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The Virginia Wineries' Websites: An Evaluation

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The Virginia Wineries' Websites: An Evaluation

1. Introduction

The internet is arguably the most powerful and accessible information tool we have ever seen in our lifetime and it became a very important marketing medium. However, and despite the potential of Internet applications, often times wineries' websites tend to be mere "electronic brochures" rather than a dynamic and efficient marketing tool, while others use social media channels (e.g. Twitter or Facebook) in lieu of a comprehensive online marketing strategy. This is not a trivial issue because wineries in the United States are facing a worldwide oversupply of wine mainly from large domestic wine makers (i.e. California) and emerging wine producing countries (i.e. Australia, South Africa, etc.). Consequently, small wineries find it increasingly difficult to influence distributors to market their products and to secure retail shelf space. In this new market environment, Virginia wineries need to develop innovative marketing strategies to remain profitable. Unfortunately, many of these wineries do not have the resources or the knowledge to implement such marketing strategies and are markedly vulnerable.

Unlike in other agricultural products, marketing wine is information intensive, and websites should be used as a marketing tool that enhances the communication between a winery and its customers, and as an alternative distribution channel. This is particularly true among younger population who has grown up with this technology and often use it for their own research and purchases online. Moreover, websites provide some basic information about a business that might otherwise cost considerable time and energy making available. It is also important to recognize that a winery's website is likely to be the very first contact that a potential customer may have with the winery. First impressions are critical at this stage, and the winery should be sure to develop and maintain a site that is attractive, up-to-date, and easy to navigate.

Consequently, and given the low cost of Web space, most U.S. wineries have developed their own websites in an effort to build its customer base, encourage visits to the tasting room and on-site purchases. To our knowledge, no research work has assessed the quality and effectiveness of the Virginia wineries websites. A total of 182 wineries were analyzed, and the quality of their websites was measured based on four broad dimensions: (1) general features of the website; (2) wine tourism; (3) marketing; and (4) educational. The findings of this study will hopefully increase the competitiveness of the region's wineries and its economic impact. Finally, the primary objectives of this study include: (1) the development of a theoretical framework that identifies the benefits of developing a reputable winery website; (2) the definition and use of a website evaluation criteria that assesses the quality of Virginia wineries websites; (3) and the identification of strengths, weaknesses and discrepancies in quality. The rest of the paper is organized as follows. Section 2 described the Virginia wine industry and section 3 presents the theoretical framework and the literature review on wineries' websites. The empirical analysis and the discussion of the results are presented in section 4. Section 5 concludes.

2. The Virginia Wine Industry

The production of wine in Virginia dates back to the early 17th century at the Jamestown Colony, and continued with the efforts of Thomas Jefferson, George Washington, and James Madison to promote the development of an American wine industry. More recently, the Virginia wine industry has experienced a very significant growth in the number of wineries. The number of Virginia bonded wineries grew from 129 in 2005 to 229 in 2012, which is a positive development for the industry because a growing concentration of wineries tends to attract more visitors and more suppliers to the community. Most of the wineries are located in the Northern Virginia region, the Shenandoah Valley, and the Monticello American Viticulture Area (AVA).

Wine production also grew by approximately 37% over 2005 to 1.0 million gallons bottled in 2010 (Rimerman, 2010). Also in 2010, wine and grapes related industries had a significant economic impact of \$747 million and accounted for 4,753 jobs in Virginia with an associated payroll in excess of \$156 million (Rimerman, 2010). Grape production in Virginia is characterized by relatively high production costs because of the small volume produced and the expenses associated with wine grape cultivation in this region. Another important fact is that over 80 percent of the wine produced in Virginia in 2010 was made from grapes grown in Virginia, and the identification of varietals that perform particularly well in Virginia, such as Viognier and Cabernet Franc has helped to carve out a wine identity for the state (MFK Research, 2007). Trends on local wine consumption have also been favorable for this industry in recent years (MFK Research, 2007). Overall, Virginia wineries are predominantly small, and family owned and operated businesses producing less than 10,000 cases. Only a few medium/large wineries have established brands that are well known regionally and have access to the very competitive retail market - only 35 percent of the wine volume produced in Virginia is distributed through the three-tier distribution system (Rimerman, 2010). This is because smaller wineries do not produce enough quantities to supply large supermarket chains, and therefore rely heavily on their direct sell to consumers. In 2006, this problem was exacerbated by a court ruling that nullified Virginia's self-distribution law for in-state wineries because it imposed an unfair burden on out-of-state wineries. Such loss of winery self distribution to retailers and restaurants was a significant blow to the profitability of Virginia smaller wineries. Finally, tourism has been a major element in Virginia overall economy, and in 2010 it generated \$19 billion in revenue, supported over 204,000 jobs, and provided \$1.3 billion in state and local taxes. Wine tourism is a very dynamic component of this sector, and the Virginia government

has made the promotion of state wines and winery tourism one of its top agricultural and tourism priorities (Johanson, 2012). Following the increase in the number of Virginia wineries, there has been an increase in the number of visitors - from one million tourists in 2005 to 1.6 million tourists in 2010 (Rimerman, 2010). Furthermore, Wine Enthusiast has just named Virginia one of the top ten wine travel destinations for 2012. This designation will likely result in more tourists for Virginia wineries and an increase in wine sales. In summary, Virginia wineries must take advantage of the landscape, demographics, and the existing infrastructure to develop wine tourism activities.

