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# System Dynamics and Innovation in Food Networks

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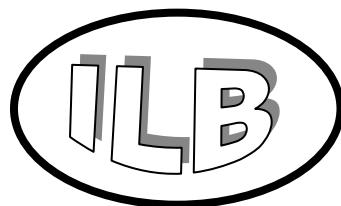
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# The Effect of Terroir on Wine Business Model in Burgundy: To Make Wine or to Sell Harvest?

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## Abstract

The paper explores the strategies of the wine stakeholders with respect to outsourcing versus integration of the wine-making process by analyzing original and recent data issued from the companies producing wine in Burgundy. Our research question is: Does terroir matter for wine business model between staying viticulturist or becoming winemaker? We investigate this question within the mosaic of the Burgundian vineyard. A Principal Components Analysis highlights the latent variables explaining the different strategies of stakeholders in Burgundy, and a cluster analysis tries at identifying the differences existing between the winegrowers, with a special focus on the viticulturists and the winemakers. The results show that the strategies of the Burgundian wine stakeholders with respect to outsourcing vs. integration differ according to the level of Appellation d'Origine. Consequently the terroir operates as discriminant factor between outsourcing whether integrating some, if not all, of the stages of the wine-making process, including sales. Each sub-region of the Burgundian vineyard has a specific business model strongly related to the territory nesting the wine estates.

## 1 Introduction

Even though outsourcing is considered by literature on management science as a useful trait for efficient business everywhere by reducing the agency costs, it was found that, most often, the stakeholders who process top quality products are prone to integrate the stages of working out. Other factors taken into consideration are the risks of loss of core knowledge and the increased costs. The main raison of the integration is the quality control from raw material to process and sales, which is a key factor for addressing the expectations of the market's premium segment. In the wine sector both figures occur in various countries and vineyards. However, recent publications found that the profitability increases with vertical integration in the wine industry. The literature review carried-out pinpoints that, albeit it is considered as the mainstream of good management of modern companies, outsourcing is sparsely applied into wine industry with respect to the core stage of wine-making process. We intend to study whether outsourcing or integration of wine-making process is a factor of profitability for wine companies. Our research question is: Does terroir matter for wine business model between staying viticulturist or becoming winemaker? We investigate this question within the mosaic of the Burgundian vineyard.

In the French wine growing area of Burgundy, the share of harvest sold as fresh grapes, grape must or juice has increased from 10% to 16% from 2000 to 2010. This trend of outsourcing pertains on the core stage of business for wineries: the wine-making process. We explore the strategies of the wine farms with respect to outsourcing versus integration of the wine-making process by analyzing data issued from the 3,751 companies producing and/or selling wine in Burgundy in 2011 (see figure 1). They produce 60% of white wine, 32% red and 8% sparkling. The 1561 red-oriented wine estates are mainly located in Côte-de-Nuits and Côte-de-Beaune. 72% of these estates are making and bottling wine for Village appellations and Premier Cru. Very few are specialized in Grand Cru appellations. The 28% of wine estates selling red wine in bulk are more oriented towards Regional appellation. Among the 1771 white-oriented estates, mainly located in Chablis and Macon areas, only 14% are also winemakers. The 86% others are viticulturists by selling their harvest in bulk. The wine cooperatives located in the south and north-west areas of Burgundy explain this choice of business model.

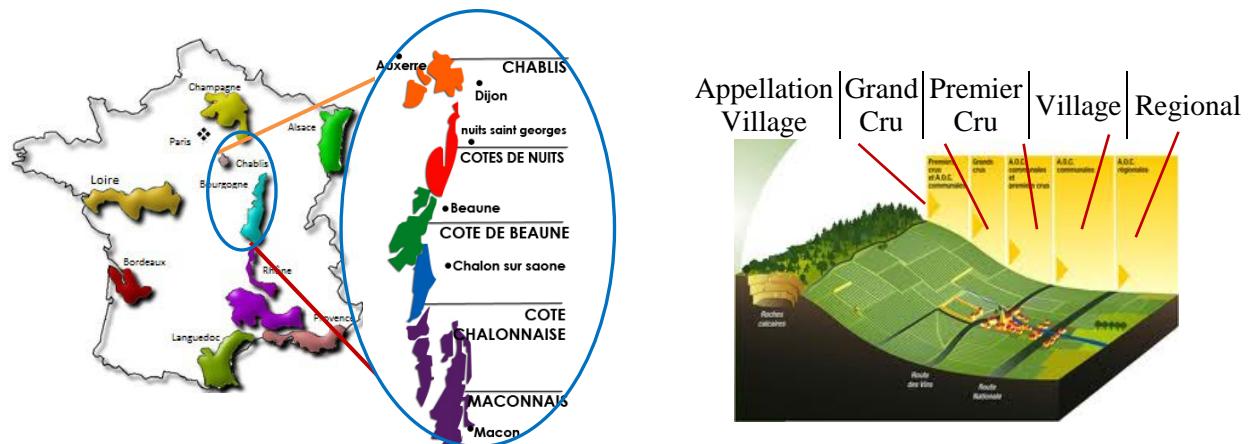


Figure 1. Map of Burgundy vineyards and location of the different appellations of origin Cluster analysis

