WINE ON THE WEB IN A GLOBAL MARKET: A COMPARISON OF E-COMMERCE READINESS AND USE IN AUSTRALIA, CALIFORNIA AND GERMANY

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Wine is indicative for ongoing globalization, it is a highly differentiated, internationally traded experience product. We chose the wine industries of Australia, California and Germany because there is sufficient variation in the regulatory, economic and technological environments to analyze the determinants of e-commerce diffusion and its impact on agricultural industries. Therefore some developments in the wine industry might be indicative for other agricultural industries that are still at a lower level of the e-commerce diffusion curve. To determine the extent of which wineries and wine market intermediators participate in e-commerce and to also find out what has changed within the last two years we surveyed their websites, first at the end of the year 2000 and again at the beginning of 2003. In this paper we point out the interregional differences and the different developments found, and explain these in the light of the countries' level of e-commerce readiness, the differing industry structures, sales costs and market intermediation. We find that Australian and California wineries are in leading positions but German wineries are loosing ground. In all of the three countries, the web wine retail industry continues to consolidate as more web retailers exit from the industry.

1. Introduction

E-commerce has been defined as trade "…that actually takes place over the Internet, usually through a buyer visiting a seller's website and making a transaction there." (Economist, March 2000). As elsewhere in the economy, the e-commerce boom in agriculture went along with the e-commerce stock market boom of the late 1990s. A host of websites grew rapidly to provide marketing services to farmers or to use web technology to market farm products (Mueller 2001). However, many of these businesses in agriculture, as elsewhere, had no business model that was operational and profitable and they failed (Williams, 2001). While the fortunes of dotcoms have ebbed, e-commerce has continued to grow and still wants research attention.

Wine is a highly differentiated, internationally traded experience-product and competition on major export markets is intense. Some developments in the wine industry may be indicative of what is likely to happen in other agricultural industries that are still at a lower level of the e-commerce diffusion curve. Furthermore, there is sufficient variation in the regulatory, economic and technological environment of the wine industries in Australia, California, and Germany to suggest, and perhaps allow us to examine, hypotheses about the determinants of e-commerce diffusion and impact on agricultural industries.

In this paper we first give an overview over the wine industries of Australia, California and Germany. Then we report results from a web appraisal of commercial wine sites. This survey was first conducted at the end of the year 2000 and again 2 years later at the beginning of the year 2003. The purpose of the appraisals was to provide answers to the following four questions:

(i) For what purposes is the web used and what are the differences in web use by the wine industries from the three regions?
(ii) What changes in e-commerce in wine have occured within the last 2 years?
(iii) Are there differences in e-commerce readiness betwenn the three regions?
(iv) What are key characteristics with importance for e-commerce of the wine industries in the three regions?

There are many interesting questions about which this paper is silent. We do not discuss business-to-business web transactions, such as might involve the marketing of grapes or the marketing of wine from a grapegrower or winery to a wholesaler or retailer. We also pay little attention to the use of the web for public relations or advertising purposes. Our attention is focused on the use of e-commerce transactions, especially web-based winery-to-consumer (W2C) sales.

2. The wine industries of Australia, California and Germany

Differences in the use of the Internet are potentially conditional on the characteristics of the wine industries. Therefore, we describe and compare these wine industries. In 1999 the three wine regions considered together accounted for only 7.7 percent of world vineyard area and 14.8 percent of world wine production (Anderson and Norman). California is the largest of the three wine regions. In 1999, California produced about 20.7 million hl of wine, more than 90 percent of US wine output is produced in California (Sumner et al.). Germany produces about 12.3 million-hl of wine. Australia is the smallest, but fastest growing wine producer of the three, she produced about 8.5 million hl wine in 1999 (Anderson and Norman).

All three regions are large exporters of wine and they compete on world markets. All three export about the same volume (2.6 million hl) of wine. Australia exports about 30 percent of its production, California 13 percent, and Germany 20 percent. The volumes of wine exported have not always been similar. While Germany has been exporting large amounts for many years the United States and Australia have become major export countries only recently (Anderson, 2001). Moreover, for each region the UK is the most important importer of wine (Wine Institute, 2001).

The wine industry in Australia is split into a premium and a non-premium segment. The non-premium wines, which account for the larger share in volume, is dominated by four or five companies. The premium segment, in contrast, is populated by about 800 wineries, of which 600 are small and jointly account for less than 2 percent of Australia's wine production. About 100 wineries are in the premium segment and crush more than 400 tons of grapes per year (Productivity Commission, 1995).