3. Benefits of Websites Development for Wineries

3.1 Theoretical Background and Literature Review

First impressions are critical in any type of business, and in the case of wineries, it is imperative that they develop and maintain a site that is attractive and user friendly. This is particularly important because consumers formulate beliefs and attitudes about the firm and its products from the way it represents itself on its website. In other words, consumers will not return to websites that do not give them good experiences, which may result in losses of direct wine sales or future visitors to the winery (Belanger *et al.*, 2006; Nielsen, 2000; 2002). Many studies have identified the benefits associated with the adoption of Internet technology by wineries (Giraud-Héraud, Soler and Tanguy, 2001; Quinton and Harridge-March, 2006; Sellitto and Martin, 2003; Stricker, Mueller and Sumner, 2007). Other studies also demonstrated that poorly designed and poorly written websites have a negative impact on customers' perceptions and will create a image of lower quality (Lynch and Horton, 2002; Everard and Galleta, 2006). The interactions between winery websites and the Millennials generation were analyzed by Nowak and Newton (2008), and the findings revealed that website quality is a significant predictor of increased trust in the

winery and a good indicator of the quality of the wine. There is also an important body of literature that has investigated the applications of specific online principles to wine marketing in wine producing regions around the World, namely in Australia (Bruwer and Wood, 2005; Sellito, Wenn, and Burgess, 2003; Sellito, 2004; Davidson, 2004), France (Gurău and Duquesnois, 2011), Canada (Madill and Neilson, 2010; Zhu, Basil, and Hunter, 2009), and the United States (Yuan, *et al.* 2004). Moreover, and given the limited managerial and financial resources of smaller wineries, it is important that they focus on customers that will likely appreciate their products and efforts (Hall and Winchester, 2000). In this sense, the winery website should be developed thinking of its target market, but at the same time it should reach geographically dispersed consumers. Finally, Johnston, Wade and McClean (2007) have shown that Internet sites contribute to profitability for small and medium enterprises in all industries worldwide, and the wine sector should not be an exception.

3.2 Four Dimensions of Websites Features

A total of 182 wineries were analyzed, and the quality of their website was measured based on four broad dimensions: (1) General features of the website; (2) wine tourism; (3) marketing; and (4) educational. Each of these categories includes website features that add value to a business, reduce marketing costs, and increase sales and profitability. Because of their importance, these dimensions merit a more detailed discussion. Figure1 presents a theoretical framework that shows the linkage between the development of a winery website using the four proposed dimensions and the improvement in customers' perceptions of that same winery. This positive image is likely to result in increasing number of visitors to the tasting room and higher direct sales. On the other hand, positive perceptions of a winery will enhance the relationships of a winery with retail businesses and distributors, which may lead to access to retail channels.

Lastly, the winery's image is directly tied up to its own brand equity, which is often described as the "incremental value added to a product because of its brand name" (Farquhar, 1994). A better website can develop a winery's brand equity, which typically allows a business to increase their selling prices and enhances customers' loyalty.

[Figure 1. Theoretical Framework on the Benefits that Arise from Developing a Winery Website Using the Four Recommended Dimensions.]

Based on previous research studies, Table 1 presents a list of the recommended website features for each dimension. While the general features of a website are typically present in most commercial websites, the wine tourism dimension includes a total of fourteen features promoting the winery as a tourist destination. The selected marketing features are marketing and advertising tools that can be incorporated to the websites. Finally, the educational component includes five features that seek to inform website users about wine making and wine consumption.

[Table 1. List of Recommended Website Features for Virginia wineries]

3.2.1 General Features of Website

It is important to recognize that a winery's website is likely to be the very first contact that a potential customer will have with the winery. While a well-designed site will give people a positive image of your business, a poorly designed website will project a negative image of your winery and give people the impression that your business is likewise disorganized or poorly managed (Mainville, Sterrett, and Mundy, 2009). Because first impressions are critical at this stage, a winery should be sure to develop and maintain a site that has the most basic features found in most business websites (i.e. up-to-date, with legible fonts).

3.2.2 Wine Tourism

In general, agritourism is the practice of attracting travelers or visitors to an area or areas used primarily for agricultural purposes, and visits to wineries and tasting rooms meet this classification. A website should generate curiosity and interest among viewers and convey the winery's image as an agritourism attraction. Consequently, a positive perception from the website can encourage the first or repeated visits to the winery. It is important to recognize that wine drinkers and wine tourists are consumer segments characterized by having more education and higher incomes, and they are interested in the quality of wine and are eager to enjoy new travel experiences (Bruwer, 2003). According to Getz, Carlsen and Anderson (1999) wineries should use their websites to transmit information about the wine tourism services offered by them, as well as about specific touristic attractions and events organized in the region. This information will assist potential visitors on planning day trips and it is a critical component of the wine tourist's strategy.

Because most small wineries rely heavily on direct cellar door sales for profitability, wine tourism has an important financial impact. Wine tourism drives sales direct to consumers, and according to a recent study, nearly all of the Virginia wineries contacted admitted that they depend significantly on visitors for their survival. Furthermore, 65 percent of Virginia wineries' business is linked to on-premise sales (MFK, 2007). Smaller wineries - with a focus on tasting room sales - offer a unique appeal to wine tourists, and their websites must promote a total wine tourism experience. Also very important is the fact that, direct contact with customers at a tasting room will allow a winery to personalize its offer and to enhance customers' experience (Mitchell and Hall, 2004). Visits to a winery will allow the collection by the owner or staff members of useful

information about customers' profiles that can be used to improve relationships and increase sales.

