under Article 45) Muslim minority of Greece.¹⁷ Today, the region is one of the most important areas of Greece regarding the Mineral Raw Materials and its geopolitical importance.¹⁸ There is also, food industry, textiles and clothing, mining and quarrying, manufacture of pulp, paper and paperboard and manufacture of tobacco products.¹⁹

2.1. A.2 Socio-economic analysis of east Macedonia and Thrace

In accordance with the above source, during the period 2000-2008, the annual growth of gross domestic product (GDP) was 5.1%, while the region accounted for approximately 3.5% of the country's GDP. As indicated by the accessible Eurostat figures (2017), in 2015 the region accounted for 3.9% (€6,895m) of the national GDP, positioning in the eighth place when compared to the 13 Greek regions. However, with a GDP per capita in purchasing power standards (PPS) of €13,000, the region was positioned in the last place, below the Epirus region (€13,900), and considerably below both the National (€19.600) and EU 28 (€28,900) averages.

The area is plagued by the plight of the financial crisis in Greece. Although unemployment has declined, occurs significantly increased according to ELSTAT during the second quarter of the year 2017 ranging in levels of 19.4%²⁰

2.1.B. Prefecture of Central Macedonia

2.1. B.1 Geographical presentation of central Macedonia

Central Macedonia is the second most important region of the country, in terms of population, with 1,883,339 inhabitants in 2016. Thessaloniki, the capital of the region, is an important commercial and transport hub of South-Eastern Europe.²¹

2.1. B.2 Socio-economic analysis of central Macedonia

As it is apparent from the same source and according to the available Eurostat figures (2017) in 2015 the region accounted for 13.5% (€23,636 m) of the national Gross Domestic Product (GDP). Although regional GDP values have been falling since 2008, in terms of GDP per capita in purchasing power standards (PPS), the region with €15,100 in 2015, was situated in the eighth place among 13 Greek regions.

A serious reason behind the region's moderate growth is its impotence to exploit its geopolitical metropolitan role as a gate and administrations center for Eastern European countries. The most important

¹⁷ https://el.wikipedia.org/wiki/Muslim_minority_of_Greece

¹⁸ https://en.wikipedia.org/wiki/Eastern_Macedonia_and_Thrace

¹⁹ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-anatoliki-makedonia-thraki>

²⁰ <http://taxheaven6.rssing.com/chan-61898546/latest.php>

²¹ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-kentriki-makedonia>

services sectors in the region are financial services, transport and communications, recreational, tourism and transport services; there are large companies dealing with metal production, chemicals, and plastics and the main exporting sectors are those of textiles, food and drink, chemicals, and plastics (European Commission. *Growth. Regional innovation monitor plus Greece*).

Unemployment, although declining, is significantly higher, according to ELSTAT figures in the second quarter of 2017, when measured at 23.2%.²²

2.1. C. Prefecture of West Macedonia

2.1. C.1 Geographical presentation of West Macedonia

West Macedonia (capital: Kozani), is gifted with rich natural resources which have made it one of the country's most important electric energy production centers in Greece, producing 50% of the country's total power. In the region resides 2.4% of the country's population and is mainly an industrial area.

2.1. C.2 Socio-economic analysis of West Macedonia

According to the latest Eurostat available figures (2017), in 2015 the region accounted for 2.4% (€4,141m) of the country's GDP, ranking tenth among the 13 Greek regions. Regarding GDP per capita in purchasing power standards (PPS), the region was positioned fourth among the 13 Greek regions. The unemployment rate in 2016 was 31% (Eurostat, 2017).²³

2.1. D. Prefecture of Epirus

2.1. D.1 Geographical presentation of Epirus

Epirus is positioned at the north-western part of Greece and is its most alpine region. Epirus is positioned at the north-western part of Greece and is mostly an alpine region. The region of Epirus, with a very low population density (36.6 inhabitants/km²), is one of the most isolated and underdeveloped regions in Greece and Europe over the previous decades. However, recent infrastructure projects, growing tourism, and services sectors have greatly helped to improve the area.

2.1. D.2 Socio-economic analysis of Epirus

According to the latest Eurostat figures (2017), gross domestic product (GDP) growth has been stagnant since 2013, and in 2015 the region accounted for 2.2% (€3,887m) of the national GDP. The most important services sectors are the transport, financial intermediation, tourism, health, education, and trade.²⁴

In the second quarter of 2017, unemployment in the region, according to the Greek Statistical Authority, fluctuated to 25.4%.²⁵

²² http://taxheaven6.rssing.com/chan-61898546/all_p279.html

²³ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-dytiki-makedonia>

²⁴ from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-ipeiros>

²⁵ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

2.1.2 Wine in the regions

NORTH GREECE

REGION (prefectures)	Epirus	West Macedonia	Central Macedonia	East Macedonia and Thrace
Βασική περιοχή	ZITSA	AMIDEO- NAOUSSA	THESSALONIKI HALKIDIKI	DRAMA KAVALA AVDIRA MARONEIA
Years of wine industry	Since ancient times, commercially mainly from the 17th century	Since ancient times	Since ancient times The wine route of Dionysus	
White Grapes	Malaguzia Debina Sauvignon blanc Geutztraminer	Malaguzia Assyrtico Sauvignon blanc	Athiri Asyrtico Chardonnay, Sauvignon Blanc, Ugni Blanc Gewurztraminer	Sauvignon Blanc, Chardonnay, Sémillon, Ugni Blanc,
Red Grapes	Caberne sauvignon Merlot Syrah Agiorgitico Vlachiko bekari	Xinomavro Limnio Caberne sauvignon	Xinomavro Grenache Rouge Moschomavro	Cabernet Sauvignon, Merlot, Syrah και Rodoti, Asyrtico, Limnio.
Growing season	Summer	Summer	Summer	Summer
Climate region	Mediterranean but is more continental with colder winters, areas with high winds, rain, and snowfall in the mountains.	The climate of the region is temperate, with heavy winters and mild summers, as opposed to the Mediterranean coastal climate of the country	The climate of the area is temperate, with heavy winters and mild summers (heavy winters on the mountainous territories)	Mediterranean Coastal Mediterranean in the rest of area
average temperature /year in Celsius	13.5	13	15-16	14-16
ΜΕΣΟ ΥΨΟΣ ΒΡΟΧΩΠΤΩΣΗΣ	886,8mm COAST 2562mm mountainous per year.	Balanced-from 36 on September until 69.9 mm on November	Balanced-from 19 on September until 68.1mm on November	Balanced-from 10.4 on September until 60mm on November
Soil conditions				
Total area	9.203 km ²	9451	18811 km ²	14158 km ²
Size of planted vineyards	7814	24388	45839	21133
No. of vineyards	5.830	7944	9170	4456
No. of wineries	8 active		142 active*	

Wine produced

Ioannina: 91

56 white

30, Rosé

5, Red

Thesprotia: 6

3 white

3 reds

REGION	TOTAL ETIKETES	WHITE WINES	ROZE WINES	RED WINES
KAVALA	106	51	8	47
DRAMA	66	29	8	29
SERRES	44	13	5	26
CHALKIDIKI	84	39	8	26
THESSALONIKI	153	73	11	69
KILKIS	37	13	3	21
PELLE	24	10	3	11
FLORINA	82	24	23	35
KASTORIA	7	-	2	5
GREVENA	4	-	1	3
KOZANI	33	13	6	14
IMATHIA	146	39	11	96
PIERIA	22	10	1	11

* Active means those who already produce bottled wine²⁶

2.2 Aegean Islands (including north and south Aegean islands) (Samos, Santorini, Límnos, Lesvos and others)

2.2. A. North Aegean includes the Regional Units of Lesbos and Limnos (Prefecture of Lesbos) based in Mytilene, the capital of the island of Lesbos.²⁷

2.2. A.1 Geographical presentation North Aegean

The Northern Aegean region, with capital city Mytilene, has 196,654 inhabitants. Apart from renewable energy sources the region has few natural resources.

The island of Limnos is the home to a fascinating red wine variety that probably existed during the time of Aristotle and is called Limnio. The elements that make it special are the notes of raspberry fruit and the herbs used. This wine is also cultivated in the mainland in Northern Greece.²⁸

Due to the following article the island of Samos, which is thought to be the originating place of Muscat Blanc, may be the world's most important and well-travelled wine variety. (<http://winefolly.com/> <http://winefolly.com/review/the-wine-regions-of-greece-map/#northern>)

²⁶ <https://winesurveyor.weebly.com/pialpharhoalphagammaomegaomegaomicron943--omicron943nuomicroniota.html>

²⁷ <http://www.pvaigaiou.gov.gr/web/guest/perifenot>

²⁸ <http://winefolly.com/> <http://winefolly.com/review/the-wine-regions-of-greece-map/#northern>

2.2. A.2 Socio-economic analysis North Aegean

The main sources of revenue are the growing tourist industry, commerce, and agriculture. The regional gross domestic product (GDP) showed negative growth in recent years and, according to the available data from Eurostat (2017) in 2015, accounted for only 1.4% (2.454 million Euros) of national GDP.

The most dynamic manufacturing sectors are those of food and beverages, manufacture of fabricated metal products, furniture, wood and of wood products.²⁹ In the second quarter of 2017, unemployment in the region according to the Hellenic Statistical Authority was at the level of 21.9%.³⁰

2.2. B. South Aegean region includes the island complexes of Cyclades and Dodecanese

2.2. B.1 Geographical presentation South Aegean

South Aegean region includes the island complexes of Cyclades and Dodecanese, located at the southeastern edge of Greece and the European Union, and its headquarters is in Ermoupolis, Syros.³¹ The Region of the South Aegean consists of 79 islands, 48 of which are populated and is an internationally renowned tourism destination. The total area of the region is 5,286 km² and its population 334.791 inhabitants (2016). Its capital is Ermoupoli.