California has about 850 commercial wineries, most of which are family-owned and operated businesses. A small number of large wineries have established brands that are well known at home and abroad and they market their produce through conventional retail channels. Many of the small wineries are unknown but to a small band of cognoscenti and they sell directly to consumers.

Many small wine producers characterize the wine industry in Germany. Marketing arrangements differ among the wine growing regions in Germany. In two regions, Baden and Wuerttemberg, most of the wine is produced and marketed by cooperatives whereas cooperatives play a minor role in other areas. In some areas, such as Pfalz and Rheinhessen, direct marketing dominates the sale of bottled wine, whereas in the Mosel region a sizable share of production is marketed through commercial wine merchants. In Germany, as in Australia and California, there are some large wine trading houses, but none that dominate nationally and there are no large wineries with well-established brands.

The regulatory environments also differ in the three regions. The marketing activities of the small wineries in California, which do not have extensive distribution channels, are obstructed by wine shipment regulations of most states in the United States. Only 13 states, California is among them, allow free trade of wine over state borders. In Germany, in contrast, the production of wine is subject to elaborate EU and national regulations but trade of wine is free within the EU. In Australia, production and trade of wine are subject to few restrictions. In Australia, wine sales suffer from Australia's high sales taxes and complicated tax laws (Australian Bureau of Statistics).

There are marked differences in wine consumption in the three markets. Germans drink the most wine per capita with the amount almost doubling from 12.2 liters in 1961 to more than 23 liters in 1999. The Australians are catching up; their per capita wine consumption almost quadrupled from 5.4 liters in 1961 to 19.6 liters in 1999, with a peak of 21.6 liter in 1986. The Australian wine consumption exceeded the world average wine consumption in 1968 and has been higher ever since. Per capita wine consumption in the United States grew from 3.6 liters in 1961 to 7.6 liters in 1999, overtaking the world average in 1977. During this time, the world average per capita wine consumption dropped from 7.1 liters in 1961 to 4 liters in 1999.

3. E-commerce activities in the wine industries

3.1. Adoption of websites

Taking websites as an indicator of e-commerce participation, we estimate the number of e-commerce wineries and wine industry intermediaries for Australia, California and Germany. The Wine Institute states that there are at least 847 commercial wineries in California, www.cawinemall.com lists 1.113 California winery websites in March 2003. This indicates that nearly all wineries have a site in the web this year. The Australian Wine and Brandy Corporation reports 1.465 wineries for Australia, 879 (60%) of which are listed at www.winediva.com. In Germany there are about 14.000 wineries, of which roughly 5.000 are of relevance to the market. The German Wine Institute lists 676 (about 14%) winery websites at www.deutscheweine.de.

3.2. Websites of Johnson-wineries

We did not attempt to generate random samples of winery websites that are representative for the regions. We believed that wineries marketing higher quality of wines are more likely to be successful in marketing wine over the web, therefore we looked for a sample of wineries with international reputation marketing high quality wines. We proceeded in two steps. From the wineries listed in Howard Johnson's wine guide we selected 20 from each region by taking the first and then every (N/20)th winery from these lists, where N is the total number of wineries listed by Johnson for a given region (Australia: 187, California: 314, Germany: 240). We then searched the web for the wineries selected and surveyed the websites found, first at the end of the year 2000 and again at the beginning of the year 2003 (see table 2). Two out of three (68%) of the wineries surveyed were found on the web at the end of the year 2000 and four out of every five wineries (87%) at the beginning of the year 2003 (see table 1). As expected California wineries lead in terms of e-commerce participation, the vast majority wineries from California (80%) were already on the web in 2000, whereas less than two-thirds (60%) of the German wineries maintained a web presence. German wineries have not caught up much (70% are online this year) while California wineries have increased their head start. Australia's wineries have caught up, while only 65% of the wineries were present on the web in 2000, all but two (90%) were found online in 2003 (see table1).