Some Virginia wineries may be the central tourism attraction in a particular region, rather than being a secondary touristic site within the area. On the other hand, some other are located near tourist attractions or highly traveled roads, which gives them a significant competitive advantage. In either case, Virginia wineries should use their websites to develop collaborative promotional efforts of the region where they are located. For that, the website can be used as a platform to develop strategic alliances with other surrounding tourism organizations and attractions. In this sense, North Carolina has successfully integrated wine into tourism promotion, and California developed a 'rewards' program for winery visitors in cooperation with leading hotel chains (MFK Research, 2007). Also in California, the majority of wineries surveyed in one study claimed that their websites increased tourism activities and direct wine sales (Stricker, Mueller and Sumner, 2007). Finally, a well designed website not only will facilitate the wine tourism experience, but will also provide viewers with additional information (i.e. hours of operation, directions to the business, products and availability) at no cost to the winery. In summary, wine tourism will likely continue to increase in popularity as more people seek the ambience associated with winemaking and picturesque landscapes.

3.2.3 Marketing

In terms of marketing potential, a winery website should be geared toward accomplishing important marketing goals, such as providing information about the product, providing a secure ecommerce channel, establishing and nurturing relationships with customers or attracting visitors to the winery. Websites have become a central piece in the development of management and marketing activities that are characterized by creativity, dynamism and direct contact with the

final customer (Quinton and Harridge-March, 2006). Wineries, in particular the smallest ones, should use websites as a marketing tool to overcome limitations at the distribution channels and to expand both direct and retail sales. This is particularly important for Virginia wineries, given that their ability to self distribute wine to retailers and restaurants was taken away in June of 2006 by a Supreme Court ruling. Prior to this ruling, and according to the Virginia Wineries Association, approximately 90 percent of wineries in the state self-distributed their own wines. This new market environment has inhibited sales and revenues for many smaller wineries that cannot attract much attention from distributors and wholesale organizations. An efficient use of the website to sell wines online may overcome these distribution obstacles. Nevertheless, online selling implies added complexity in terms of compliance and shipping rules for each state, and the purchase of costly shipping licenses. Furthermore, it requires that a winery allocates enough time and resources to take care of sales orders and questions, as well as keep the website updated with current prices, stock availability, and accurate product descriptions.

The winery website can also be used as promotional platform in a cost effective manner in the sense that, online promotional efforts cost less than printing services and promotion in television, press or radio whilst having a greater effect. Consequently, a winery may refer their customer to its website via email or newsletters rather than sending expensive printed presentations or product catalogues. Online relationships can be enhanced with the creation of a website in which customers can interact with the winery and with other customers, and where wineries have room to manage their brand image and other intangible aspects of their business. For instance, by offering a join mail list or an online newsletter, a winery can obtain information from users to build a customer dataset with an important market value. Another important adage in business is that it costs more to gain new customers than to maintain current customers, and a winery

website can be a very valuable tool for maintaining customer loyalty. Fuller (1996), Hall and Winchester (2000), and O'Neill, Palmer, Charters (2002) have demonstrated that wineries that enhance their customers' relationships will increase their market shares and retain the visitors. Another example of a marketing feature is the inclusion of positive press articles or customer testimonials on the website, which can be far more effective in generating interest than paid advertising. Finally, wine clubs, mailing lists, and newsletters are commonly used by wineries to support direct sales and maintain business visibility and direct contact with customers. In the case of wine clubs, the cost to manage it can be easily recouped by the additional high margin income from a steady flow of repeat business (MFK Research, 2007).

3.2.4 Educational

Literature shows that customer education has the potential to retain visitors and expand a winery's customer base (Hall, 1996). As Beverland et al., (1998) concluded, the inclusion of educational features can increase interest levels on the wine itself and may result in greater loyalty toward the winery and its products. This is a nontrivial issue given that there is little customer loyalty in this industry. For instance, wineries may include the history of their business, particularly if they are likely to be a draw for customers (i.e. a winery has been in the family for a number of years and it is part of the local community). Another example would be providing the profile or biography of the winemaker and all the other members of the team. This would put a face behind the business and project a more professional image. Lastly, more uneducated wine consumers who obtained basic knowledge for the first time on things such as, proper wine storage or the properties of different grape varieties will likely remember the original source of information. In this case, the website can be designed as a source of information that nurtures relationships with customers.

4. Results and Policy Implications

4.1 General Statistics

A total of 182 websites were individually reviewed and rated by two researchers, and the Cohen's Kappa was computed as an inter-reliability test among raters. The index showed a high degree of consistency between raters with a value of a positive 0.91 value. This high level of agreement is likely the result of very specific scoring guidelines that leave little room for ambiguity among different raters. Using a dichotomous scale, the researchers coded 1 if a particular feature was present in the website and 0 if the feature is not included in the website or it simply failed to meet a minimum standard and could be greatly improved. Then, the quality of each dimension was computed for each winery by summing the scores obtained and dividing it by the total maximum score possible in that same dimension. Then, a "completion rate" is obtained by multiplying this ratio by a hundred. After computing this for all wineries, the mean "completion rate" for the entire state was calculated. The results in Table 2 show that Virginia wineries websites, on average, include 90 percent of the suggested general features of a business website. On the other hand, only have 54 percent of the features that enhance the number of visitors to the winery, and only 43 percent of the suggested online marketing features were found in the analyzed websites. Finally, Virginia wineries websites include 52 percent of the recommended educational features.