According to the cluster analysis carried-out, the strategies of the Burgundian wine estates with respect to outsourcing vs. integration differ first according to the level of *Appellations d'Origine*, then the color of wine matters and consequently the terroir operates as discriminant factor between outsourcing whether integrating some, if not all, of the stages of the wine-making process, including sales.

**Table 1.**  
Characterization of wine estates' clusters, Côte- & Hautes-Côtes-de-Beaune

	Cluster 4	Cluster 3	Cluster 2	Cluster 5	Cluster 1	
% sold per wine	White 55% Sparkling 0% Red 45%	26% 1% 72%	55% 18% 27%	47% 1% 52%	34% 2% 64%	
% wine sold	Bottled 9% As grape or must 86% In bulk 4%	26% 13% 61%	6% 90% 4%	93% 5% 2%	80% 15% 5%	
% sold per appellation	Regional 6% Village 19% Premier Cru 57% Grand Cru 18%	46% 38% 17% 1%	55% 42% 3% 0%	20% 41% 37% 2%	30% 41% 27% 1%	
% directly exported	11%	3%	3%	0%	62%	
	N= 1137	159 (14%)	182 (16%)	284 (25%)	114 (10%)	398 (35%)

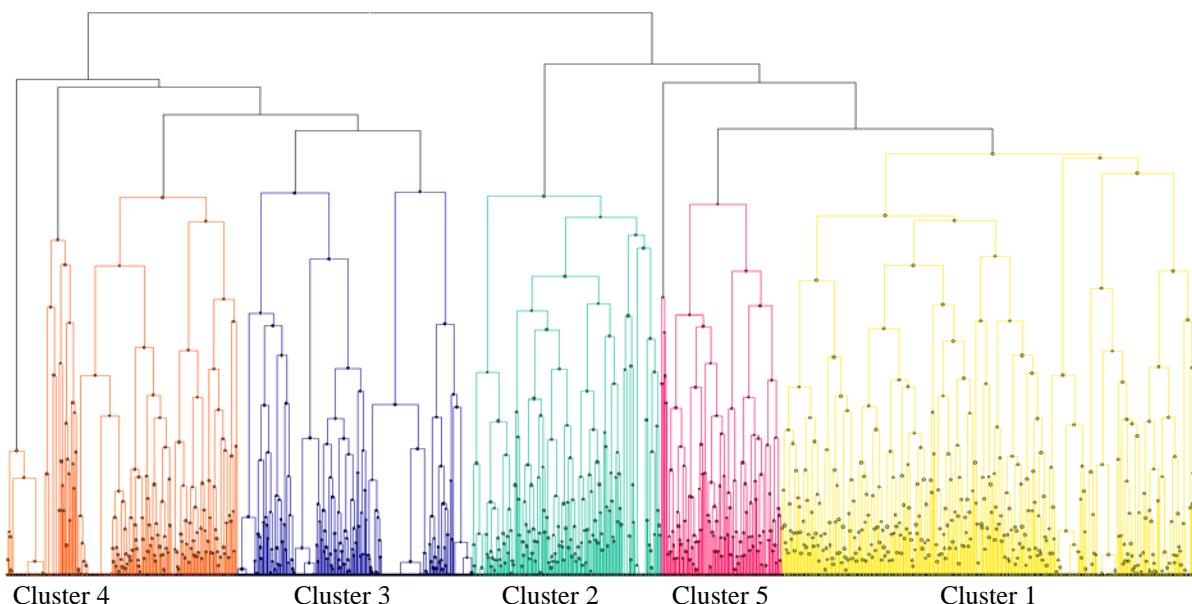


Figure 2. Dendrogram of wine business models in Côte- & Hautes-Côtes-de-Beaune

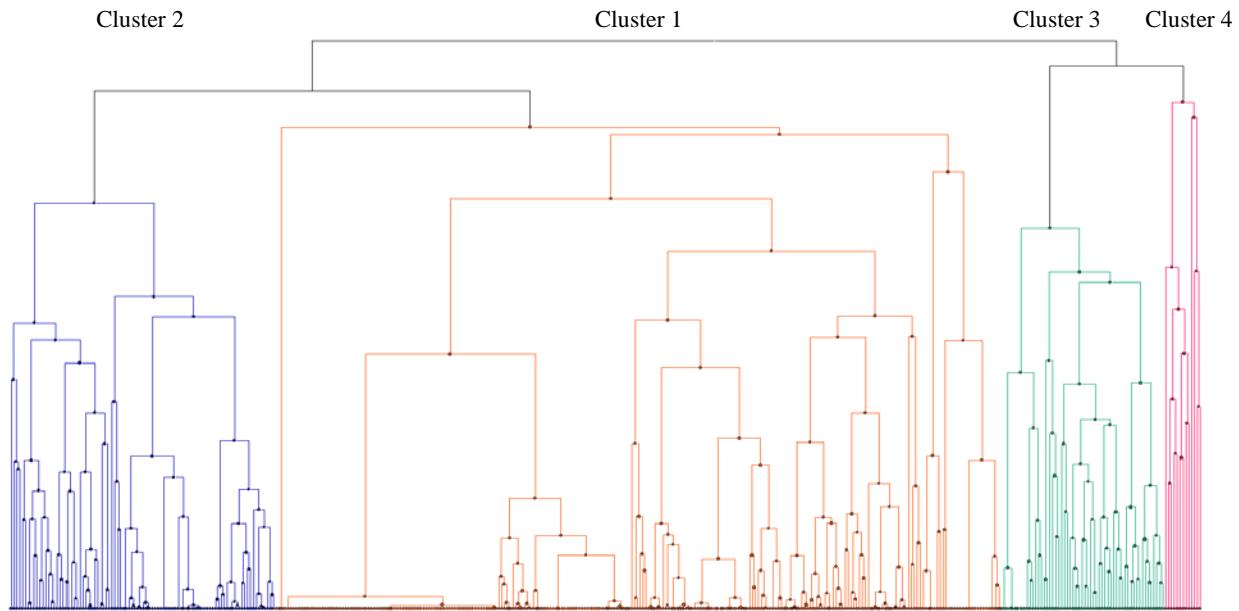


Figure 3. Dendrogram of wine business models in Chablis area

The wine estates from Côte- and Hautes-Côtes-de-Beaune area are slightly red wine-oriented, however, a sizeable share of wine produced there is white (see figure 2 and table 1). Three clusters from this area are mainly making red wine. Among these, the wine farms of clusters 1 and 5 are bottling 80% to 93% of their wine, while cluster 3 is composed of viticulturists selling 61% of their wine in bulk to traders. Clusters 2 and 4 are white wine-oriented. They are both selling their harvest as fresh grape or must to traders or cooperatives. For each cluster, whatever the wine color is, higher the level of Appellation is, higher the rate of direct export.

