Protecting Quality of Wine Exports to China: Barriers and Bridges

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There is a great potential for wine to deteriorate during shipment and storage of wines being exported from the United States to China. Certification of storage conditions such as that provided by the Hong Kong Quality Assurance Agency (HKQAA) is a key bridge to protecting quality and maintaining value in the auction market there. A literature review and semistructured interviews with winery managers, freight forwarders, transportation experts, and representatives of HKQAA provide qualitative analysis of barriers and bridges to protecting quality. The article presents a strong case for the adoption of storage and transportation standards for wine, such as the Wine Storage Management System implemented by HKQAA. Looking at wine exports through the lens of Total Quality Management provides the basis for recommending formal certification.

KEYWORDS wine, supply chain, quality, export

INTRODUCTION

U.S. wine exports broke sales records in 2011. Sales of California wines in China and Hong Kong were a major contributor to this growth (Digitale, 2012). There was a 42% increase in wine exports to China. There is plenty of room for more growth as grape wines account for only 10% of the wine market there (Wine Institute, 2012).
This growth has been building for several years as China's wine imports have increased sixfold between 2006 and 2010. More and more U.S. wineries have begun to evaluate and plan for the opportunity to export more wine. Forty percent of Silicon Valley Bank survey respondents said they wanted to start exporting out of the United States (McMillan, 2008). The possibility of gaining a share of the huge potential market in China is very tempting.

The wine industry is becoming more international due to a reduction in tariffs and a reduction of nontariff barriers to wine marketing. China's entry into the World Trade Organization (WTO) has led to a reduction in import duties on wine. As the market has grown, however, a heightened expectation of quality has become the norm (Lockshin & Spawton, 2008). Upscale buyers have entered the market seeking higher quality wines instead of the local rice wines ("China's wine romance," 2012).

The Hong Kong government abolished the import duty on wine in 2008 in order to promote local wine industry development (Chen, 2011). This has helped Hong Kong develop into a regional wine center for warehousing, trade, and auction. The Asian wine markets have grown quickly and Hong Kong is now the world's second largest wine auction center after New York. It has become the point of entry for mainland China's growing wine market. Christian Pillsbury, a wine consultant at Applied Wine in Hong Kong, asserts that U.S. wines could garner higher prices if proper handling during storage and transit could be assured (personal communication, August 9, 2011). There is a perception that U.S. imports have not been handled carefully enough.

Chinese consumers are becoming more knowledgeable, however, and want to make sure they are getting value for their money. The vibrant auction market in Hong Kong now serves as a gateway to Chinese consumers. With Napa Valley wines bringing up to $2,000 a bottle ("China's wine romance," 2012), buyers want to know that their wine has been handled according to the highest standards during storage and transportation. This has led to the recognition of a need to establish and document best practices for Hong Kong warehouses, distributors, and retailers.

It is now important that American wineries prove that their wines have been protected every step of the way to the Chinese consumer. This is just one of the barriers facing potential wine exporters. This article addresses some of these barriers and suggests some potential solutions. We focus upon performance measurement in the storage and transportation of wine by shining a light on the Wine Storage Management System (WSMS) implemented by the Hong Kong Quality Assurance Agency (HKQAA). This type of system is an excellent mechanism in the establishment of Total Quality Management (TQM).

Given that there has been very little research into managing the processes occurring after the wine leaves the winery, a qualitative approach was utilized. Semistructured interviews with wineries, logistics firms,
government officials, and other experts were the basis for data collection. This was an exploratory study that sought to understand the path to successful exportation of wine as well as current methods used to prevent degradation of wine during storage and transportation. The intention was to gain insight into ways that the wine could be protected so that the final consumer would receive the value that was sought after.

We initially use the literature to establish the importance of the issues upon which we focus in the context of TQM and Supply Chain Management. During our inquiry, we found that there is a lack of clarity concerning proper handling both at home and in the process of exporting wine to China. There are many barriers to protecting the quality of wine and successfully moving it to Chinese customers. We examine these barriers and suggest solutions, or bridges, to that market. The managerial implications of these issues are then discussed.

**TOTAL QUALITY MANAGEMENT**

Total Quality Management (TQM) is an integrated business strategy designed to develop an awareness of quality in all organizational processes (Swink, Melnyk, Cooper, & Hartley, 2011). The quality of manufactured products has become one of the most important factors that contribute to business success in the marketplace. The International Organization for Standardization (ISO) family of standards represents an international consensus on good management practices aimed at providing products that meet customers’ requirements (Ferguson, 1996).

The ISO 9000 series consists of generic standards for quality management and quality assurance. The basic purpose of ISO 9000 is to ensure that a firm’s operating processes are well documented, consistently executed, monitored, and improved upon (Swink et al., 2011). This type of certification has become a basic requirement for businesses operating internationally. In addition, many corporate buyers use certification as evidence of a supplier’s competence and a replacement for personal visits in the evaluation of suppliers.