[Table 2. Percentage Share of Features Present of Virginia Wineries Websites]

In a more detailed analysis of these results, and as seen in table 3, most Virginia wineries included the basic recommended features. The only noticeable issue was that 21 percent of the

wineries failed to maintain an updated Website, which can have a negative impact the winery's image.

[Table 3. General Features of Virginia Wineries' Websites]

Table 4 shows the results for the wine tourism dimension, and it reveals that the majority of Virginia wineries (above 80 percent) include pictures, information on their tasting room and opening hours, and provide maps and directions to the site. On the other hand, less than 30 percent of the wineries websites display information on gift shops (either they do not have one, or they fail to publicize it) or on their wine production facilities. Also relevant are the relative low number of wineries that link up their own website with other wine-related websites and industry associations. The presence of these links on the Website would project an image of a professional business that is fully integrated into the industry. Surprisingly, many wineries fail to capitalize from regional tourism attractions by not including links to tourism attractions in the area. This is particularly important for those wineries that are geographically more isolated and consequently less likely to be the single destination in a planned trip. Finally, only 45 percent of wineries offer or publicize tours to the premises. Despite the related insurance and labor costs, winery or vineyard tours allow for a closer interaction with customers, which in turn can result in a more personalized product offer.

[Table 4. Wine Tourism Features of Virginia Wineries' Websites]

The results on the marketing dimension are somehow mixed and reveal some areas where there is room for improvement. The lowest score registered was on the frequently asked questions (FAQ) feature - with only 7 percent of Websites including it. FAQ is now an integral part of good navigation and product presentation for most business websites, and visitors have come to

expect one. FAQ pages are often the first page to be visited after the Home page, and they should be regarded as a secondary search-for-information tool, and a catch-all for the pertinent facts. Surprisingly, and despite the large numbers of winery visitors, only a small number of wineries have an active wine club (39 percent) or an e-mail newsletter (52 percent). Direct communication with consumers is critical to ensure a steady stream of high margin direct sales to consumers. Wine clubs allow for continuing sales from committed customers to supplement their visits to the winery. Newsletters are a cost-effective and personalized way of communicating with customers and building brand awareness. Most importantly, newsletters keep the business and the products “in front of the audience” via periodic communications and updates (i.e. updates on new products and special offers). A mere 22 percent of wineries recognize that positive press can generate publicity and recognition. A single story in a newspaper or magazine may not only help sales, but it can also establish a reputation and will project an image of quality and recognition by other professionals. Furthermore, popular press reaches a big number of potential customers, which may result in an increasing number of visitors and sales. Lastly, only 10 percent of Virginia wineries included testimonials from customers and visitors.

[Table 5. Marketing Features of Virginia Wineries' Websites]

The results from the Educational dimension are presented in tables 6. Overall, Virginia websites perform fairly poorly in this area. Very few websites (10 percent) are used as an educational platform on basic wine-related issues such as, tips on wine drinking, storage, tasting, etc. Another important omission is the profile of the winemaker(s) – with only 50 percent of the wineries including it. The idea here is that good professionals make good products, thus the accumulated experience of a winemaker should be highlighted. Lastly, in this industry it is common to present food pairings along with wines, but only 38 percent of the websites

mentioned food pairings. The association of a particular dish or recipe to a wine may help more hesitant and uninformed consumers on their wine purchases.

[Table 6. Educational Features of Virginia Wineries' Websites]

4.2 Wine Clusters and the ANOVA Analysis

Many wineries in Virginia struggle to attract large numbers of visitors due to a lack of concentration of wineries. Groups of nearby wineries can attract winery visitors that intent on visiting multiple wineries, in comparison to more remote wineries that have to provide visitors with reasons to make a specific trip. As figure 2 shows, most Virginia wineries are concentrated in the northern and central part of the state as shown. More specifically, the Loudon and Fauquier counties have 27 and 21 wineries respectively and are part of the Northern Virginia Region. The proximity of this region to Washington D.C. gives these wineries an unique competitive advantage. The other important group is centered on the Charlottesville area and includes Nelson and Albemarle counties, which have a combined total of 22 wineries, and are part of the Monticello AVA and Virginia Central Region. Moreover, these regions are located in the Shenandoah Valley, which is a national tourism attraction. Because of the high concentration of wineries in these two areas and their advantageous location, this study will regard them as Virginia two wine clusters. There are many definitions for the concept of cluster, but in its simplest form, it can be defined as a geographic concentration of inter-related firms in a particular field. A more developed cluster entails the presence of suppliers of specialized inputs, machinery and services, firms in related industries, research and technology centers and trade associations (Porter, 1998). Although, these two wine clusters may not be at this advanced stage of development, it is reasonable to assume that they create and sustain competitive advantages for the wineries there located. Furthermore, some of the leading Virginia wineries are located in

these areas. The basic premise is that local (or regional) resources can have an impact on the value of the firm's *internal* resources, and the potential benefits to firms belonging to a cluster include positive externalities and knowledge exchange. In a seminal study, Schmitz (1995) introduced the concept of *collective efficiency* to capture these cluster advantages. This efficiency is defined as the competitive advantage derived from local external economies, and from consciously pursued *joint actions*, involving vertical or horizontal linkages. In this particular example, it is assumed that these potential benefits are shared by all wineries located in these clusters. Consequently, this study hypothesizes that the wineries located in these two clusters will have more developed websites with higher scores.