Table 1: Share of the selected wineries with websites 2000 and 2003, by region

	Number of wineries surveyed	Percent wineries on the web Dec. 2000	Percent wineries on the web Feb. 2003
Australia	20	65	90
California	20	80	100
Germany	20	60	70
Total	60	68	87

3.3. Wine merchants' sites

In the year 2000 we identified 60 wine merchant websites, twenty from each region, with the help of search engines. The selection was subjective but the freedom of discretion was limited by the number of wine merchants, which is much smaller than the number of wineries on the web. Our survey of web wine merchants includes: (i) www.wine.com, the largest online wine retailer in the United States (bought by eVineyard.com Inc. in May 2001), (ii) www.chateauonline.com, with 10 million euros turnover in 2001 the largest online wine retailer in Euroland (countries that have the Euro as their official currency) (ECIN 2002), (iii) www.winepros.com.au an Australian web wine retailer[1]. For a more detailed list see www.wine-economics.de/www_wineshops.htm.

Resurveying the wine merchants' websites in 2003 reveals ongoing consolidation in the online wine business. One in every four of the wine merchants did not survive the e-commerce shake-out that followed the dotcom bust. Australian wine merchants were most severely affected. From the 20 merchants surveyed only 12 (60%) are still in business. Seven (35%) left the online business, while one was bought by another merchant in the survey. The most famous Australian close-down is www.wineplanet.com.au, which was reported to be the largest online wine retailer in 1999 (D'Souza), was bought by Foster's in March 2001, and shut down shortly after (Lowe). In California three merchants (15%) were out of business, one posted a "closed" statement on its website the other two linked to www.wine.com. In Germany every fifth (20%) wine merchant did not survive competition. In all of the three countries, the web wine retail industry continues to consolidate as more web retailers exit from the industry.

3.4. Business models of Johnson-wineries and wine merchants

We grouped the wine websites into five categories. (a) "Business card" websites consist of a web page with no links to other pages at the site. They represent the minimum investment in a web presence. (b) More elaborate are "Information kiosk" sites that provide their visitors with some general information about wine, cooking, or any other information. Information kiosk sites, do not, however, contain information about whether and what the owner of the site has to sell. (c) This, and other information, is provided by "Web stores". (d) More advanced "Web stores" also allow visitors to order online, but some store-type sites still require their visitors to order through other media than the Web. (e) Finally, there are websites that also allow visitors to pay online for goods sold on the web.

There is a clear difference between websites of wineries and wine merchants in the year 2000. Whereas wine can be ordered and paid for at only about 20 percent of winery sites, it is possible to do so on about 80 percent of wine merchant sites (see table 2). Results suggest regional differences among merchants' sites. Most merchants from California (91% in 2000

[1] 10 percent of which belong to Australias largest retailer Coles Myer (Walsh, 1999)

and 100% in 2003) and Australia (95% in 2000 and 100% in 2003) allow customers to order and pay online whereas about half of the German merchants' sites (55% in 2000 and 63% in 2003) provide online payment services (see table 2).

Table 2: Type of web presence by region and type of firm 2000 and 2003

	N*	Type of firm	Type of site* Business card [%]	Information Kiosk [%]	Web store without online ordering option [%]	Web store with online ordering option [%]	Web store with online ordering and payment option [%]
All	102 (97)	Overall	6 (3)	16 (24)	12 (4)	11 (11)	56 (58)
	41 (52)	Wineries	15 (6)	37 (42)	22 (8)	5 (10)	22 (35)
	61 (45)	Merchants	0 (0)	2 (0)	5 (0)	15 (13)	79 (87)
Australia	33 (29)	Overall	9 (3)	15 (55)	12 (0)	0 (0)	64 (41)
	13 (18)	Wineries	23 (6)	39 (94)	23 (0)	0 (0)	15 (0)
	20 (11)	Merchants	0 (0)	0 (0)	5 (0)	0 (0)	95 (100)
Germany	32 (30)	Overall	6 (7)	19 (13)	6 (10)	34 (33)	34 (37)
	12 (14)	Wineries	17 (14)	50 (29)	17 (21)	17 (29)	0 (7)
	20 (16)	Merchants	0 (0)	0 (0)	0 (0)	45 (38)	55 (63)
California	37 (38)	Overall	3 (0)	14 (5)	16 (2)	0 (2)	68 (90)
	16 (20)	Wineries	6 (0)	25 (10)	25 (5)	0 (5)	44 (80)
	21 (18)	Merchants	0 (0)	5 (0)	10 (0)	0 (0)	86 (100)

*2003 data in brackets ( )

All in all, the Australian and California wineries' and merchants' websites have developed to become more elaborate from 2000 to 2003, whereas German wineries and merchants have improved their websites only little. The likely cause for this are regional differences in the habits of paying for purchased goods and services. In Germany offline payment are commonly conducted by debiting the buyers bank account, while credit cards, the major instrument for online payment, are not as widely and intensively used by German consumers. Australian and US consumers are well acquainted with paying with a credit card, whether payment is off- or online. Another interesting fact is that all Australian wineries concentrate on the provision of information about their wines on the web, but none is designed to sell wine. The Australian websites are very capacious, containing much information about wine and they provide links to retailers or intermediaries selling the wine that is promoted on the web.