According to the article "The wine-growing regions of Greece"³² in its reference to the South Aegean islands, states the following: «This is what most people from outside the country imagine what Greece to be like. Can you see the perfect white-washed houses with ocean-blue painted floors and rooftops, surrounded by restaurants that serve mineral white Assyrtiko wines alongside Mediterranean seafood? If this is your picture of Greece, you are thinking of Santorini! » Through the description of the local wines that particular article makes an excellent description of Santorini, the volcanic island which is the homeland of Greece's most famous white wine "Assyrtiko" as well as other equally exceptional examples. More specifically it mentions: "Assyrtiko" labeled as "Nykteri" are always oaked (to varying degrees) and offer more lemon brûlée, pineapple, fennel, cream, and baked pie crust notes. "Vinsanto", a sun-dried sweet wine that smells more like red wine, even though it's made with Assyrtiko, Aidani, and Athiri, gives notes of raspberry, raisin, dried apricots, and maraschino cherries. (winefolly.com/http://winefolly.com/review/the-wine-regions-of-greece-map).

2.2. B.2 Socio-economic analysis South Aegean

According to the available Eurostat figures (2017), in 2015 the region accounted for 3.5% (€6.072m) of the national gross domestic product (GDP), and regional GDP growth has been slowly recovering since 2013 (€5.983m). Unemployment in the region, in the second quarter of 2017, according to the ELSTAT was at levels of 14.3%.³³

The regional economy, since it is a tourist hotspot, is mainly based on the tourism sector; then follow activities connected to trade, entertainment, arts, transportation services, real estate and the growing services of financial and insurance.³⁴

²⁹ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-voreio-aigaio>

³⁰ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

³¹ https://en.wikipedia.org/wiki/South_Aegean

³² <https://winefolly.com/> <http://winefolly.com/review/the-wine-regions-of-greece-map>

³³ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

³⁴ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-notio-aigaio>

2.2.2 Wine in the regions

AEGEAN ISLANDS

REGION	Prefecture of northern Aegean	Prefecture of southern Aegean (Cyclades - Dodecanese)			
Βασική περιοχή	Lesvos, Limnos, Chios, Samos, Ikaria	Santorin-Paros			
Years of wine industry	during Aristotle’s time	Before the Turk ottoman			
White Grapes	Athiri, Muscat Blanc (Samos)	Assyrtiko (Santorini), Mandilaria (Paros),			
Red Grapes	Limnio (Limnos), Fokiano (Ikaria)	Santorin Madilaria Mavrotragano			
Growing season	summer				
Climate region	Mild, temperate Mediterranean				
Average temperature in Celsius per year	16.9 point of reference Limnos	19,2 point of reference Rhodes 19,9 (in the southernmost) warm temperatures, low rainfall but high humidity during the growing season in Santorini			
Average rainfall amount per year	Balanced-from 17,4 mm on September until 92,3 mm on November points of reference Limnos, Mytilene, Samos	Balanced-from 6,5 mm on September until 73,35 mm on November point of reference Naxos Rhodes			
Soil conditions	The vineyard soils of the region are very poor, composed of volcanic ash and rocks. The calcareous subsoils are porous which helps to retain some of the humidity in the air and release it as moisture in the night for the vines to utilize. ^[1]				
Total area	3.836 km²	5.286 km²			
Size of planted vineyards	29.065	39.574			
No. of vineyards	7921	8017			
No. of wineries	55 active				
Wine produced	REGION	TOTAL ETIKETES	WHITE WINES	ROZE WINES	RED WINES
	LESVOS-LIMNOS	55	41	03	11
	CHIOS	8	04	-	04
	SAMOS - IKARIA	40	26	02	12

DODECANESE	147	72	16	59
CYCLADES	197	128	17	52

2.3 Central Greece³⁵ (Central Greece, Attica, and Thessaly)

Central Greece is a large area on the Eastern side of the Pindus and Agrafa mountains, which divides mainland Greece all the way down to Athens. This area is a lot more arid than Northern Greece, with a climate fairly similar to Napa Valley or parts of Sonoma near Mount Olympus, an area appropriate for red varieties. Additionally, it is much hotter and drier in the South near Athens, where Greece's most planted white grape "Savatiano" is cultivated.

In the north, the best vineyards are found at altitudes higher than 250 m/1,000 ft, where mostly red wines are cultivated. On the slopes of Mount Olympus for instance, the area Rapsani qualifies vineyards according to the height, the highest quality of which are at altitudes over 500 meters (1,640 ft). In this area, bush vines of "Xinomavro", "Krasato", and "Stavroto" (occasionally Limniona for rosé) are growing on schist soils. The wines from this area are usually blends dominated by "Xinomavro" and spicy flavors of raspberry, anise, fennel, cherry, and occasionally olives or tomatoes.

To the south, as the climate becomes warmer and drier, there are more cultivations of white wine. A popular variety of such areas and Greece's most planted grape is "Savatiano". Due to the difficulties that Greece has faced in the last decade with wars and social unrest, white varieties of wine, such as "Savvatiano" and "Retsina", dominated. Producers started dealing with "Savatiano" and "Retsina" in a more serious way. "Savatiano" offers flavors of sweet honeydew, green apple, and lime.

The red wines of the area, usually made of Xinomavro and international grapes, offer more stewed fruit, although the regional "Vradiano" seems to be superior with tasty ripe strawberry, black pepper, and hibiscus notes that are contrasted with mouth-drying, choppy tannins.

2.3. A. Thessaly

2.3. A.1 Geographical presentation of Thessaly

The region of Thessaly, with the capital city of Larissa, occupies a total area of 14,036.64 km², has a population of 729,442 inhabitants (2016), and is located in Mainland Greece along the main transport routes of the wider European Transport Network. The landscape of the region is characterized as highly variable and has some of the country's most fertile agricultural plains.

2.3. A.2 Socio-economic analysis of Thessaly

Thessaly has a long history and specialization in the field of agriculture. According to Eurostat figures (2017), in 2015 Thessaly accounted for 5.1% (€ 8,901 million) of national gross domestic product (GDP).³⁶ According to data from the Greek statistical authority unemployment in the region during the second quarter of 2017 stood at around 20.1%³⁷

³⁵ winefolly.com .Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map/>

³⁶ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-thessalia>

³⁷ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

2.3.B. CENTRAL GREECE

2.3. B.1 Geographical presentation of Central Greece

The region of Sterea Greece with the capital city of Lamia, a total area of 15,549.31 km² and a population of 555,830 inhabitants (2016), is located at the heart of Greece.

2.3. B.2 Socio-economic analysis of Central Greece

The manufacturing sector is quite dominant in the region and particularly developed in the southern prefectures, because of their proximity to the capital city of Athens. It also constitutes an important agricultural centre, while tourism and services are underdeveloped despite the regional potential. As stated in the available Eurostat figures (2017) in 2015, the region accounted for 4.4% (€7,694m) of the country's gross domestic product (GDP).³⁸ Unemployment in the region in the second quarter of the year 2017 (reported by ELSTAT) was at the level of 20.1%.³⁹

2.3. C.ATTICA

2.3. C.1 Geographical presentation of Attica

The region of Attica has a total area of 3,808.10 km² and, with its capital Athens, is the largest region of Greece in terms of population, where over one in three people living in the country are concentrated, totaling 3,781,274 inhabitants in 2016 35.1% of total population of Greece.

2.3. C.2 Socio-economic analysis of Attica

According to the latest Eurostat figures (2017) in 2015 Attica accounted for 48% (€84.368m) of the national gross domestic product (GDP), and together with the figure of GDP per capita in purchasing power standards (PPS), €26,800, the region is positioned in first place among the 13 Greek regions.⁴⁰ Unemployment in the region in the second quarter of the year 2017 (reported by ELSTAT) was at the level of 21.5%.⁴¹

2.3.2 Wine in the regions

CENTRAL GREECE			
REGION	Prefecture of Thessaly	Prefecture of Sterea Greece	
Main area	Rapsani	Region of Sterea Greece	Region of Attica

³⁸ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-sterea-ellada>

³⁹ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

⁴⁰ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-attiki>

⁴¹ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

Years of wine industry			
White Grapes		SAVATIANO	
		RETSINA	
		MALAGOUZIA	
Red Grapes	Xinomavro	Agiorgitiko	
	Krasato	Xinomavro and a little bit of Agiorgitiko, Krasato, Stavroto, Limniona, Vradiano, Cabernet Sauvignon, Merlot, and Syrah	
	Stavroto		
Growing season	Summer	Summer	Summer
Climate region	Warm, dry summers and mild winters	Similar to Napa Valley or parts of Sonoma near Mount Olympus (an area for reds). It is also much hotter and drier in the South near Athens.	
Average temperature per year in Celsius	16-17	16-17	17-18
Average rainfall amount per year	445-1069,2 mm/year	350-1000mm/year plains 1400-1800mm/year Mountainous	350-1000mm in the Attic basin
Soil conditions			
Total area	14.037 km ²	15549 km ²	3808 km ²
Size of planted vineyards	41.215	68023	60700
No. of vineyards	9.692	14.699	7365
No. of wineries	44 active	130 active	
Wine produced	<u>Larisa:</u> 125	<u>Aitolokarnania:</u> 27	
	white 54, rosé 12, red 59 <u>Magnesia:</u> 38	white 11, rosé 4, red 12 <u>Fokida:</u> 9	
	white 18, rosé 6, red 14 <u>Karditsa:</u> 49	white 4, rosé -, red 5 <u>Fthiotida:</u> 112	
	white 24, rosé 2, red 23 <u>Trikala:</u> 19	white 52, rosé 11, red 49 <u>Boeotia:</u> 130	
	white 7, rosé 2, red 10	white 57, rosé 17, red 56 <u>Euboea:</u> 120	
		white 58, rosé 13, red 49 <u>Attica:</u> 238	
		white 154, rosé 15, red 69	

