German wineries on the web: A survey of web sites of Mosel-Saar-Ruwer and Pfalz wineries.

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Abstract:

In this paper we report results of a survey of web sites by wineries from the Mosel-Saar-Ruwer and Pfalz regions in Germany. The wine industries in both regions are characterized by many small wine growers who process their own grapes and who market some or all of their wine directly to consumers.

A surprisingly large share of the wineries' web sites surveyed provide information and also allow the wineries to sell wine through the site. The wineries present on the web are on average larger than their offline counterparts, but there is evidence that, small wineries will also participate as e-commerce continues its growth.

Keywords:
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1 Introduction

Electronic commerce (E-commerce) is the buying and selling of goods and services on the Internet, especially the World Wide Web (www.whatis.com, 2000). At present this trade over the Internet is growing rapidly. E-commerce is also spreading in agriculture but it is still in a very early stage of its evolution in this industry. The wine industry is an exception and this industry leads most other agricultural industries in e-commerce diffusion. Our interest in e-commerce activities in the wine industry is founded on the hope, that what we observe in the wine industry will contain some clues for the adoption of e-commerce in other branches of agriculture.

Wine has several attributes that render this product well suited for business-to-consumer e-commerce. Product differentiation is high and production is highly fragmented. The disadvantages from not being able to taste wine on the web are alleviated by the well established and rigidly enforced system of classifying and describing German wine combined with the possibility to offer additional information on the web. Furthermore, the considerable price spread between prices paid for wine marketed directly and for wine sold in wine shops suggests that consumers are prepared to pay for complementary services. Possibly, some of these services include information that may be provided by the wineries themselves over the Internet.

We are at an early stage of our study of e-commerce activities in the wine industry. At this stage of our research we trace wineries' e-commerce activities by inspecting their web sites. Of particular interest to the many small wineries in Germany that heavily rely on direct marketing, is this potential of e-commerce to reduce transaction costs, in particular to reduce search costs for buyers and to cut the costs of ordering wine. To start the inspection of the e-commerce activities of German wineries we inspected Mosel-Saar-Ruwer and Pfalz wineries' web sites. We chose these two regions because of their size and the differences with respect to how wine is produced and marketed in these regions. In this paper, we first provide a short description of the German wine market and the characteristics of the wine industries of the two regions are surveyed. We then report the results of the survey of the wineries' web sites.

2 The German wine industry

Wine production in Germany has more than doubled over the last thirty years and now is about 12 million hl (Buhrmester et al., 2000). Wine is consumed by about two thirds of all German households and per capita consumption stands at about 23 liters per year (Buhrmester et al., 2000). The share of the wine growing regions in domestic consumption roughly reflects the share of the wine growing regions in production, with one exception: even though the Pfalz is the second largest wine growing region in Germany (following Rheinhessen) she accounts for the largest share in domestic consumption, 26% of all domestically consumed German wine is from the Pfalz region (Fachgebiet Betriebswirtschaft und Marktforschung, Geisenheim im Auftrag des Deutschen Weinfonds, 2000).

Three out of five wines are bought at discounters or food retailers, almost 20% at wineries and cooperatives and only about 7% in wine shops. Figure 1 illustrates the development of sales channels' market shares from 1993 to 1999.