[Figure 2. Location of Virginia Wineries by Counties (2011)]

To test this hypothesis and compare the scores on each dimension for wineries inside and outside the Northern and Central Virginia clusters are compared, this study uses the one-way analysis of variance (ANOVA). This is accomplished by analyzing the variance, that is, by partitioning the total variance into the component that is due to true random error (i.e., within-group *SS*) and the components that are due to differences between means. These latter variance components are then tested for statistical significance, and, if significant, we reject the null hypothesis of no differences between means (in the population). The one-way ANOVA is a method that allows the formal comparison of the means of a continuous outcome between groups defined by one categorical variable. When using this methodology, it is assumed that the observations are independent, that the observations in each group arise from normal distribution, and that the variance is constant across groups. Another important assumption is that, the response variable (scores in the website features dimensions) must be continuous, while the predictor/grouping variable is categorical (a dummy variable that has a value of 1 if the winery is located in any of

the two clusters, and a 0 otherwise). In summary, ANOVA will be conducted to test the following hypothesis:

Null Hypothesis: There are no significant differences between winery groups' (inside and outside the two clusters) mean scores of each website features dimensions.

Alternate Hypothesis: There are significant differences between winery groups' (inside and outside the two clusters) mean scores of each website features dimensions.

Table 7 shows the summary statistics of wineries inside (a total of 126) and outside (a total of 56) the two clusters. A first glance at these statistics reveal relatively only small differences between the mean scores in all four dimensions. It is worth mention that the mean score is actually higher for the wineries outside the cluster in all dimensions with the exception of the marketing one.

[Table 7. Summary Statistics of the Four Website Features Dimensions for Groups of Wineries Inside and Outside the Clusters.]

The next step is to formally compare these means using the one-way ANOVA and conduct a statistical test of whether or not the means of these two groups are all indeed equal. The results are shown in table 8, and based on the computed low F-values, the null hypothesis is not rejected for any of the four dimensions. That is, the ANOVA analysis shows no significant differences between the means of the wineries located inside and outside the two wine clusters.

[Table 8. One-way ANOVA for the Four Website Features Dimensions.]

The Barlett's test was also conducted in all cases to test for the assumption of homogeneity of variance across groups. For all four dimensions the Bartlett's test does not reject the null hypothesis of equal variance, which supports the validity of the results. In summary, a simple overview of the mean scores from the wineries located outside and inside the clusters shows no significant differences between the mean scores in all the four dimensions. This is confirmed by

the one-way ANOVA analysis, and it contradicts the suggested hypothesis that wineries operating in the two wine clusters would have more sophisticated and developed websites in relation to wineries scattered across Virginia.

5. Conclusions and Policy Implications

The significant of this research is fourfold. First, this study presents the first evaluation of the Virginia wineries' websites. Second, this study developed evaluation criteria that measure the quality of a website in four different dimensions. Third, an initial overview of the scores reveals that there is room for further improvement in the wine tourism, marketing, and educational dimensions. Finally, this study tested the hypothesis that wineries located in the Northern and Central regions have better developed websites and higher scores. Nevertheless, results from the one-way ANOVA rejected this hypothesis.

In summary, it can be concluded that the potential of a website has not been fully exploited by many Virginia wineries. Web-based marketing is a good alternative to more traditional forms of promotion and advertising, and due its lower cost, it can implemented even by the smallest wineries. This point is confirmed by the results from the ANOVA analysis, which shows that websites from geographically more isolated wineries were no different from those located in areas with a much higher concentration of wineries. This finding is particularly important for smaller wineries in where the owners often assume multiple roles such as the viticulturalist, mechanic, farm laborer, salesman, manager, etc. Future studies may include further website features or may expand this methodology to other wine producing states in the mid-Atlantic region (i.e. North Carolina, Maryland, etc.) and then conduct comparative analysis with Virginia.

References

- Belanger, F., W. Fan, L.C. Schaupp, A. Krishen, J. Everhart, D. Poteet, and Nakamoto, K. (2006), "Website Success Metrics: Addressing the Duality of Goals", *Communications of the ACM*, Vol. 49 No.12, pp. 114-116.
- Beverland, M., James, K., James, M., Porter, C. and Stace, G. (1998), "Wine tourism: missed opportunities in West Auckland", *The Australian and New Zealand Wine Industry Journal*, Vol. 13 No. 4: pp. 403-407.
- Bruwer, J (2003), "South African wine routes: Some perspectives on the wine tourism industry's structural dimensions and wine tourism product", *Tourism Management*, Vol. 24 No. 4, pp. 423-435.
- Bruwer, J., and Wood, G. (2005), "The Australian Online Wine-buying Consumer: Motivational and Behavioral Perspectives", *Journal of Wine Research*, Vol. 16 No.3, pp. 193-211.
- Davidson, R.A. (2004), "A Study of Australian Winery Websites", *Proceedings of COLLECTeR 2004*, May 7-8, Adelaide.
- Everard, A. and Galletta, D.F. (2006), "How presentation flaws affect perceived site quality, trust, and intention to purchase from an online store", *Journal of Management Information Systems*, 22, pp. 55-95.
- Farquhar, P.H. (1994), "Strategic challenges for branding", *Marketing Management*, Vol. 3, pp. 8-15.
- Fuller, P. (1996), "Customer relationships mean greater loyalty", *The Australian and New Zealand Wine Industry Journal*, Vol. 11 No. 2, pp. 142-144.
- Getz, D.R., J. Carlsen, and Anderson, D. (1999), "Critical success factors for wine tourism", *International Journal of Wine Marketing*, Vol. 11 No.3, pp. 20-42.
- Giraud-Héraud, E., Soler, L. and Tanguy, H. (2001), "Internet et la distribution de biens physique. Analyse de l'émergence de nouvelles structures verticales dans le secteur du vin", *Revue Economique*, Vol. 52, pp. 213-232.
- Granoff, P. (2001), "Wine on the Internet", in Lapsley, P. and Moulton, K. (Ed.), *Successful Wine Marketing*, Maryland: Aspen Publishers, pp. 83-91.
- Gurău, C. and Duquesnois, F. (2011), "The Website as an Integrated Marketing Tool: An Exploratory Study of French Wine Producers", *Journal of Small Business and Entrepreneurship* Vol. 24 No. 1, pp. 17-28.