2.4 Southern Greece⁴² (Crete, Peloponnese, Ionian)

The defining feature of Southern Greece is the hot Mediterranean climate. Around Nafplio, the first capital of Greece in Peloponnese, grow oranges that are so low-acid and aromatic that the juice is almost like drinking a fresh-squeezed Sunny-Delight. There is an abundance of delightful aromatic white wines along with one ringer, "Agiorgitiko", which is Greece's other top and most-planted red variety. "Agiorgitiko" is well known and comes from Nemea, a region in Peloponnese which is most famous for this grape. The red wines are more full-bodied with flavors of sweet raspberry, black currant, and plum sauce with nutmeg and subtle bitter herbs and smooth tannins. The wines are generous and fruity, similar in style to Merlot, but with slightly more spice. Rosé wines made with Agiorgitiko have wonderful spiced raspberry notes and a brilliant deep pink color.

In central Peloponnese, grows the variety "Moschofilero", in a region called Mantinea. This dry, aromatic white wine smells of peach and sweet lemon. As the wines age, they develop more nectarine and apricot flavors with toasted hazelnut or almond notes.

The Northern side of Peloponnese and Kefalonia produce sweet red wines with "Mavrodaphne grapes" but have been increasingly focused on white wines with "Robola" and "Roditis". "Roditis" have lime, melon, saline and fairly bitter lime peel notes.

"Robola" is much rarer, found mostly in Kefalonia, with richer flavors of sweet lemon, pineapple, and beeswax, along with a bit of bitterness in the realm of quince and lime peel.

The island of Crete has the warmest wine climates. A very popular wine is "Vidiano", an easy-drinking, dry white wine with melon, pear, and sweet red apple flavors with a somewhat oily mid-palate and low acidity. The red wines of Crete are "Kotsifali", and "Mandilaria", usually blended together to create a wine with sweet red and black fruit flavors, cinnamon, allspice, and soy sauce, with a softer sweet tannin finish. Another rarer red grape is "Liatiko" and makes aromatic red wines with aromas of sweet cherries, roses, rose stems, and allspice, with nice balancing acidity.

2.4. A. Crete

2.4. A.1 Geographical presentation of Crete

Is the southernmost part of Greece. The region of Crete is considered an extremely popular tourist destination and an important agricultural centre for Greece. The island concentrates the 6% (631,812 inhabitants in 2016) of the Greek population.

2.4. A.2 Socio-economic analysis of Crete

Regional gross domestic product (GDP) exhibited, over 2000-2008, an annual growth of 6.6%. The years from 2008 to 2013, it steadily decreased, but it has been growing ever since, totaling 5.0% (€8,789m) of the country's GDP in 2015 (Eurostat, 2017). In the second quarter of 2017 unemployment in the region according to the Hellenic Statistical Authority was at the level of 15.6%.⁴³ The island is a regional centre for services. However, most of the regional services firms are connected to tourism and exports of agricultural products and are not international in scope. Tourism is the most dynamic sector.⁴⁴

⁴² winefolly.com .Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map/>

⁴³ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

⁴⁴ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/region/ellada/nisia-aigaiou-kriti/kriti>

2.4. B. Peloponnese

2.4. B.1 Geographical presentation of Peloponnese

Peloponnese is a peninsula and geographic region in southern Greece. It is separated from the central part of the country by the Isthmus and Gulf of Corinth⁴⁵. The Region of Peloponnese has 581,026 inhabitants (2016) the 5.4% of the country's population.

2.4. B 2 Socio-economic analysis of Peloponnese

According to the available Eurostat figures (2017), it has experienced negative growth rates from 2008 (€10,102m) to 2014 (€7,674m). In 2015, the region accounted for 4.4% (€7,728m) of the country's GDP. In the second quarter of 2017 unemployment in the region according to the Hellenic Statistical Authority was at the level of 15.9%.⁴⁶ The most dynamic sector in the region is the tertiary, particularly in the retail and wholesale trade, tourism and transportation services.⁴⁷

2.4. C Ionian Islands (Heptanese)

2.4. C.1 Geographical presentation of Ionian Islands (Heptanese)

The six northern islands are off the west coast of Greece, in the Ionian Sea. The seventh island, Kythira, is off the southern tip of the Peloponnese, the southern part of the Greek mainland. Kythira is not part of the region of the Ionian Islands, as it is included in the region of Attica⁴⁸. The Region of Ionian Islands concentrates only 2% (206,141 inhabitants in 2016) of the country's population.

2.4. C 2 Socio-economic analysis of Ionian Islands (Heptanese)

According to the Hellenic Statistical Authority (ELSTAT, 2017), the tertiary sector accounts for 89.02% (€2,417m) of the regional gross value added (GVA), which totaled €2,716m in 2014. The unemployment rate has also decreased from 21.4% in 2014 to 16% in 2016 (Eurostat, 2017). In the second quarter of 2017 unemployment in the region according to the Greek Statistical Authority was at the level of 15.5%.⁴⁹ The tourism sector and trade dominate the regional economy and all the other services in the region gravitate around these dominant sectors, offering complementary services.⁵⁰

2.4.2 Wine in the regions

SOUTHERN GREECE

REGION	Region of Crete	Region of Peloponnese	Region of Ionian Islands
Main area	Crete	Peloponnese	Kefalonia

⁴⁵ <https://en.wikipedia.org/wiki/Peloponnese>

⁴⁶ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

⁴⁷ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/region/ellada/kentriki-ellada/peloponnisis>

⁴⁸ https://en.wikipedia.org/wiki/Ionian_Islands

⁴⁹ http://taxheaven6.rssing.com/chan-61898546/all_p279.html

⁵⁰ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-ionia-nisia>

Years of wine industry	Long before the Middle Ages	Long before the Middle Ages	Long before the Middle Ages
White Grapes	Muscat Blanc Vidiano (Crete), Roditis	Muscat Blanc Roditis	Muscat Blanc Roditis Robola (Kefalonia),
Red Grapes	Kotsifali (Crete), Liatiko (Crete), Mandilaria (Crete), Syrah, Cabernet Sauvignon	Mavrodaphne Agiorgitiko Syrah, Cabernet Sauvignon	Mavrodaphne Syrah, Cabernet Sauvignon
Growing season	Summer	summer	summer
Climate region	A hot Mediterranean climate is the defining feature of Southern Greece. In the western Peloponnese, a Mediterranean with many rains. In the central Peloponnese, mountainous and cold, while in the eastern Peloponnese dry and warmer. Crete has the warmest wine climates.		
Average temperature per year in Celsius	25	17.5 -18	17-18
Average rainfall amount per year	927mm	800-1600	950-1100
Soil conditions			
Total area	8.336 km ²	15490 km ²	2307 km ²
Size of planted vineyards	77.503	101.317	30.075
No. of vineyards	35.895	19.938	10.894
No. of wineries	58 active <u>Lasithi</u> : 32 white 14, rosé 3, red 15 <u>Heraklion</u> : 399 white 170, rosé 49, red 180 <u>Rethymno</u> : 9 white 4, rosé 1, red 4 <u>Chania</u> : 96 white 36, rosé 7, red 54	155 active <u>Corinthia</u> : 542 white 136, rosé 69, red 338 <u>Achaia</u> : 223 white 108, rosé 15, red 100 <u>Elis</u> : 60 white 10, rosé 7, red 34 <u>Messinia</u> : 126 white 49, rosé 12, red 65 <u>Laconia</u> : 79 white 39, rosé 11, red 29 <u>Arcadia</u> : 120 white 98, rosé 5, red 17 <u>Argolis</u> : 58 white 27, rosé 6, red 25	26 active <u>Corfu</u> : 15 white 8, rosé 1, red 6 <u>Lefkada</u> : 30 white 10, rosé 5, red 15 <u>Kefalonia</u> : 87 white 49, rosé 11, red 27 <u>Zakynthos</u> : 61 white 26, rosé 11, red 24
Wine produced			

List of Reference

BBC.com. *Greece country profile*. Retrieved from <http://www.bbc.com/news/world-europe-17372520> on 17/04/2018 3.43

[Wikipedia.org. Geography and climate Of Greece](https://en.wikipedia.org/wiki/Greece#Geography_and_climate). Retrieved from Wikipedia.org https://en.wikipedia.org/wiki/Greece#Geography_and_climate on 18/4/2018 17.08

[Nationalgeographic.com. Greece country profile](https://kids.nationalgeographic.com/explore/countries/greece/#greece-ruins-night.jpg) Retrieved from <https://kids.nationalgeographic.com/explore/countries/greece/#greece-ruins-night.jpg> on 17/04/2018. 3.45

Newwinesofgreece.com. *The_vineyard_of_greece* . Retrieved from http://www.newwinesofgreece.com/el/the_vineyard_of_greece/index.html 3,59/17/04/2018index.html 3,59/17/04/2018

Gr.euronews.com. *Debt history capsized Greece* .Retrieved from (<http://gr.euronews.com/2015/06/17/debt-history-capsized-greece>).