4. Why the interregional differences in adoption?

Clearly the wine industries are not at the same level of e-commerce adoption. The reasons can be many, but probably e-commerce readiness of the regions studied, can explain some of the differences in e-commerce adoption. Therefore, we first compare e-commerce readiness of Australia, the United States as an indicator for California, and Germany. Saving sales costs is an important reason for adopting new marketing channels. We also expect that differences in buying costs to play a major role in the decision of consumers to order wine directly from a winery. We therefore analyze total sales costs that are composed of transaction costs and transport costs.

4.1. E-commerce readiness of Australia, California and Germany

E-commerce requires buyers and sellers to be connected to the Internet, which in turn depends on the availability, quality, and prices of Internet services. E-commerce readiness of a country, region, or industry is therefore described in terms of measures such as Internet hosts per 1000 inhabitants, Internet penetration rate, capacity and cost of data communication lines, etc.. For some of these measures, official statistics exist. For most, however, official statistics are unavailable, their order of magnitude must be gleaned from various studies, reports, and data collected by private research enterprises.

The quantitative indicators of e-commerce readiness reported in table 3 confirm the expectation that the US, and by implication California, leads Australia and Germany in nearly all aspects of e-commerce readiness.

Table 3: Indicators of e-commerce readiness in Australia, California, Germany and the USA, 2000-2001

	Australia	Germany	USA	California
Percent of households owning a PC (2)	67	47	65	-
Internet penetration rate (internet users in % of population) (3)	54	39	59	-
Percent of households with Internet access at home (2)	52	36	54	-
Percent farms with PC	49 (4)	87 (1)	55 (5)	63(5)
Percent of farms with Internet access	49(4)	69(1)	43 (5)	51(5)

(1) own research 2001.
(2) NOIE 2002.
(3) NUA 2003.
(4) Australian Bureau of Statistics 2000.
(5) USDA/NASS 2001.

Glaring exceptions are PC and Internet diffusion among farms in Germany, where, table 3 could be taken to suggest that a larger proportion of farmers in Germany has embraced PCs and the Internet than farmers in Australia or California. We do not believe that this is actually the case. The cause of the difference are different populations to which the statistics refer. The statistics for Australia and California refer to all farmers whereas the statistics for Germany are obtained from a survey of large farms in the northern part of Germany (Stricker, Mueller, and Sundermeier).

The Economist Intelligence Unit (EIU) which has ranked countries according to their levels of connectivity and "strong online business culture" also recognized the head start of the USA in e-commerce readiness. By these criteria the US (and by assumption California) ranks first among all countries in 2000 and 2002, Germany ranked 13th in 2000 and 8th in 2002 and Australia ranked 16th in 2000 and 6th in 2002 (ITTA 2000 and 2002). In all three regions, e-commerce was expected to grow rapidly from 2000.

4.2. E-commerce and sales costs

If trading costs (transaction costs + transport costs) are significantly lower for one channel (e.g. e-commerce) than for another channel, then other things equal, the channel with the lowest costs is chosen by buyers and sellers. Of course, which channel has the lowest costs differs across buyers and sellers. In order for trading costs to be significantly lower and therefore to be transferred from a conventional channel to an e-commerce channel, there has to be sufficient infrastructure and the sellers and buyers have to be "ready". Assuming sufficient readiness and infrastructure, we have to analyze the influence of e-commerce channel on (a) transaction costs and (b) on transportation costs.

4.2.1 *E-commerce and transaction costs*

E-commerce is of interest for agriculture not because of the employment it provides for web designers or the profit and loss opportunities it opens up for entrepreneurial market makers. It is of interest for farmers and their business partners because it changes the level and composition of transaction costs for buyers and sellers. And, as we know from Coase, significant changes in transaction costs engender changes in the way an industry is organized.