- Hall, C. M. (1996), "Wine Tourism in New Zealand", in *Proceedings of tourism down under II: Towards a more sustainable tourism*. Centre for Tourism, Univeristy of Otago, Dudedin, pp. 109-119.
- Hall, J. Winchester, M. (2000). "Focus on your consumer through segmentation", *Australia and New Zealand Wine Industry Journal*, Vol. 15 No. 2, pp. 93-96.
- Johanson, M. (2012), "Virginia Wine Tourism to Boom in 2012", available at: <http://www.ibtimes.com/virginia-wine-tourism-boom-2012-392218> (accessed 22 November 2012).
- Johnston, D.A., M. Wade, and McClean, R. (2007), "Does e-Business Matter to SMEs? A Comparison of the Financial Impacts of Internet Business Solutions on European and North American SMEs", *Journal of Small Business Management*, Vol. 45 No. 3, pp. 354-361.
- Lynch, P. and Horton, S. (2002), "Web Style Guide: Basic Design Principles for Creating Websites", Yale University, New Haven, CT.
- Mainville, D., Sterrett, S. and Mundy, K. (2009), "Using the internet for direct marketing", *Virginia Cooperative Extension Journal*, AAEC 448-505.
- Madill, C. and Neilson, L. C. (2010), "Website Utilization in SME Business Strategy: The Case of Canadian Wine SMEs", *Journal of Small Business and Entrepreneurship*, Vo. 23 No. 4, pp.489-507.
- Mitchell, R., and Hall, M.C. (2004), "The post-visit consumer behavior of New Zealand winery visitors", *Journal of Wine Research*, Vol. 15 No. 1, pp. 39-49.
- MFK Research (2007), "Assessment of the profitability and viability of Virginia wineries", presented to the secretary of Agriculture and Forestry of Virginia.
- Nielsen, J. (2000), *Designing Web Usability*, New Riders Publishing, Indianapolis.
- Nielsen, J. 2002. "Top Ten Web-Design Mistakes of 2002", available at: <http://www.useit.com/alertbox/20021223.html> (accessed 26 October 2012).
- Nowak, L. I. and Newton, S. (2008), "Using winery websites to launch relationships with Millennials", *International Journal of Wine Business Research*, Vol. 20 No. 1, pp. 8-21.
- O'Neill, M., Palmer, A. and Charters, S. (2002), "Wine production as a service experience: The effect of service quality on sales", *Journal of Services Marketing*, Vol. 16 No. 4, pp. 342-362.
- Porter, M.E. (1998), "Clusters and the New Economics of Competition", *Harvard Business Review*, Nov.-Dec., pp. 77-90.

Quinton, S., and Harridge-March, S. (2006), "The Interaction of Technology in Entrepreneurial Marketing: An Illustrative Case from a Wine Merchant", *Strategic Change*, Vol. 15 Nov. 2, pp. 85-102.

Sellitto, C., Burgess, S., & Wenn, A. (2003), "The developing websites of Australian wineries", in *Proceedings of the 4th International WE-B Conference: e-Business and Information Systems*, November 24–25, Perth, Edith Cowan University, pp. 1–12.

Schmitz, H. (1995), "Collective efficiency: growth path for small-scale industry", *Journal of Development Studies*, Vol. 31, No. 4, pp. 529-566.

Sellitto, C., and Martin, B. (2003), "Internet Website Adoption: A Study of 107 Victorian SME Wineries", available at: <http://ausweb.scu.edu.au/aw03/papers/sellitto/> (accessed 18 November 2012).

Sellitto, S. (2004), "Internet Adoption by Australian Wineries: Perceived Benefits and Direct Marketing Practices", *International Journal of Wine Marketing*, Vol. 16 No. 3, pp. 58 – 72.

Stricker, S., Mueller, R., and Summer, D. A. (2007), "Marketing Wine on the Web." *Choices*, 1st Quarter, Vol. 22 No. 1, pp. 31-34.

Rimerman, F. + Co. LLP (2010) "The economic impact of wine and wine grapes on the state of Virginia – 2010", A study commissioned by the Virginia Wine Board.

Zhu, Y., Basil, D. Z. and Hunter, M. G. (2009), "The extended website stage model: a study of Canadian winery websites", *Canadian Journal of Administrative Sciences*, Vol. 26, pp. 286-300.

Yuan, J., Morrison, A. M., Linton, S., Feng, R. and Jeon. S. (2004), "Marketing small wineries: an exploratory approach to website evaluation", *Tourism Recreation Research*, Vol. 29 No. 3, pp. 15-25.