Iobe.gr . *The economy in Greece* 04-2017 -3 months report published on January 2018-Retrieved from http://iobe.gr/docs/economy/ECO_Q4_24012018_REP_GR.pdf page 43)

winefolly.com .Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map/>

en.wikipedia.org. *Muslim minority of Greece*. Retrieved from https://en.wikipedia.org/wiki/Muslim_minority_of_Greece on 23/04/2018 15.40

en.wikipedia.org .*demographic elements* . Retrieved from https://en.wikipedia.org/wiki/Eastern_Macedonia_and_Thrace on 20/04/2018 19.42

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-anatoliki-makedonia-thraki> on 23/04/2018 15.28

<http://taxheaven6.rssing.com/chan-61898546/latest.php>. Retrieved on 23/04/2018 16.06

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-kentriki-makedonia> 24/4/2018 15.34

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-dytiki-makedonia> 23/4/2018 16.10

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-ipeiros> 23/04/2018 16.17

<http://www.pvaigaiou.gov.gr/web/guest/home>. Retrieved from <http://www.pvaigaiou.gov.gr/web/guest/perifnot> on 24/4/2018 17.14

<http://winefolly.com> Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map/#northern> on 24/4/2018 17.18

en.wikipedia.org Retrieved from https://en.wikipedia.org/wiki/South_Aegean on 24/4/2018 17.22

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-voreio-aigaio>

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-notio-aigaiou>

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-thessalia> on 23/4/2018 16,39

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-sterea-ellada> 23/04/2018 16.45

<https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-attiki> 30/04/2018 00.18

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/region/ellada/nisia-aigaiou-kriti/kriti>

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/region/ellada/kentriki-ellada/peloponnisos> on 23/4/2018 16.50

en.wikipedia.org .*demographic elements* . Retrieved from https://en.wikipedia.org/wiki/Ionian_Islands on 30/04/2018 00.53

European Commission. *Growth regional innovation monitor plus Greece*. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-ionia-nisia>

REFERENCES FOR THE TABLES

TABLE 1

- <http://www.statistics.gr/> Retrieved from <http://www.statistics.gr/el/statistics/-/publication/SPG63/-table> 02

TABLE 2

- <http://www.statistics.gr/> Retrieved from <http://www.statistics.gr/el/statistics/-/publication/SPG63/-table> 03

TABLE 3

- <http://www.statistics.gr/> Retrieved from <http://www.statistics.gr/el/statistics/-/publication/SPG63/-table> 10

TABLE 4

- <http://www.statistics.gr/> Retrieved from <http://www.statistics.gr/el/statistics/-/publication/SPG63/-table> 07

TABLE 5

- <http://www.statistics.gr/> Retrieved from <http://www.statistics.gr/el/statistics/-/publication/SPG63/-table> 08

TABLE 6

- winesurveyor. weebly.com. Retrieved from <https://winesurveyor.weebly.com/pialpharhoalphagammaomegagammaomicron943--omicron943nuomicroniota.html> on 19/04/2018 2.07

2.1.2 Wine in the regions

TABLE 1. NORTH GREECE

- glinavos.gr. Retrieved from <http://www.glinavos.gr/varieties> 12,38 on **19/04/2018**
- greekwinefederation.gr. Retrieved from <http://www.greekwinefederation.gr/gr/content/show/&tid=54> on **1.12/19/4/2018**
- el.wikipedia.org. Retrieved from <https://el.wikipedia.org/wiki/Ηπειρος> 2,12 on 19/04/2018
- el.wikipedia.org. Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Κεντρικής_Μακεδονίας on **19/04/2018**
- el.wikipedia.org. Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Ανατολικής_Μακεδονίας_και_Θράκης on 19/04/2018 18.35
- el.wikipedia.org. Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Δυτικής_Μακεδονίας on 19/04/2018 18.30
- emy.gr/emv/el/ Retrieved from http://www.hnms.gr/emv/el/climatology/climatology_city on 19/04/2018 **18.45**
- emy.gr/emv/el/ Retrieved from http://www.hnms.gr/emv/el/climatology/climatology_city?perifereia=Epirus&poli=Ioannina on 19/4/2018 02.37
- wwv.gr Retrieved from WWF ATLAS WWF ΕΛΛΑΣ 2012 BOOK 12-2012 WEB MAPS on 19/4/2018 16.30
- winesurveyor.weebly.com/ gr Retrieved from <https://winesurveyor.weebly.com/tour12.html> on 19/4/2018 **18.38**
- <http://winefolly.com> Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map> on 24/4/2018 **19.22**

2.2.2 Wine in the regions

TABLE 2 AEGEAN ISLANDS

- el.wikipedia.org. Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Νοτίου_Αιγαίου on 19/04/2018 19,55
- el.wikipedia.org. Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Βόρειου_Αιγαίου on 19/4/2018 19,52
- emy.gr/emv/el/ Retrieved from http://www.emy.gr/emv/el/climatology/climatology_city?perifereia 19/04/2018 20,15
- wwv.gr Retrieved from ATLAS WWF BOOK 12.2012 WEB%20[MAPs_08_AIGAIO].pdf
- <http://winefolly.com>. Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map/>
- en.wikipedia.org. Retrieved from [https://en.wikipedia.org/wiki/Santorini_\(wine\)](https://en.wikipedia.org/wiki/Santorini_(wine)) on 20/4/2018/ 19.04
- winesurveyor.weebly.com/ gr Retrieved from <https://winesurveyor.weebly.com/tour17.html> on 20/04/2018 19,19

2.3.2 Wine in the regions

TABLE 3 CENTRAL GREECE

- en.wikipedia.org. Retrieved from <https://el.wikipedia.org/wiki/Θεσσαλία> 2/on 19/4/2018 20.45

- el.wikipedia.org Retrieved from https://el.wikipedia.org/wiki/Στερεά_Ελλάδα /19/4/2018 20.46
- <http://winefolly.com> Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map/>
- wwf.gr. Retrieved from WWF_BOOK_12.2012_WEB [MAPs_04_THESSALIA]19/4/2018 21.05
- el.wikipedia.org. Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Αττικής
- wwf.gr Retrieved from ATLAS_WWF_BOOK_12.2012_WEB%20[MAPs_05_STEREA].pdf on 19/4/2018 09.09
- winesurveyor.weebly.com/ gr Retrieved from <https://winesurveyor.weebly.com/tour17.html> on 20/04/2018 19.25

2.3.2 Wine in the regions

TABLE 4 SOUTHERN GREECE

- el.wikipedia.org Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Κρήτης
- el.wikipedia.org Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Πελοποννήσου
- el.wikipedia.org Retrieved from https://el.wikipedia.org/wiki/Περιφέρεια_Ιονίων_Νήσων
- wwf.gr Retrieved from http://www.wwf.gr/forests/pdfs/atlas/ATLAS_WWF_BOOK_12.2012_WEB%20%5BMAPs_09_KRITI%5D.pdf on 20/4/2018 19.49
- winesurveyor.weebly.com/ gr Retrieved from <https://winesurveyor.weebly.com/tour15.html> on 20/04/2018 19.20
- <http://winefolly.com> Retrieved from <http://winefolly.com/review/the-wine-regions-of-greece-map/>
- <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-ionia-nisia> 23/4/2018 16.55

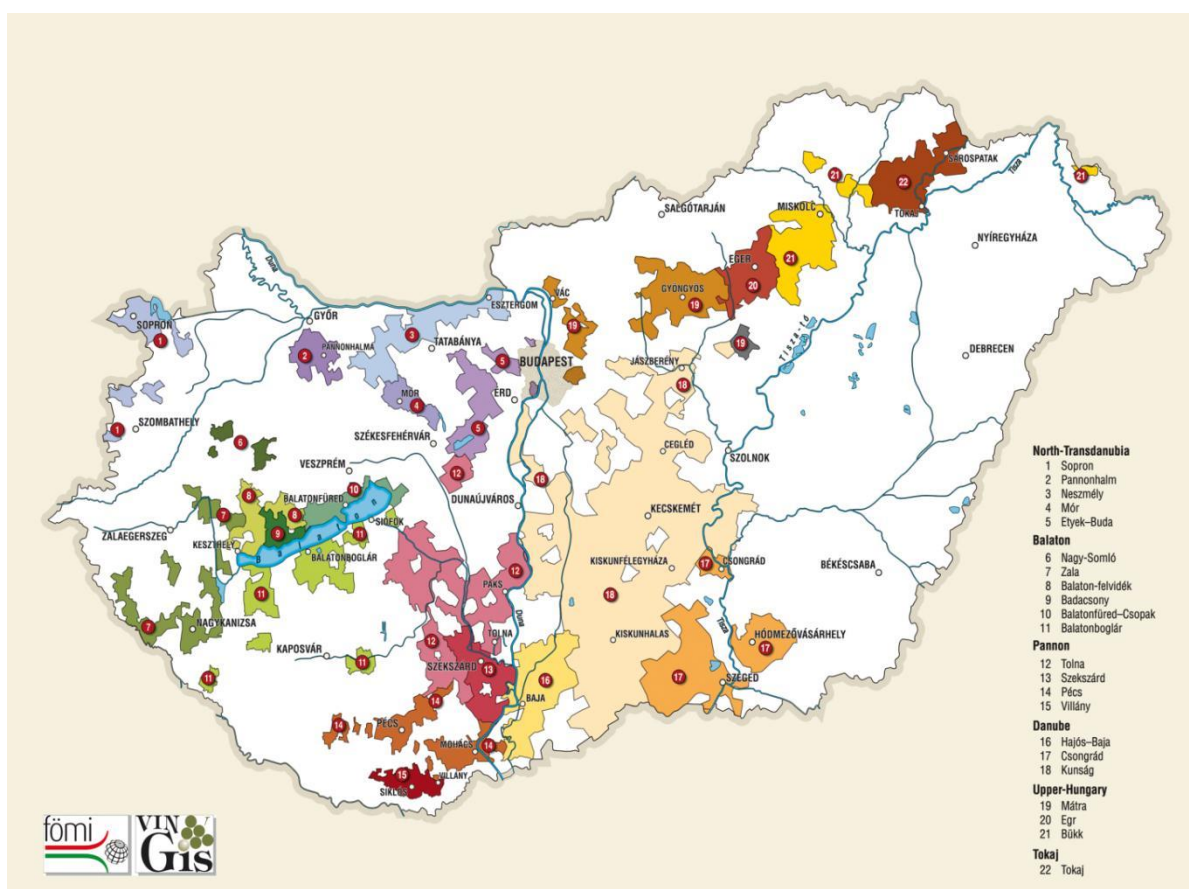
Pictures

- Source of the cover page picture: infokids.gr Retrieved from <https://www.infokids.gr/trygos/> on 01/05/2018 12.25