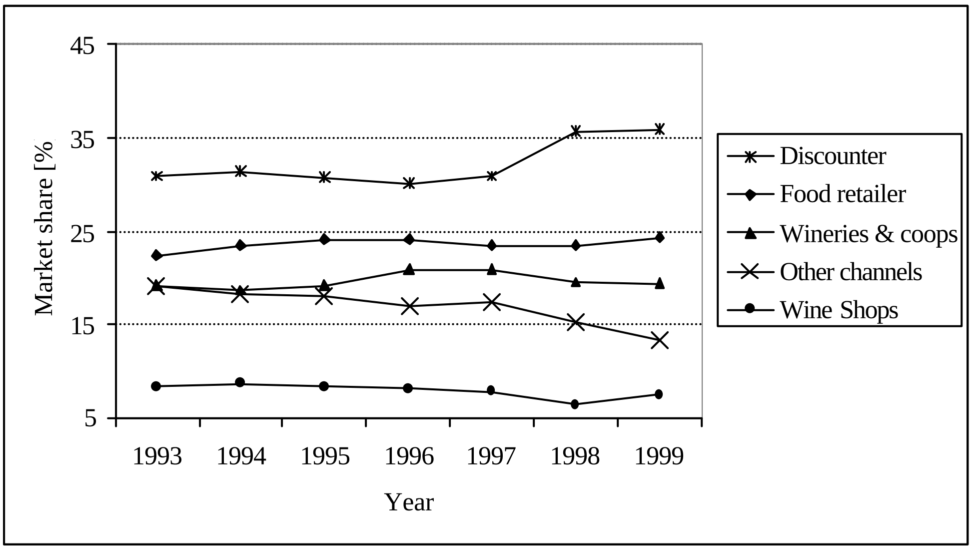

Figure 1: Development of market shares of sales channels for wine in Germany, 1993-1999.
(Source: Fachgebiet Betriebswirtschaft und Marktforschung, Geisenheim im Auftrag des Deutschen Weinfonds, 2000)

However, there are marked regional differences in the importance of sales channels in selling wine. For example in the Baden region, where cooperatives are strong, they account for 85% of the wine produced, whereas cooperatives have a much smaller shares in the Mosel and Pfalz regions, where much of the wine is sold directly by the wineries themselves (Deutsches Weininstitut, 2000).

As expected, the prices for German wine are lowest at discounters (in particular at the leading discounter Aldi) and highest in one-line wine shops. The price gap between wineries and wine shops is remarkable (see figure 2).

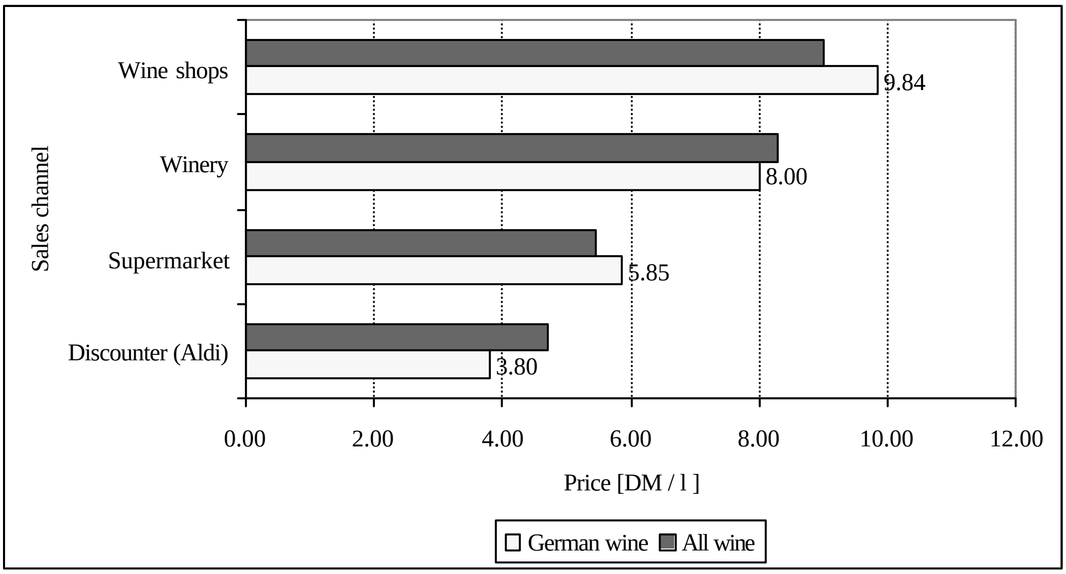

Figure 2: Average prices paid for wine, by sales channel, 1999.
Source: Fachgebiet Betriebswirtschaft und Marktforschung, Geisenheim im Auftrag des Deutschen Weinfonds (2000).

The Pfalz region is the second largest wine-growing region in Germany following Rheinhessen. She has about 23,500 ha of vineyards, and about 7,000 winegrowers (Pfalzwein e.V., 2000). About a third of the Pfalz region's wine is sold directly to consumers and half is marketed through commercial wineries and 27 cooperative cellars. A fourth of all wines produced in the Pfalz region are exported (Pfalzwein e.V., 2000).

The Mosel-Saar-Ruwer region is Germany's fourth largest wine-growing region, following Rheinhessen, Pfalz and Baden. She has 12,500 ha vineyards, and about 8,500 winegrowers (Mosel-Saar-Ruwer Wein e.V., 2000). About one fifth of the region's grape harvest is processed by the regional cooperative cellars in Bernkastel-Kues. The producers of bottled wine are cooperatives (13%), estates (28%) and commercial wineries (59%) (Deutsches Weininstitut, 2000).Direct sales to final consumers is an important sales outlet for smaller growers, who benefit from the region's tourism. Zell, Bernkastel and Piesport are among the few German appellations of origin that are widely recognized abroad (Deutsches Weininstitut, 2000).