Coase did not clearly distinguish specific transaction cost items. To facilitate empirical identification, transaction costs are often disaggregated according to certain phases of the transaction. Dahlman (1979), for example, disaggregates transaction costs into (i) search and information costs, (ii) bargaining and decision costs, and (iii) policing and enforcement costs. Milgrom and Roberts distinguish between two subsets of transaction costs: coordination and motivation costs, where the coordination costs comprise similar items as Dahlman's transaction costs. Motivation costs, in contrast, arise from imperfect and asymmetric information and from imperfect commitment in market transactions.

Obviously, different transaction cost items are affected differently when transactions are in part or in whole conducted on the web. On the web, the costs of searching for transaction partners are most likely reduced. Similarly, negotiation may be facilitated when buyers and sellers are well informed and able to communicate widely and nearly instantaneously. Also, payment is made easy when digital money is used and costs of delivery may be saved when the services of a logistics service provider are integrated into e-commerce transactions.

Although the coordination cost component of e-commerce transactions is likely to be reduced compared to transactions conducted conventionally, motivation costs may be higher in e-commerce transactions. A negotiation is an exchange of promises with the expectation that the promises will be kept. Breaching some or all promises by either party of a purchasing contract causes losses to the other party, and disputes over the validity of the reason for non-performance may further reduce the value of the transaction to the buyer, the seller, or both. Opportunistic behavior damages a trader's reputation but the damage is light if traders are difficult to identify. And here lies an important weakness of the Internet which extends the reach of a business into unfamiliar markets. E-commerce traders therefore may have to expend additional effort to secure the transactions conducted on the web. Some examples how transactions can be secured are public key encryption and digital message certification to identify trading partners, or the reputation managers used by some public e-commerce auctioneers. In all cases, the effort expended to avoid damage from opportunistic behavior reduces and may even outweigh any savings in information costs from e-commerce trading.

4.2.2 *E-commerce and transportation costs*

As a rule of thumb, the revenue from a bottle of wine is shared as follows: 10 percent go to the grapegrower, 30 percent to the winery, 40 percent to transporters, wholesalers and retailers, and 20 percent to the tax man (Wittwer, Berger, and Anderson). This rough calculation indicates that transportation costs may play a major role in wine marketing. Another indication that transport costs impede e-commerce in wine is the observation that three out of four e-shoppers have placed products in an online shopping cart but have not completed their purchase during the last year. The number one reason for customers abandoning shopping carts when shopping online being stated is "shipping costs too high" (Ernst & Young).

Within Germany the three big postal services in Germany (Deutsche Post, DPD, and German Parcel) offer low prices, superb logistics, and good service. DPD was first to sign contracts with regional wine-growing associations. These negotiated favorable conditions for their members. For example, it costs €3.48 to ship 12 bottles to anywhere within Germany. In California in contrast, it costs between € 12.16 and € 19.68 to ship a case of wine within California. Shipping distances within California are comparable to those within Germany. The prices to other US states vary from €15.48 to €61.93 depending on the destination. In Australia shipping a case of wine within Australia costs between €3.44 and € 19.50 depending on the destination.

Our research on Californian and German wineries' experiences with international shipments lead to consistent results. Hardly any winery is willing to take orders from abroad. Those few who do charge high shipping and handling fees. One Californian winery for example, tells us that they once sent a small shipment of 8 bottles to the United Kingdom and the shipping and handling costs were about $140. German wineries report that they occasionally receive inquiries from the United States, but these potential orders evaporate when buyers learn the total price, including shipping and handling. An Australian winery shipping abroad, charges $154 to ship a case of wine to the US and $188 to the United Kingdom.

The only marketing potential identified for international sales are gift-orders. For example, when an American wants to make a present to his German friend he may go to a German wineries' website, select a wine and let the winery ship this within Germany. We infer from our findings about the wineries' international shipment experiences that so far the Internet has not helped wineries to compete on international markets because of high costs of shipping and handling in relation to the value of the product. Thus, so far in any case, buying and selling wine on the web is a national not international option.