ANNEX III – COUNTRY PROFILE: HUNGARY

Geographical presentation

“Today Hungary has 22 designated wine regions, and they all have something of interest to anyone who appreciates fine scenery and wants to discover Hungary first hand. A visit to top vineyards and cellars can be combined with other activities, such as sailing, visiting thermal spas, playing golf or discovering the stunning countryside. Since Hungary is a fairly small country to visit you can easily take in several winemaking towns in the course of a week, either by travelling around or making day trips from Budapest.” <http://gotohungary.com/about-hungary/-/article/hungary-wine-regions>



Wine regions of Hungary. Source: <http://www.eu2013.lt/en/the-return-of-hungarian-wine>

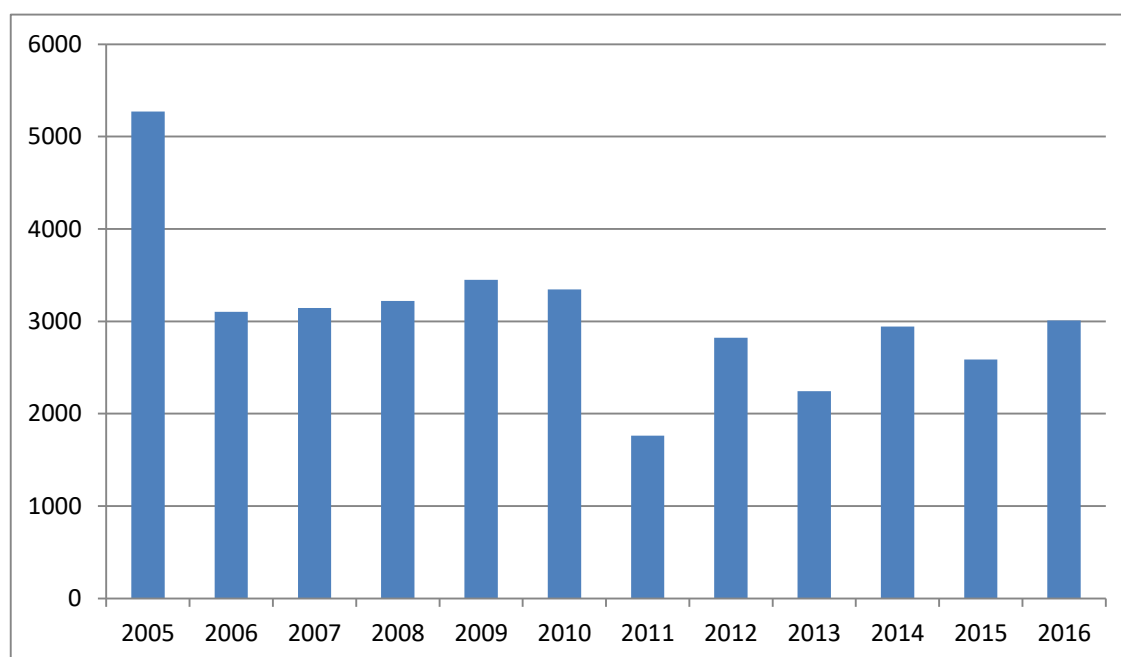
Wine regions in Hungary have an outstanding role in culture and tourism as some of them became internationally famous in the last few decades. For example, Tokaj Historic Wine Region received the UNESCO World Heritage title in 2002 and the Sopron Wine Region won this title in 2001 as the part of Fertő-Neusiedlersee area. Wine routes are also important in the country because there are about 30 registered wine routes in Hungary that operates in association form (Magyar Turizmus Zrt, 2013).

Some of the most famous and popular wine regions:

- “Balaton wine region: Many indigenous varieties grow in the area, including almost-forgotten (and often unpronounceable) white varieties such as Kéknyelű and Juhfark, but the most commonly grown white grape variety is Olaszrizling. Kékfrankos and international varieties such as Cabernet Sauvignon are the most common reds.

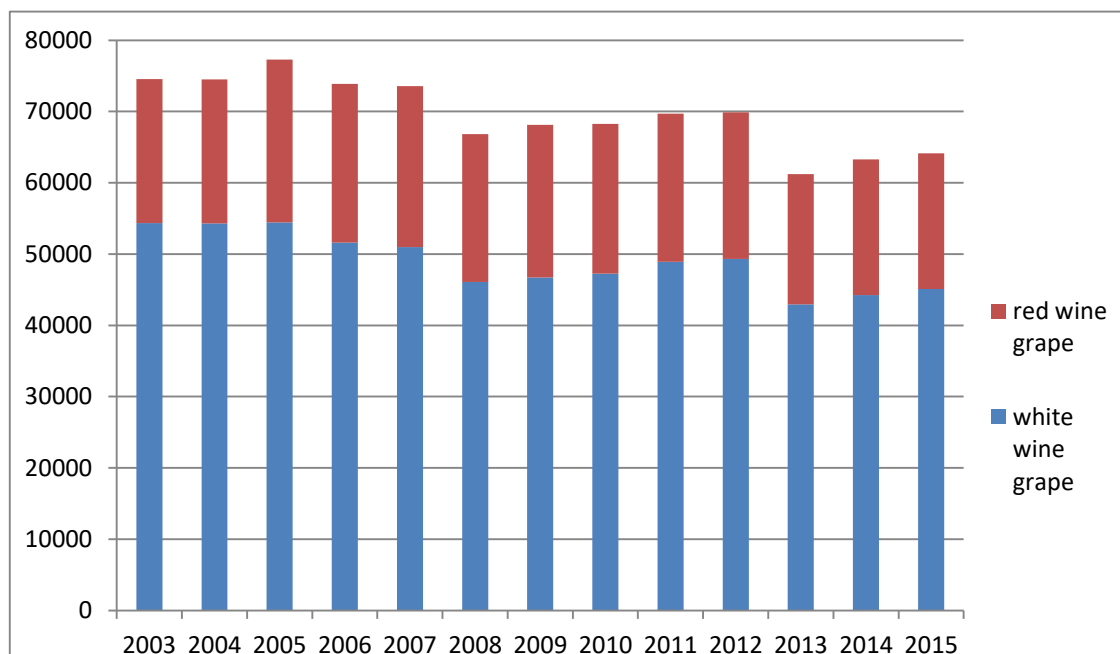
- Eger: Eger is a region with an undeservedly bad reputation. The traditional red wine of the area, the Bull's Blood, earned a bad reputation in the past 50 years as a cheap red wine, but it is slowly regaining its title of Hungary's Burgundy with its elegant reds and rich whites.
- Soil and climate: The soil is mostly Rhyolite. Wine is grown on the hills surrounding the town of Eger, which is one of the coldest and driest areas in Hungary.
- Grape varieties: Bull's Blood (Bikavér) is a traditional blend of at least three grape varieties, usually Kékfrankos (Blafränkisch)-based and including Kadarka and other grape varieties such as Merlot Cabernet or Pinot Noir. Common white wine grapes include chardonnay, olaszrizling (Welschriesling), pinot blanc, hárslevelű and leányka.
- Somló: Hungary's smallest wine region, Somló is located on the site of a single extinct volcano. The dark volcanic soils make powerful, unique wines that are high in minerality and full of flavor. Traditional Hungarian grape varieties such as Furmint, Hárslevelű, Olaszrizling and Juhfark are grown here.
- Sopron: Located next to the Austrian border of Hungary and the neighboring Burgenland wine region, the Sopron region's climate is cooler and windy but Fertő-lake (Neusiedlersee) that crosses the border mirrors back the sunshine equalizing the temperature quite much. Many Austrian winemakers have (re)discovered the vineyards of Sopron, and the region is now a pioneer in biodynamic and organic winemaking in Hungary.
- Szekszárd: The Szekszárd wine region is located in the South of Hungary. With a warm, sunny climate, it produces full-bodied wines full of flavor and spice. Similarly to the Eger wine region, Szekszárd also produces Bull's Blood (Bikavér), a blend of several grape varieties usually based on kékfrankos, but the Szekszárd version is usually more robust and full-bodied in style. The soil of Szekszárd is mainly loessy that brings some gentle-fruity character to its wines.
- Tokaj: A region located on the site of 300 extinct volcanoes, it is the most famous wine region in Hungary. Traditionally known for its sweet desert wines (Tokaji Aszú) made from grapes affected by noble rot, but times are changing and winemakers are now also making rich mineral dry wines too out of traditional local grapes such as Furmint and Hárslevelű (Lindenblättriger).
- Soil and climate: Due to the hundreds of volcanoes the soil of Tokaj is so complex and varying that it's nearly impossible to map. An upper layer of clay or loess covers the volcanic subsoil in most areas. The Bodrog and Tisza rivers run nearby, creating a damp, misty microclimate that is ideal for the development of noble rot, or botrytis, which gives the sweet wines of Tokaj their unique rich flavor. Grape varieties: Only six grape varieties are allowed here. Furmint 60%, Hárslevelű 30% are the main ones but on the rest of 10% we find some Muskotály (Yellow Muscat), Zéta, Kövérszőlő and Kabar. While international grape varieties such as Sauvignon Blanc and Chardonnay aren't allowed to be sold under the Tokaj label, few winemakers are experimenting with these grapes and blending them with traditional varieties to create new styles. Oak usage has declined in recent years and many top producers are creating crisper, cleaner wines now that bring out the rich minerality of the region in the wines.
- Villány: Hungary's warmest and southernmost wine region, Villány has produced rich, bold red wines. This wine region was the first to become successful within Hungary in the 1990s with its full-bodied reds, but as customers started to turn away from heavier wines, many winemakers were slow to catch up. Now, many are now tuning down the alcohol content and barrel aging of their wines, focusing on freshness and fruitiness instead. Cabernet Franc is a variety that usually produces harsh, tannic wines on its own and is often blended with other varieties. In Villány, though, Cabernet Franc has turned out to be the best fit for the area, and wines made from the grape are usually rich, well-balanced and fruitier than their international counterparts. Other red varieties such as Carnet Sauvignon, Kékfrankos and Merlot are also grown, along smaller amounts of Chardonnay and other white grapes.