3 Methods

To track the participation of the German wine industry in business-to-consumer e-commerce, we inspected wineries' web sites. A wineries' web site is a marketing and sales instrument. We assume that the quality of a wineries' web site reflects the scope of the wineries' direct marketing activities and influences its position in competition. In order for this marketing and sales instrument to be effective, it has to communicate well to the potential customer. We assume that the better a web site is, the better the marketing message is communicated and the better is the wineries' position in competition.

To assess the quality of a web site, in terms of usability attributes, we user tested the wineries web sites. After reviewing various guidelines, especially those from Nielsen (1994, 1995, 1996, 1998, 2000), for the design and management of web sites, 58 variables were selected. The attributes that we used can be measured can be grouped into three categories: Technical, design and content attributes. In addition we recorded characteristics of the wineries.

We retrieved 109 URL addresses of Mosel-Saar-Ruwer and Pfalz region wineries from a databank maintained by the German Wine Institute (http://www.deutscheweine.de/adressen/adr3.htm). At the time the survey was conducted the databank listed 49 winery web sites from the Mosel-Saar-Ruwer region and 60 web sites from the Pfalz. Entries in the databank have either been collected by the German Wine Institute or wineries have submitted their URLs for entry. Web sites were inspected from June to August 2000.

4 Results

In the following we report the key results of the web site inspection. First the characteristics of the online wineries are presented, followed by the web sites' design and content attributes. The results of the technical analysis are not presented here because there were not worth reporting.

4.1 Characteristics of the wineries online

In total 109 winery web sites were surveyed, 60 (55%) from the Pfalz and 49 (45%) from the Mosel-Saar-Ruwer region. The wineries were founded between 1249 to 1993. The web sites mainly belonged to family-owned wineries (81%), followed by winegrowers cooperatives (9%), only a few belonged to private limited liability companies (2%). The size of the wineries varied between 1 and 95 ha vineyard area. The average vineyard size was 15 ha. This is more than four times larger than the average size (3.7 ha) of a German wineries vineyard area (Buhrmester et al., 2000). This implies, that the larger wineries are more likely to have a site on the web. The wineries owning a web site plant from 1 to 15 different grape varieties, the average winery surveyed grew 5 varieties. The amount of wine produced per year ranges from 190 to 6,000 hl, with an average of 1,061 hl.

4.2 Web site design

We grouped the web sites into five categories. "Business card" web sites consist of a single web page with no links. They represent the minimum investment in a web presence. More elaborate are "Information kiosk" sites that provide their visitors with some general information about wine, on several web pages. Information kiosk sites, do not, however, contain information about whether and what the owner of the site has to sell. This, and other information, is provided by web stores. The least sophisticated stores present their wines and a price list on the web but do not offer an online ordering option, more advanced web stores also allow visitors to order online. Finally, there are web sites that allow visitors to order and pay online for goods sold on the web.

Only a small part of the web sites surveyed are simple sites with the pure intention to provide information to their visitors, the majority is intended to also sell their wine through the site. The business models differ some what between the Mosel-Saar-Ruwer and Pfalz region but none of the differences turned out to be significant (see table 1).

Table 1: Business models, by region

		Site type				
				Web store		
Region	N	Business card [%]	Information kiosk [%]	without online ordering option [%]	with online ordering option [%]	with online ordering and payment option [%]
Mosel	43	7	12	12	67	2
Pfalz	56	4	13	2	73	9
Total	99	5	12	6	71	6

More than four out of every five web sites surveyed were web stores, meaning they published a product catalog on the web and the products could either be ordered by fax or phone or online either via email or directly on the web. More Pfalz than Mosel sites were web stores, 82% of the Pfalz sites offered the possibility to order online, while only 69% of the Mosel web sites did so.

The most sophisticated web stores allowed online ordering and payment by credit card. The size of a winery in hectares and the credit card payment option are significantly correlated (Spearman's rho significant at the 5%-level). While only 3% of small (0-15ha) wineries accept the credit card, 15% of the large (>15ha) wineries accept this form of online payment. Two thirds of the large wineries were from the Pfalz region. Of the six web sites allowing online credit card payment, only two transferred the credit card number using a secured transaction. Comparing the two regions showed that more Pfalz wineries accept credit cards for payment (11%) than Mosel wineries (3%).