Not surprisingly, the wine estates from Chablis area are white wine-oriented in a huge proportion (94 to 100% of their sales). The dominant business model consists of selling harvest in bulk as fresh grape or must to cooperative wineries operating there, including the biggest one in Burgundy and located in Chablis.

The business of cluster 1, the biggest one, gathering 54% of the winegrowers from the area, is rather specialized with 87% of wine made for Village appellation (see figure 3 and table 2). Cluster 2 makes difference by selling wine in bulk, mainly to traders. Cluster 3 is the most diversified one. Even though making 64% of wine for Village appellation, this cluster provides wine for Premier Cru with a sizeable share of 22% of its production, and also for Regional appellation. Cluster 3 is the only one mainly bottling wine in the estates and exporting directly. Cluster 4 is oriented towards premium segment of Chablis wine, by making 63% of wine for Premier Cru appellation and 13% for Grand Cru one. Cluster 4 is the smallest one; it works with specialized traders rather than with large cooperative wineries.

**Table 2.**  
Characterization of clusters of winegrowers in Chablis area

		Cluster 1	Cluster 2	Cluster 3	Cluster 4
% sold per wine	White	99%	100%	94%	100%
	Sparkling	1%	0%	1%	0%
	Red	0%	0%	2%	0%
% wine sold	Bottled	2%	19%	78%	1%
	As grape or must	92%	13%	9%	93%
	In bulk	6%	68%	13%	6%
% sold per appellation	Regional	2%	2%	12%	21%
	Village	87%	90%	64%	3%
	Premier Cru	11%	11%	22%	63%
	Grand Cru	1%	2%	2%	13%
% exported	Direct export	0%	4%	34%	0%
	N= 413	223 (54%)	91 (22%)	66 (16%)	33 (8%)

For the 294 traders, the more salient factor, 24% of the overall variance, is the main business done with Regional appellation and sparkling wine (see table 3). The 2<sup>nd</sup> factor explaining 19% of the overall variance is the orientation toward white wine. The business specialization of the traders acting in Burgundy is under the influence of appellation on which they are working on.