- Some of the other notable wine regions in Hungary include Etyek, a town just outside Budapest known for its sparkling wine and fresh whites, and Pannonhalma, the area of a Benedictine abbey producing great fresh white wines.” <https://borstore.de/wine-guide/wine-regions/>



Wine producing in Hungary from 2005-2016 (hectolitre). Source: KSH.hu

The Hungarian wine sector has a long history as viticulture was always important in the country even though our vineyard area has lost 15.1% since 2003. The decline mainly occurs in the area of white grape varieties which decreased by 18.6% but the yield of blue grapes decreased by 5.8%. This 18.6% decline in white grape is very drastic that means more than 10 thousand hectares as the production of the white grapes is more typical in Hungary. Roughly the 2/3 of the grape-growing areas focuses on white grapes on national level but this ratio varies with the wine regions. Unfortunately, Hungary has a real fragmented estate system in which that average parcel size is 0.48 hectare. In addition the average age of the plantations is 26.33 years that makes the actual situation less favourable for the whole sector. The 72.81% of the grape-growing areas are cultivated by its owners (HNT, 2016).



The development of the national wine-growing areas (hectare). Source: HEGYÍR in HNT, 2016

There was a change in the major white and blue grape varieties in the last few years. Interestingly, concerning the white grapes, in 2003 the Italian Riesling played a dominant role in the Hungarian wine sector. However, in 2014 this dominant role decreased as Bianca had an outstanding role over other types of white grapes. Resistant grape varieties such as Bianca or Aletta became very popular in Hungary in the last few years mainly because their cultivation technology is simpler, cheaper and very productive. However, it should be highlighted that these types of wines are very not outstanding (HNT, 2016).

As for the blue grapes, the situation was quite constant, only smaller changes happened in the proportion of varieties. Kékfrankos (Blue Frankish) preserved its leading role despite the decline in its territory. However, it seems that cabernet sauvignon, cabernet franc, merlot and pinot noir have a significant increase in their production world-wide (HNT, 2016).

White grape		Blue grape	
Type	Ratio	Type	Ratio
Bianca	10.55%	Blue Frankish	37.92%
Cserszegi fűszeres	9.48%	Cabernet sauvignon	14.11%
Italian Riesling	8.84%	Merlot	10.35%
Furmint	8.61%	Zweigelt	9.15%
Chardonnay	5.73%	Cabernet franc	7.18

The five most dominant grape types in Hungary (2016)

Source: HEGYÍR in HNT, 2016

Grapes that were planted for commercial use were harvested from nearly 46 thousands hectares. In this case, the average yield was much higher than in areas with other usage aims. So, the buying system encourages vine producers to increase crop yields (HNT, 2016).

Hungary is far behind the largest wine-producing countries related to the quantity of production in both European and world-wide level. Hungary is one of the medium-size wine-producing country in the continent. The volume of wine production has fallen from the previously considered standard of 3-3.5 million hectolitres since 2010. Based on that, it can be said that the production is around 2 million in the

worse and 2.5 million hectolitres in the better years. Half of the total marketed volume is dry, one third is semi-sweet, novena is sweet, and thirtieth is semi-dry. The proportion of dry wines is still higher (71%), while the portion of semi-sweet is 18% (HNT, 2016).

According to the statistics of 2016, 41 798 company dealt with grape-growing or wine-producing in Hungary. However, these two activities are sharply divide in spite of the fact that the 4/5 of the wine-producers grow grapes, too. It also should be highlighted that the there is a strong competition of the wine market among the participants (HNT, 2016).

Nowadays, a so-called “Hegyközség” system deals with the co-ordination of the wine-producers and grape-growers. However, unfortunately it seems that the actual leading bodies of the sector do not appear sufficiently strong in co-ordination, administration, interests protection and partnership building with other association (HNT, 2016).

Hungary is a traditional wine-consuming country, almost every household buys wine regularly, though the trend is showing a decline in the last few years (about 10% drop). However, the average purchase rate has increased like the purchased volume: one household purchases almost 35 litres of wine every year. Rosé wine is the most popular among young people (40% of people under the age of 40 choose this type) while older people prefer dry white and red (HNT, 2016).

The number of direct purchases (from producers) also increased. Wines in larger sizes plays a dominant role in the Hungarian market because only the 1/3 of the total purchases are made by bottled wines. Related to distribution channels, hypermarkets (31%), discounts (24%) and supermarkets (16%) are determining in the market. Only 9% of the total sales of wines were made by independent wine shops (HNT, 2016).

Wine consumption became more and more popular for the Hungarian population and it has a real potential in the country’s tourism offer, as well. As for the Hungarian wine consumers wines are positively associated with family, friendships and festive occasions. High quality wine products are also became more attractive for the consumers in the country that can be a very good link in tourism, too. In Hungary, the wine-loving people who are receptive to novelties and who like to take an active part in the community are highly educated and their income situation is better than the average. It also should be highlighted that wine-related decisions are mainly made by men. The image of the different the wine regions also influence the consumptions and the most popular wine-growing areas are Tokaj, Eger and Villány (Bormarketing Műhely Kft, 2013).

Hungarian wine buyers are very price sensitive but at the same time wine types and vinery can influence the final decisions of the consumers. However, appearance e.g. packages seems to be less important for customers (HNT, 2016).

Year	Production	Import	Export	Loss	Closing stock	Domestic utilization	Domestic consumption	
						Totally	Per capita	
	million litre					litre		
2003	388,0	8,2	70,7	8,4	489,8	335,0	326,5	32,2
2004	527,2	6,0	63,2	12,9	584,7	362,2	330,3	32,7
2005	310,3	9,7	64,6	7,6	458,0	374,5	333,5	33,1
2006	314,4	19,3	75,7	4,3	361,9	349,8	336,1	33,4
2007	322,2	29,5	68,7	4,1	348,2	292,6	286,5	28,5
2008	344,8	23,7	66,9	3,7	398,0	248,1	242,2	24,1
2009	334,3	15,4	73,9	3,8	425,0	245,0	236,6	23,6
2010	176,2	18,3	84,6	3,5	291,2	240,2	234,5	23,4
2011	282,2	54,1	62,7	3,6	300,3	260,9	259,1	26,0
2012	224,3	56,6	65,0	3,9	276,3	236,0	235,5	23,7
2013	294,4	60,6	62,1	3,9	329,2	236,1	235,7	23,8

2014	258,5	46,6	72,3	3,6	343,0	215,4	214,9	21,8
2015	300,8	27,2	71,5	3,8	346,1	249,6	249,1	25,3

Wine balance in Hungary 2003-2015. Source: KSH

Actually, there are 42 institutions with 68 vocational trainings in the secondary or higher level education. Only the 325 of these trainings are integrated the knowledge of grape-growing and wine-producing. There are no special courses just for viticulture. The most common criticisms against (especially tertiary) trainings concern their too low practice orientation. Actually, there are five Research Centres that focuses on viticulture in Hungary (HNT, 2016).

Region profile – Balaton Wine Region

Balaton wine region is one of the seven larger wine regions of Hungary. It consists of six wine regions: Badacsony, Balatonboglár, Balaton-felvidék, Balatonfüred-Csopak, Nagy-Somló and Zala.

The six wine region of the Balaton wine region is quite unique and mainly white grape varieties are grown there. In 2003, about 86% of all vineyards with white grapes was installed. However, by 2014 the red grapes accounted for about 22% plantations. The total area of white types has decreased by 24% since 2003, and a blue grapes increased by 28.6% (HNT, 2016).