The design of the product catalog is important for customers to find the wine of their desire. The design of the product catalog published on the web was subjectively rated on a scale from 1 (=very poor) to 5 (=very good), taking clarity, link colors, pictures of the wine bottles, search functions, etc. into account. The overall average score was 3,5 with a standard deviation (σ) of 1, the results between Mosel (3,5; σ=1,2) and Pfalz (3,4; σ=1) not differing much. Only 3 of the web sites surveyed offered a search function on their web site.

A "simple" URL is important to effectively communicate a web site's address, for example: www.amlinger.de is a easier to remember than the complex URL http://home.t-online.de/home/meyer.arno/jbenz.htm. Inspecting URLs lead to a significant difference between web sites from the Mosel and the Pfalz. While 55% of the Mosel sites had an URL we considered "simple", only 32% of the sites from the Pfalz had "simple" URLs (Pearsons Chi^2 significant at the 5%-level). We assumed that larger wineries were more likely to have a simple URL, but there was no significant correlation between size measured in hectares and amount of wine produced per year and the URL being simple or not.

With regard to the coloring of hyperlinks Nielsen (1996) categorically recommends: "Links to pages that have not been seen by the user are blue; links to previously seen pages are purple or red. Don't mess with these colors since the ability to understand what links have been followed is one of the few navigational aides that is standard in most web browsers. Consistency is key to teaching users what the link colors mean.". The users attention should not be distracted from the "real massage" by making him search for links. Also all links should work in order not to disgruntle the user and make him go away from the site. There were significant differences found between the two regions inspecting the hyperlinks for correct color and function. While almost every third Mosel web site had broken links, only one in every ten Pfalz web sites' links were broken. The correctness of link colors used also differed significantly between the two regions.

Only 9.2% of all the web sites set cookies on the visitor's hard disk. A cookie can be effectively used as a marketing instrument. The customer can be recognized when he returns to the web site and with the information saved the web site can be fit to his individual preferences. Using frames is one of Nielsen's "Top ten mistakes in web design" (1996), 28% of the surveyed web sites used frames (see table 2).

Table 2: Hyperlinks, Frames and Cookies

		Web sites that...			
Region	N	have broken links* [%]	have links colored other than blue*	use frames [%]	set cookies [%]
Mosel	49	29	69	29	10
Pfalz	60	10	47	27	8
Total	109	18	57	28	9

* Pearson's Chi squared test significant at the 5%-level

4.3 *Content Attributes*

The web offers more room than the label to communicate information about the wine. Not all information published on a web site promote sales, some distract the user and keep him from finding the information he was looking for, and maybe the winery looses customers. The amount and quality of information about the vineyard and its wines offered through the wineries web sites were subjectively rated on a scale from 1 (=very little) to 5 (=many). Overall the amount and quality of information about the vineyard and the wines offered on the web site differed significantly between the two wine growing regions surveyed (one-way ANOVAs significant at the 5 %-level). In our opinion, the Mosel-Saar-Ruwer winery web sites offered more information at a better quality.

It is not only important to offer content in suitable amount and quality, with the costs of transportation falling and the reach of the web growing it is also important to adopt a web site to these conditions. Therefore, it is important for a Germany winery to offer an English language version to accommodate customers from abroad. Most sites (82 %) are in German only, and 18% of the web sites surveyed were also in English. The languages offered differed significantly (Pearsons Chi^2 significant at the 1%-level) between the two regions. While more than one out of every three Mosel web site was in English and German, less than one in fourteen Pfalz web sites were multilingual.

5 Conclusions

The purpose of the web site inspection was to identify e-commerce activities of German wineries. The inspection showed that a surprisingly large share of the wineries online also intend to sell their products via their web sites. We found that the wineries with web sites are larger than the average German winery. At this early stage of e-commerce diffusion the larger wineries are the first to adopt. With the costs of web presences continuing to fall, we expect the smaller wineries to catch up.

For smaller wineries cooperative web sites may be an option when gains from cost reduction and increased customer attraction outweigh the cost from increasing competition at the cooperative site. The next step in our research will be to compare the early e-commerce adopters with those who are not yet online in order to better understand adoption decisions and the diffusion processes that result from them.

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