Tables and Figures

Figure 1. Theoretical Framework on the Benefits that Arise from Developing a Winery Web site Using the Four Recommended Dimensions.

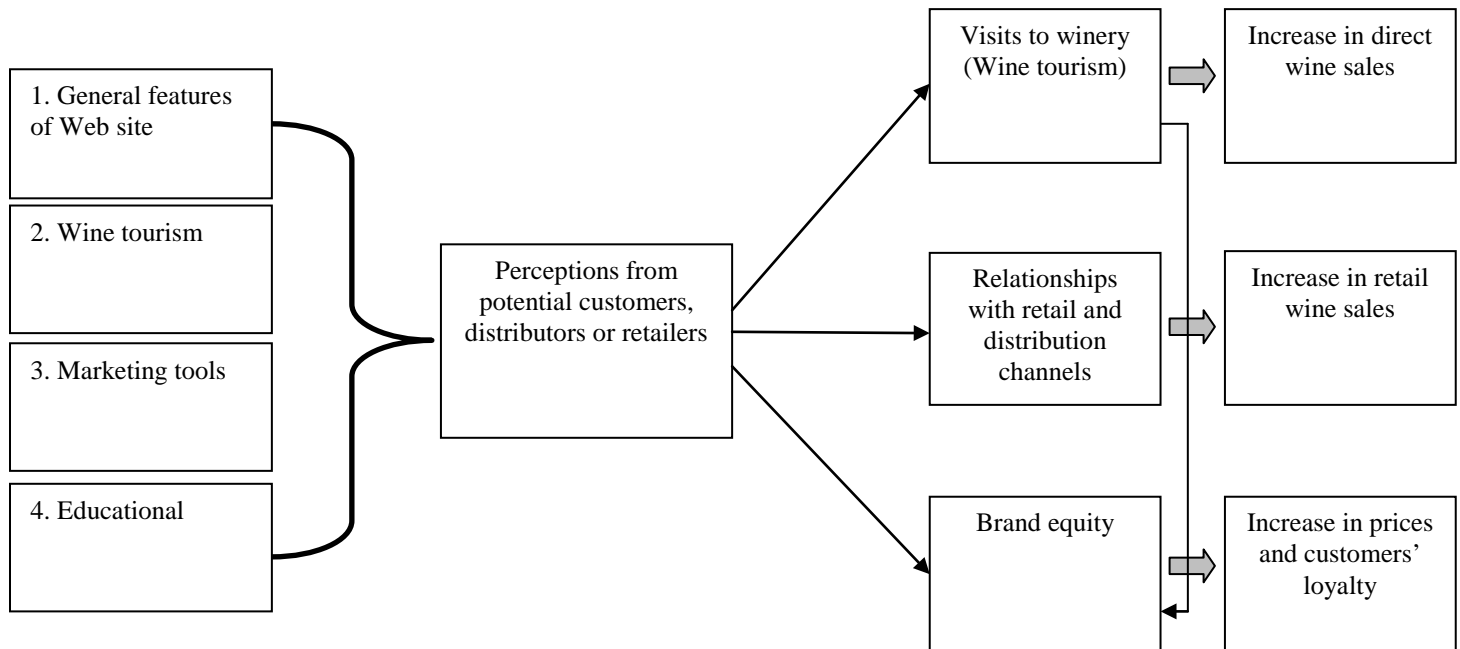
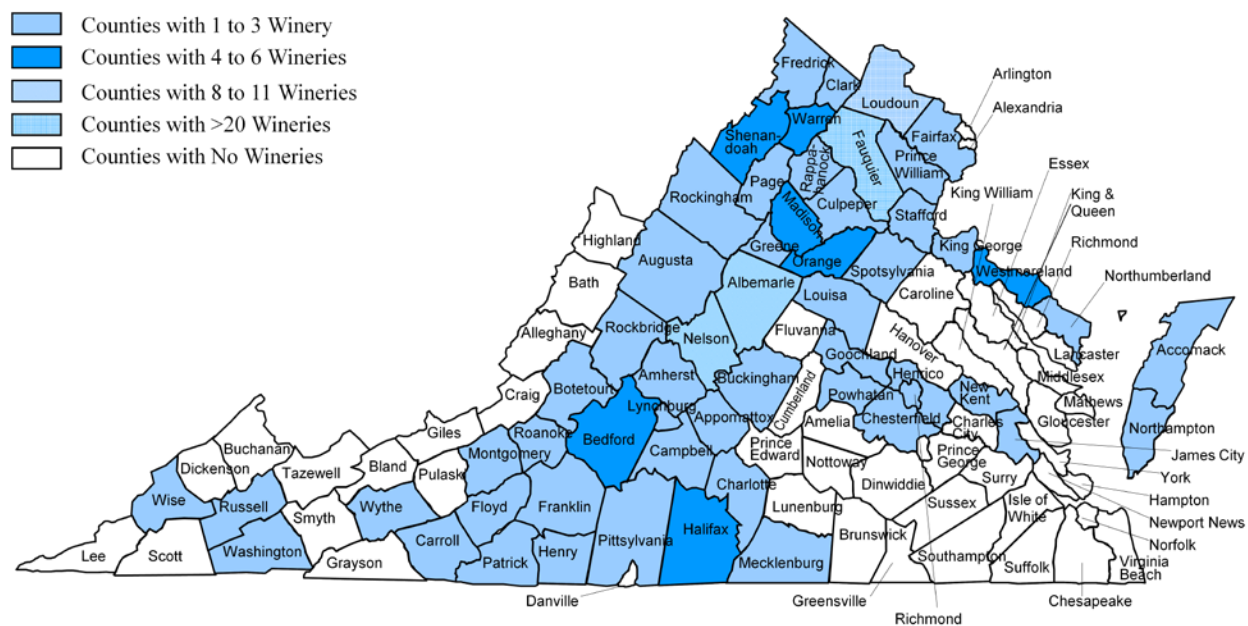