The vineyard areas decreased by about 17% in the region, only Balatonboglár's vineyards increased and there the proportion of blue grapes also rose. In 2003 more than 1/3 of the white grape plantation areas were made by the Italian Riesling variety, however, by 2014 only 31% is the ratio that still dominated at that time. During this 12 years Chardonnay has preserved the size of its areas and the planting yard of Szürkebarát increased by 50%, while the total area decreased for all other varieties. At the same time 13 new varieties have also been installed, so Irsai Olivér and Sauvignon could increase their growing areas by hundreds of hectares. However, unfortunately the variety was narrowed overall. There was a significant change in almost all of the blue grape varieties. All growing areas and the rate of varieties had also changed in the last decade. The total area of all major species increased, most notably cabernet sauvignon, which is doubled its yield since 2003. The merlot and pinot noir were also outstanding because the production area grew by 54% and 45%. Zweigelt could not increase that fast as just a few more hectares were planted from that type since 2003 (HNT, 2016).

In the region, the proportion of own-grape cultivation is 68.36% which is not much lower than the national 72.81%. The average vineyard size is 0.39 hectares and the average age of plantations is 30.3 years, which is also below the national level (HNT, 2016).

Wine in the region

Official name	Wine Region Balatonfüred-Csopak
Other names	
Type	wine region
Year established	1959
Years of wine industry	viticulture dates back to the Roman Empire
Country	Hungary
Part of	part of the Balaton Wine Region

Other regions in {part of}	no
Sub-regions	no – 27 settlements are included (from which 3 cities) in the wine region, total population of 40,051 persons
Location	Northern shore of the Lake Balaton, from Balatonfőkajár to Zánka
Growing season	August (depending on the actual weather conditions)-November (late harvest)
Climate region	Continental – influenced by the Bakony hills (northern side) and the Lake Balaton (southern side). The lake has a special microclimate, furthermore the hills in the wine region has a special character (sunshine)
Heat units	
Precipitation (annual average)	N/A
Soil conditions	The soil is quite homogenous, clayey soil. The region's unique soil is the red soil forestier with a high amount of iron-oxid.
Total area	1,579 ha (2.7% of Hungary's total wine growing area)
Size of planted vineyards	average: 1,04 ha/vineyards
No. of vineyards	N/A
Grapes produced	Riesling Italian, Pinot Gris, Blaufrankisch, Cabernet sauvignon, Zweigelt, other
Varietals produced	
No. of wineries	1,904
Wine produced	7,936 tons per year. 5,03 tons/ha (average) Year 2014: 60,4 thousands hl wine produced
Official designation(s)	some of the important ones: national awards to Kalman KOCZOR (2014) “winemaker of the winemakers” award to Istvan JASDI (2017)
Comments	quality scheme of the Éltető Balaton-felvidéki Egyesület (Rural Quality Mark) – a number of the wineries in the wine region are qualified

Sources:

Hegyközségek Nemzeti Tanácsa (HNT): Magyarország szőlészetének és borászatának helyzete
Háttér tanulmány az ágazati stratégiához, 2016
Bormarketing Műhely Kft: A magyar lakosság borfogyasztási szokásai, TURIZMUS BULLETIN XV. ÉVFOLYAM 1. SZÁM, 2013

Magyar Turizmus Zrt: A bor és gasztronómia mint turisztikai termék, TURIZMUS BULLETIN XV. ÉVFOLYAM 1. SZÁM, 2013

KSH: https://www.ksh.hu/docs/hun/eurostat_tablak/tabl/tag00034.html

Wikipedia, Infobox Wine Region – descriptions of items can be found at https://en.wikipedia.org/wiki/Template:Infobox_wine_region

ANNEX IV – COUNTRY PROFILE: ITALY

IV.1 Geographical presentation



Source: [NuclearVacuum](#)

[the following figures are retrieved from [Wikipedia: Italy](#)]

Italy, officially the *Repubblica Italiana* (Italian Republic), is a Mediterranean country of Europe, with a territory of 301.338 km², of which 294.020 km² is land and 7.210 km² is water. Including the islands, Italy has a coastline and border of 7.600 kilometres. Its population is 60,589,445 million (estimate 2016).

The Apennine Mountains form the peninsula's backbone and the Alps form most of its northern boundary.

The country is situated at the meeting point of the Eurasian Plate and the African Plate, leading to considerable seismic and volcanic activity. There are 14 volcanoes in Italy, four of which are active.

Italy has the highest level of faunal biodiversity in Europe, with over 57.000 species recorded, representing more than a third of all European fauna; Italian fauna includes 4.777 endemic animal species.

Thanks to the great longitudinal extension of the peninsula and the mostly mountainous internal conformation, the climate of Italy is highly diverse. In most of the inland northern and central regions, the climate ranges from humid subtropical to humid continental and oceanic. Conditions on peninsular coastal areas can be very different from the interior's higher ground and valleys, particularly during the winter months when the higher altitudes tend to be cold, wet, and often snowy. The coastal regions have mild winters and warm and generally dry summers, although lowland valleys can be quite hot in summer. Average winter temperatures vary from 0 °C on the Alps to 12 °C in Sicily, like so the average summer temperatures range from 20 °C to over 25 °C. Winters can vary widely across the country with lingering cold, foggy and snowy periods in the north and milder, sunnier conditions in the south. Summers can be hot and humid across the country, particularly in the south while northern and central areas can experience occasional strong thunderstorms from spring to autumn.

IV.2 Socio-economic analysis

Today, Italy has the third largest nominal GDP in the Eurozone and the eighth largest in the world. As an advanced economy, the country has the sixth-largest worldwide national wealth and it is ranked third for its central bank gold reserve. Italy has a very high level of human development and it stands among the top countries for life expectancy. As a reflection of its cultural wealth, Italy is home to 53 World Heritage Sites, the most in the world, and is the fifth most visited country.

IV.3 Wine in Italy

Italy is one of the leading wine producing countries in Europe; in 2016 Italy became the first wine producer in the world. Official statistics (ISMEA) suggests that in 2017 production of Italian wines accounted for 40 million hectolitres with a drop of 23% with regards to 2016. Internal consumption is estimated to be around 20 million of hectolitres.

Production is spread among the Italian regions which follow different trends: some regions (for example regions in the south of Italy) have registered a negative performance in 2016, so the final results of 2017 are not so harmful as for other regions. Controlled appellations play a pivotal role in the Italian wine industry: about one-third of Italian wines are DOC or DOCG (USDA). The variety of grapes cultivated in Italy is impressive. According to ISTAT, who perform the official census of Agriculture, the first grape cultivated in Italy is the Red Sangiovese, with a growth of 2,5 between 2000 and 2010. Among the top ten varietals, the Chardonnay has registered a growth of 40.3% and Pinot Grigio of 61,4%. It is hard to define how many grapes are cultivated in Italy: the diffusion of the interest for typical products and wines has created a room for less popular grape varieties. In Italy, there are 333 DOC wines, 74 DOCG and 118 IGT wines (Federdoc).

Internal consumption is estimated to be around 20 million of hectolitres. Trends in domestic consumption saw a decline: in the 70s the average consumption per capita was estimated at 110 litres, so far from the 36 litres of 2015 (USDA). This drop can be explained by changes in lifestyle, habits and tastes.

The wine has a pivotal role for the development of the Italian Economy: forecasts (winenews.it) suggest that by 2020 the GDP of the wine industry will reach 12,1 billion Euros (+15% if compared to 2016). Italian wines are one of the leading exporting products.

Italy together with France leads wine exports at a global level. Exports of wine account for 4,97 Billion € (qualivita) with a +6.2% between 2015 – 2016.

Therefore, the wine industry is essential for the development of local economies and socio-economic systems. Wine exports in the Veneto region represent the 1.32% of the entire GDP; in Trentino the 1.28%, in Tuscany the 0.83 %, and in Piedmont the 0.72%. The provided data give an idea of the role that the industry has within local economies.

Exciting insights emerge from the analysis of the population of wineries: between 2010 and 2015 the number of producing wine companies has registered a decrease of 27% (pianetapsr.it). The Italian wine industry has seen a concentration, and the average size of the winery has reached in 2015 2.08 hectares (in 2010 it was 1.73). According to ISTAT cooperatives have a bigger size than the other types of wine companies. The production of wine released by cooperative cellars on the national market accounted in 2016 for 50% of the total wine production (pianetapsr.it).

Marche Region

Geographical presentation



Source and copyright: [TUBS](#)

Located in Central Italy, the Marche has a territory of 9.366 km² and a population of 1.541.692 inhabitants (Census 2011). The land is mostly hilly, except for river valleys and coastal strip, which is relatively flat with a few exceptions on the North of the Region. Climate is temperate. Inland, in the mountainous areas, is more continental with cold and often snowy winters; by the sea is more Mediterranean.

Socio-economic analysis

[Following figures are retrieved from [Regional Innovation Monitor \(EC\)](#)]

Marche's economy is mostly based on clusters of SMEs (“distretti industriali”), working in traditional manufacturing sectors (e.g. typical Made in Italy products such as shoes, clothing, electric appliances, machinery, furniture etc.) distributed through the region.

In 2015, the regional growth rate was slightly positive (+0.88%), below the national average (+1%) and the one for Europe (+1.9%).

In 2015, the GDP of Marche was equal to €40,593m and it contributed to the 2.5% of the national GDP (Eurostat, 2017). Per capita GDP PPS was equal to € 26,900 in 2015, below the Italian (€27,800) and the European average (€28,900).

In 2016, the employment rate is higher (62.2%) than at the national level (57.2%), although still below the European average (71.1%). The unemployment rate increased considerably in recent years, from 4.7% in 2008 to 10.6% in 2016 (Eurostat, 2017), below the national trend (from 6.7% to 11.7%), but above the one for Europe (from 7% to 8.6%).