5. Why the changes in e-commerce activities?

5.1. Sales costs and industry structure

Within the relatively short period of two years we observed rather severe changes in the web presences of wineries and wine merchants. All wine merchants are marked by consolidation, the Australian being affected the most. While the 2000 survey revealed that business models of Australian wineries were quite varied, the 2003 survey resulted in a clear picture: the wineries provide the information and the intermediaries do the selling. In California the Johnson-wineries concentrated on selling wine over the web themselves or through regional cooperative portals that are linked to their own website. In Germany little has changed from 2000 to 2003: some wineries have adopted a website, and the main purpose still is the provision of information.

Transportation costs alone cannot explain this development. They are highest in California and this is where sales of the web have developed best within the last 2 years. The size distribution of the industries may contribute toward explaining the changes. In Australia four very large players account for 70% of the market of branded wine (winetitles.com.au, 2003). It is plausible that these firms hesitate to encourage direct sales in fear of price or channel conflicts. The most prominent example is wineplanet bought by fosters (one of the four big Australian players) for $56 million and then shut down (D'Souza, 2001).

The comparably reluctant move of German wineries towards e-commerce most likely is a joint result of sales costs and industry structure. First, many small wineries that market their wine directly, do not want any additional channels to market their products. Second, they do not know how to set up and run a website and are not willing to invest in learning how to do it or to pay somebody for doing it.

5.2. Market intermediators

The advent of e-commerce was regarded by some as the tool to bypass market intermediaries. Tapscott (p. 56), for example, opined that, "Middleman functions between producers and consumers are being eliminated through digital networks”. The hopes for market disintermediation have not come true. Bailey and Bakos, for example, concluded their study of market intermediaries in thirteen industries with the observation, "Contrary to the predictions of disintermediation, the movement to electronic markets does not seem to result in the elimination of intermediaries, as electronic markets will require intermediation services, albeit in ways that differ from traditional physical markets".

We find the same to be true for our wineries surveyed. There has not been a drastic move towards wineries marketing their own wine on the web. Hence, the question is not whether agricultural market intermediaries will vanish as e-commerce spreads but how intermediaries adapt to the changes in their market environment. There are even some new market intermediaries, the web wine merchants who are currently consolidating and adapting to the market.

6. Summary and conclusions

Results of our inspection of a small samples of websites of wineries and of wine merchants suggest that web activities of wineries in California are more strongly focused on selling wine on the web, whereas Australian and German wineries tend to emphasize the provision of information about the winery and its wines. Websites of wine merchants are more homogenous across the regions and, with one exception, we did not find any significant regional differences. The exception is the payment option provided. Probably because credit cards are less frequently used in Germany in general, credit cards are less frequently accepted by German wine sellers on the web than by Californian and Australian wine sellers

The purpose of our rapid web appraisal was to begin to answer several questions. The first question was concerned with the differences between the wine industries in the three regions with respect to characteristics that are likely to be important for the adoption and use of e-commerce by the wine industries. All three industries have a strong export orientation, but Germany consumes a larger share of German wine domestically than California and Australia. Furthermore, the wine industry in Germany is characterized by many small wine producers who market much of their wine directly to consumers at the winery. In Australia and California, in contrast, large commercial wineries account for a much larger market share than in Germany. Widely known wine brands are much less important in Germany than in Australia and California. Transport costs and internal regulations for small wine shipments seem to favor the German industry relative to U.S. industry.

The countries also differ in e-commerce readiness. As was expected, general e-commerce readiness is high in California and less so in Australia and Germany. Although the differences are not of an unbridgeable magnitude, they are probably sufficiently large to provide the wine industry of California with a competitive edge in using the web, at least in the near future. This is a partial offset to the shipment costs and regulation and may allow growth of wine on the web for California wineries for customers in California.

Having analyzed the countries’ wine industries, their readiness for e-commerce and inspected a considerable amount of websites we conclude that direct marketing of wine in the web is not (yet) a promising option for most wineries, be they large or small. E-commerce is, however an important tool to promote wine tourism. In Germany, many winery offers rooms for rent over the Internet (often over regional tourism associations) and many bookings are made online. Therefore, we expect this use of the Internet to continue to further expand among wineries even in Germany and, perhaps, spill-over into wine marketing.

The wine retail market on the web is a more dynamic picture than the winery to consumer market. Companies have closed, whilst others have doubled their sales. Even though e-commerce in wine is not, at this stage of its evolution, an unmitigated success, it is not a complete failure either. We believe that e-commerce in the wine industries of the three countries has developed enough to strike roots. It is then up to the next generation of e-commerce entrepreneurs to exploit new opportunities in innovative ways.

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