Figure 2. Location of Virginia Wineries by County (2011)



Source: virginiawine.org

Table 1. List of Recommended Website Features for Virginia wineries

General Features of the Websites
An URL that is clear and easy to remember
Updated website
Contact information (email, phone, social networks, address....)
Legible fonts
Wine tourism
Pictures
Images or animations with added value
Tasting room
Winery or vineyard tour
Food items offered
Calendar of events
Gift shop and / or souvenir items
Information on wine production facilities
Maps and / or driving directions towards the winery
Opening hours of the winery
Wider regional information (e.g. attractions, activities)
Links to wine-related web sites
Links to web sites of wine and/or grape industry associations
Information and/or links to local tourism-related business
Direct marketing
FAQ
E-mail newsletter sign-up
On-line wine club
Social networks
List of available wines with description and prices
On-line store
Photo gallery about the products and/or the winery
Awards given to wines
Newspaper articles
Testimonials & feedback from customers
Educational
History and/or stories about the winery
Profile of the winemaker(s) provide
Information on grape growing, grape varieties, wine making, etc.
Food recipes pairing with the wines offered
Tips on wine drinking, tasting, health-related issues....

Table 2. Percentage Share of Features Present on Virginia Wineries Websites

Website Dimensions	Percentage Share (%)
General Features of Website	90
Wine Tourism	54
Direct Marketing	43
Educational	52
n = 182 Wineries	

Source: Authors' own calculations

Table 3. General Features of Virginia Wineries' Websites

Website Feature	Proportion of Virginia Wineries with this feature (N=182)
An URL that is clear and easy to remember	94%
Updated web site	79%
Contact information (email, phone, social networks, address....)	97%
Legible fonts	93%

Source: Authors' own analysis of Virginia wineries' web sites.

Table 4. Wine Tourism Features of Virginia Wineries' Websites

Website Feature	Proportion of Virginia Wineries with this feature (N=182)
Pictures	95%
Images or animations with added value	67%
Tasting room	81%
Winery or vineyard tour	45%
Food items offered	33%
Calendar of events	78%
Gift shop and / or souvenir items	19%
Information on wine production facilities	29%
Maps and / or driving directions towards the winery	80%
Opening hours of the winery	82%
Wider regional information (e.g. attractions, activities)	44%
Links to wine-related web sites	29%
Links to web sites of wine and/or grape industry associations	25%
Information and/or links to local tourism-related business	40%

Source: Authors' own analysis of Virginia wineries' web sites.

Table 5. Marketing Features of Virginia Wineries' Websites

Website Feature	Proportion of Virginia Wineries with this feature (N=182)
FAQ	7%
E-mail newsletter sign-up	52%
On-line wine club	35%
Social networks	69%
List of available wines with description and prices	90%
On-line store	51%
Photo gallery about the products and/or the winery	69%
Awards given to wines	28%
Newspaper articles	22%
Testimonials & feedback from customers	10%

Source: Authors' own analysis of Virginia wineries' web sites.

Table 6. Educational Features of Virginia Wineries' Websites

Website Feature	Proportion of Virginia Wineries with this feature (N=182)
History and/or stories about the winery	85%
Profile of the winemaker(s) provide	50%
Information on grape growing, grape, varietal, wine making, etc.	68%
Food recipes pairing with the wines offered	38%
Tips on wine drinking, tasting, health-related issues....	18%

Source: Authors' own analysis of Virginia wineries' web sites.

Table 7. Summary Statistics of the Four Website Features Dimensions for Groups of Wineries Inside and Outside the Clusters.

Cluster Location	Mean	Standard Deviation	Frequency
General Features			
Outside	0.933	0.131	56
Inside	0.92	0.148	126
Wine Tourism			
Outside	0.565	0.240	56
Inside	0.535	0.205	126
Marketing			
Outside	0.414	0.186	56
Inside	0.442	0.192	126
Educational			
Outside	0.529	0.271	56
Inside	0.524	0.271	126

Table 8. One-way ANOVA for the Four Website Features Dimensions.***I. General Features***

Source	DF	SS	MS	F-value	P-value
Between groups	1	0.010	0.010	0.510	0.477
Within groups	180	3.686	0.021		

Bartlett's Test for Equal Variances

Chi-square = 1.203 P-value = 0.273

II. Wine Tourism

Source	DF	SS	MS	F-value	P-value
Between groups	1	0.036	0.036	0.760	0.383
Within groups	180	8.401	0.047		

Bartlett's Test for Equal Variances

Chi-square = 1.850 P-value = 0.3834

III. Marketing

Source	DF	SS	MS	F-value	P-value
Between groups	1	0.321	0.032	0.890	0.348
Within groups	180	6.543	0.036		

Bartlett's Test for Equal Variances

Chi-square = 0.068 P-value = 0.794

IV. Educational

Source	DF	SS	MS	F-value	P-value
Between groups	1	0.001	0.001	0.010	0.913
Within groups	180	13.222	0.073		

Bartlett's Test for Equal Variances

Chi-square = 0.001 P-value = 0.993