The Marche Region was hit by a series of severe earthquakes in Autumn 2016, which caused significant damages particularly in the Southern area of the Region.

Wine in the region

The Marche region finds in the food industry a pillar of its economy: the total turnover of the food and wine industry accounts for 20 million €. In the region, there are 5 DOCG⁵¹ wines, 15 DOC⁵² and 1 IGT⁵³ wine. Regional production represents the 1.2% of the national wine production (Qualivita). The main DOP varieties of wine produced are Verdicchio dei Castelli di Jesi and Rosso Piceno. Vineyards cover 17.563 hectares. Vineyards are mainly planted in hills (85%) and only a 5% of the area under vines is on the mountain (Istat). 55% of the production is red and rosè wines, 45% white wines.

In the region, there are 3000 wine producing companies (ISTAT).

The wine industry covers an essential role for the development of rural areas and local economy. In the volume of wine production is steady and in 2016 reached 959.000 hectoliters. From the analysis of the data about food and wine export, we can see that this region is having good performance with some strategic partners (Regione Marche): in particular, inter UE and northern Africa exchanges have registered good performances. If compared to other sectors, the food and wine industry registered good export performances and represented leverage for the revitalisation of the regional economy. Agriculture represents a key component of the regional economy: there are 41.000 firms (2.8% out of total national population) and the 82% of the companies are family firms (Regione Marche).

The Region produces the following wines:

DOCG:

- Castelli di Jesi Verdicchio Riserva
- Verdicchio di Matelica Riserva
- Conero Riserva
- Offida
- Vernaccia di Serrapetrona

DOC:

- Bianchello del Metauro
- Colli Pesaresi
- Pergola
- Lacrima di Morro o Lacrima di Morro d'Alba
- Esino
- Verdicchio dei Castelli di Jesi
- Rosso Conero
- Colli Maceratesi
- San Ginesio
- I Terreni di Sanseverino
- Verdicchio di Matelica
- Vernaccia di Serrapetrona
- Falerio
- Rosso Piceno o Piceno Scarica il PDF
- Terre di Offida

IGT denomination:

- Marche

⁵¹ DOCG, *Denominazione di Origine Controllata e Garantita*: controlled and guaranteed designation of origin.

⁵² DOC, *Denominazione di Origine Controllata*: controlled designation of origin.

⁵³ IGT, *Indicazione geografica tipica*: wines labeled with the locality of their creation, but do not meet the requirements of the stricter DOC or DOCG designations,

Toscana Region



Source and copyright: [TUBS](#)

Geographical presentation

[the following figures are retrieved from [Wikipedia: Tuscany](#)]

Tuscany (Italian: *Toscana*) is a region in central Italy with an area of about 23.000 square kilometres and a population of about 3,8 million inhabitants (2013).

Surrounded and crossed by major mountain chains, and with few plains, the region has a relief that is dominated by hilly country used for agriculture. Hills make up nearly two-thirds (66.5%) of the region's total area, and mountains (of which the highest are the Apennines), a further 25%. Plains occupy 8.4% of the total area. Tuscany has a western coastline on the Ligurian Sea and the Tyrrhenian Sea.

The climate is fairly mild in the coastal areas, and is harsher and rainy in the interior, with considerable fluctuations in temperature between winter and summer.

Socio-economic analysis

[Following figures are retrieved from [Regional Innovation Monitor \(EC\)](#)]

GDP per capita PPS in Tuscany was equal to €30.200 in 2015, increasing since 2011 by 5.2%.

Compared to the national average (+0.2% for 2015 and 0.3% for 2016), Tuscany showed good and strong signs of recovery from the world economic crisis, that however are far from the EU trend (+2.2% for 2015 and 1.9% for 2016).

In 2015, there were approximately 340,000 business firms active in Tuscany. More than 75% of regional firms operate in services of which 34% in services trade, transport and hotel industry. The companies in the construction industry amount to 11%, while industrial firms amount to 12%. The main specialisations of Tuscany industrial clusters include textiles; leather; shoes and clothing; agro-food; stone and marble; chemistry and oil; and mechanics. Moreover, new (non-traditional) specialisations are emerging, such as the software industry in the area of Pisa. The manufacturing sector, which first felt the effects of the crisis, reported a fall in sales and production levels of more than 15%. The overall performance was worse for smaller firms (especially crafts) and those in the fashion industry.

The distribution of employment by sector displays that services have the largest concentration (69.5%). Industry represents 29.8% and the construction sector 9.2% of the total workforce.

The unemployment rate has increased considerably in the recent years, from 5.1% in 2008 to 9.5% in 2016 (Eurostat, 2017).

Wine in the region

Tuscany plays a crucial role in the development of the national wine industry: Tuscan wines are appreciated on international markets. In Tuscany, there are 6 IGT wines, 41 DOC and 11 DOCG wines (Federdoc). Among the population of wines, there are some famous appellations, such as the Chianti or the Brunello and other quality wines that are less popular on international (and national markets). Export wines account for 0.83% of the regional GDP. 25% of the area under vine is in the mountain; 67% is located on hills.

Wine production is fragmented: the population of wineries in Tuscany is mainly made up of small and micro-wineries. Tuscany is the leading region in Italy for wine producing companies: in 2015 there were 8.000 firms producing wine (ISTAT).

The territory of Massa Carrara

The Massa Carrara province is the northern province of Tuscany, with a land of 1.154.68 km² and 195.832 inhabitants. From a geographical point of view, the province is constituted by two main areas:

- The coastal side, the Riviera Apuana;
- The continental side, the Lunigiana (at the borders with Emilia-Romagna and Liguria Regions).

Agriculture is very relevant as economic sector. The most typical and important sector is anyway the marble quarrying industry with produces more than half of national marble. Tourism is developed mostly on the coast.

The area of Massa-Carrara produces 10 DOC/DOCG wines:

- Candia dei Colli Apuani
- Candia dei Colli Apuani amabile
- Candia dei Colli Apuani amabile frizzante
- Candia dei Colli Apuani secco
- Candia dei Colli Apuani secco frizzante
- Candia dei Colli Apuani Vin Santo
- Colli di Luni bianco
- Colli di Luni rosso
- Colli di Luni rosso riserva
- Colli di Luni Vermentino

Aosta Valley – Region Valle d’Aosta



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Geographical presentation

Aosta Valley is the smallest Italian region (3.262 sq.m) and it counts around 130.000 inhabitants. It is situated in the north-west of Italy at the border with France on the west and with Switzerland on the north, on the east and on the south it borders with Piedmont.

Its territory is completely alpine and it is surrounded by the 4 highest Italian mountains as Mont Blanc, Monte Rosa, Matterhorn, Gran Paradiso and it is crossed by the river Dora Baltea which is an important tributary of the River Po.

They exist really different local microclimates between valleys and slopes close to each other.

The temperatures change based on height; at altitude there is an alpine climate with short summers and long winters with temperatures which can reach -30° at more than 2.000 mt high, in the valley floors there is a continental climate with temperatures between less than 0° in winter and more than 30° in summer. There are very few rainfalls, constant ventilation and important thermal excursions between the day and the night.

Socio-economic analysis

The regional per capita is 20.996€ (2016s), at the first places in the national ranking, however its trend is less than any other Italian region with only + 2%. The Aosta Valley's economy is mainly based on the service sector and in particular on tourism, in the primary sector the cattle breeding is at the first place followed by the agricultural activity. The agriculture is really important and despite the region's small size a wide range of both red and white wines are made here from a selection of both native and introduced varieties.

The most famous of them is the *Picotendro*, the local form of Nebbiolo and another particular native grape is the *Prié Blanc* which vineyards planted between 900 metres to 1.200 metres above sea level are some of the highest-elevation vineyards in continental Europe.

Aosta Valley has a unique DOC, the Valle d'Aosta or Vallée d'Aoste DOC which is mainly based on the following wines: Müller Thurgau, Gamay, Pinot nero, Pinot grigio, Pinot bianco, Chardonnay, Mayolet, Petite-Arvine, Merlot, Fumin, Syrah, Nebbiolo, Petit Rouge, Moscato bianco, Gewürtztraminer, Gamaret, Vuillermin, Prié Blanc, Vien de Nus.

The development of that sector is ensured by the cooperation between cooperative wineries and medium and small producers.

Wine in the region

Official name	DOC Valle d'Aosta - Vallée d'Aoste
Year established	1971
Years of wine industry	Since Roman times
Country	Italy
Sub-regions	Arnad-Montjovet , Blanc de Morgex et de La Salle , Chambave , Donnas , Nus , Enfer d'Arvier, Torrette
Location	North-western Italy
Growing season	Spring/Summer
<u>Climate region</u>	Alpine climate on the mountains; continental climate in the valleys
Precipitation (annual average)	805mm
Soil conditions	Morainic and sandy soils
Total area	3.263 km ²
Size of planted vineyards	About 400 ha
Grapes produced	Above all dry white and red wines, some sparkling wines and passito ones
Varietals produced	Müller-Thurgau , Gamay , Pinot nero , Pinot grigio , Pinot bianco , Chardonnay , Mayolet , Petite Arvine , Merlot , Fumin , Syrah , Nebbiolo , Petit Rouge , Prié rouge , Moscato bianco , Gewürtztraminer , Gamaret , Vuillermin , Prié blanc , Vien de Nus
No. of wineries	43
Wine produced	2.229 hl in 2016
Official designation(s)	Valle d'Aosta - Vallée d'Aoste