**Table 3.**  
Characterization of clusters of Traders in Burgundy, issued from HAC

		Cluster 1	Cluster 2	Cluster 3	Cluster 4
% sold per wine	White	27%	70%	89%	5%
	Sparkling	1%	5%	0%	93%
	Red	71%	25%	11%	2%
% sold per appellation	Regional	41%	69%	15%	97%
	Village	37%	26%	61%	2%
	Premier Cru	16%	4%	23%	1%
% Export	Grand Cru	5%	1%	1%	0%
		45%	38%	49%	13%
<i>N</i> = 294		105 (36%)	91 (31%)	83 (28%)	15 (5%)

## 2 Discussion

For the winegrowers, the main difference is between the companies which bottle their wine and export it directly, mainly red wine vs. those which sell their harvest in bulk, mainly as grape or must, in majority for white wine or sparkling one (see figure 4). A second difference opposes the winegrowers who are doing business with white wine bearing Village appellation and not the Regional one. For the traders, the use of Regional appellation, mainly for sparkling wine, is the main difference, while the second one is based on companies working with white wine.

The 1561 red-oriented wine estates belong to 10 clusters according to their area of vineyard. They are working for red wine from 52% to 99% of their activity. They are mainly located in Côte-de-Nuits and Côte-de-Beaune, both including Hautes-Côtes. Six clusters include 1107 wine farms making and bottling wine. Among theses, the cluster from Auxerre is making wine for Regional appellation (73% of its production), all the others, from Côte-de-Nuits, Côte-de-Beaune and Côte Chalonnaise, are working for Village appellations and Premier Cru in a sizeable share (21% to 37%). One cluster, Côte-de-Nuits #5, is specialized in Grand Cru appellations (81% of its sales). 454 wine farms belong to 4 clusters selling red wine in bulk, mainly as wine in tanks. Those 29.1% of wine farms selling red wine in bulk are more oriented towards Regional appellation, albeit they also produce for some Village appellations.

The 1771 white-oriented wine estates belong to 13 clusters. Only 256 wine farms belonging to 2 clusters are also wine-makers. The 1515 others are viticulturists by selling 69% to 99% their harvest in bulk; they represent 85.5% of the white wine winegrowers in Burgundy. The presence of cooperatives in the south and north-west areas of Burgundy may explain this choice of business model.

Two clusters are specialized in sparkling wine which counts for 90% to 93% of their production. The 98 wine estates of these clusters are working for Regional appellation at 99%, and selling wine in bulk (93% to 98%) as harvested grape or must (93%) to cooperatives or traders. Whereas they are distant by 200 km (in Côte Chalonnaise and Auxerre), there is no difference in the business model applied in the sparkling wine industry in Burgundy.

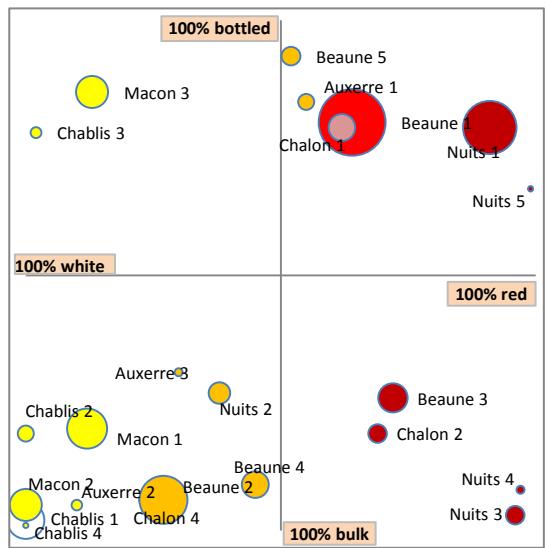


Figure 4. Mapping of wine business models in Burgundy

### 3 Conclusion

In Burgundy, outsourcing is not frequent in the red wine industry, especially for those who are making Grand Cru or Premier Cru appellations. The opposite situation occurs for the white wine industry where the most frequent scheme is to sell wine in bulk or fresh grape or must to cooperatives or traders, whatever the level of appellation is. A noticeable diversity exists within the business models in red wine, mainly for those who are bottling their wine. This choice is related to the level of appellation. The diversity is lower in the white wine business model, with a high frequency of outsourcing wine-making process.

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