A more specific program targeted at food production (including wine) is ISO 22000:2005. ISO 22000 integrates the principles of Hazard Analysis and Critical Control Point (HACCP) system into its system. According to Mark Castaldi, general manager at Sonoma Wine Company in American Canyon, it is an HAACP type standard based on ISO 9000 but directed toward food safety and it requires more stringent documentation and ongoing evaluation (personal communication, February 28, 2012). ISO 22000 is the new standard bound to replace HACCP on issues related to food safety, including wine. ISO 22000 can be used to measure the success of a firm’s implementation of HACCP as well as prerequisites to HACCP and other quality control systems.
The HAACP is a systematic preventative approach to food safety that addresses physical, chemical, and biological hazards through prevention rather than finished product inspection. In the food industry, HACCP is used to identify potential safety hazards so that key actions can be taken to reduce or eliminate the risk of the hazards being realized (M. Castaldi, personal communication, February 28, 2012). Critical limits (minimum or maximum values) for each critical control point are established and monitored. Corrective actions are specified as well as record-keeping procedures.

These types of TQM efforts require decisions based on data and continuous improvement through appropriate performance measurement. For example, the HKQAA has developed a Wine Storage Management System (WSMS) based on ISO 9000 type criteria. Its WSMS was introduced with the goal of providing a set of computerized procedures to control the movement and storage of wines within a warehouse and the processing of the associated transactions, such as shipping, receiving, put-away, and picking. In addition, the WSMS would deal with the activities related to inbound transportation, storage, outbound shipment, and the tracking and monitoring of inventory and order flows (Chen, 2011).

SUPPLY CHAIN MANAGEMENT

Winemakers take the utmost care to grow grapes and control wine production in order to produce the highest degree of quality. After the wines are bottled and sealed, however, they may not receive the same level of attention. They may be exposed to extreme storage and transportation conditions that can put wine quality at risk or even spoil the wine. According to Dr. Christian Butzke, improper storage conditions during distribution through the entire supply chain is the most common cause of loss of a wine’s quality and value (Butzke, 2010).

According to Handfield and Nichols (1999), the supply chain includes all activities concerning the flow and transformation of goods from raw materials through to the end user, including the flow of both materials and information up and down the supply chain (Handfield & Nichols, 1999). Supply Chain Management is the coordination and management of all those activities. The downstream efforts include assembling shipments, storage, order entry and tracking, distribution through the various channels, and final delivery to the customer. There are a wide array of factors that influence the successful management of the chain, including customer expectations, globalization, information technology, government regulation, competition, and the environment (Hervani, Helms, & Sarkis, 2005).

The move to global sourcing and the rapid pace of technological change tie corporate strategic success to the selection and development of systems
that can support the firm’s competitive position. This may require the
development of long-term relationships with a small group of preferred sup-
pliers. Successful outsourcing and third-party logistics management have
now become mechanisms to build competitive advantage (Wong, Maher,
Nicholson, & Gurney, 2000).

Protection of the quality of the wine needs to be assured all along the
supply chain—from producers to shippers, warehouses, and retailers. In
the next section, we detail some of consequences of improper handling. It
is imperative to have a framework and industry standards for proper wine
storage and transportation throughout the supply chain, especially if the
wine is to be exported.

PROTECTING WINE QUALITY ALONG THE SUPPLY CHAIN

Performance measurement efforts are central to TQM and continuous
improvement programs. Key Performance Indicators (KPI) are critical in
the management of operations at many firms (Gunasekaran, Patel, &
McGaughey, 2004). In the wine arena, consistent quality is now a common
expectation as a KPI for wine salability. Even subtle or short-term changes
in humidity and temperature can bruise a fine wine beyond repair. Protection
of wine from adverse conditions can add value to the product at auction
(Bordeaux City Bond, 2010).

Performance measures need to include both products and processes.
They are best developed using a team approach and should include both
internal and external communications. They need to provide information
used in making decisions, not just a compilation of data. Rewards and recog-
nition can be linked to performance measurement outcomes (Hervani et al.,
2005).

The movement of wine to the consumer provides a variety of opportu-
nities for deterioration to occur. Elevated temperatures and temperature fluc-
tuations are the greatest hazards for wines during storage and transportation
(Butzke, 2010). Any temperature above 16°C (60°F) may change the wine’s
maturation process, affect varietal character, and shorten its life expectancy.
Even temperatures as low as 30°C (86°F) for more than 18 hr permanently
degrade wine and show losses in fragrance within a few months (Jackson,
2008). There is no outward indication of the damage until the customer
drinks the wine. Eric Vogt, president of eProvenance.com, estimates that
about 2% of the wines shipped from Europe to the United States are over-
heated long enough to suffer heat damage (personal communication, August
11, 2011).

Wine needs to be stored at a relatively stable temperature in order to
avoid loosening the seal between the cork and the bottle. Rapid temperature
changes generate sudden fluctuations in wine volume that put pressure on
that seal (Jackson, 2008). Ultimately, the cork seal may rupture and allow oxygen into the bottle, which can ruin the wine.

For transport or storage over a period of several weeks or months a range of 10 to 20°C is optimal and it must be maintained by each link in the distribution chain. The cold chain is broken if even one link fails to maintain the required conditions. Ideally, wines should be stored in refrigerated warehouses and shipped in refrigerated trucks and containers with temperatures periodically recorded (Butzke, 2010).

At the other end of the spectrum, wines stored cooler than 10°C (50°F) may not develop their full potential for aroma and flavor. Even short-term exposure to temperatures below 0°C (32°F) can cause the formation of potassium bitartrate crystals in white wines or a sludgelike mixture of colored crystals in red wines (Butzke, 2010). If the wine freezes, the volume can increase enough to force the cork out of the bottle (Jackson, 2008).

In addition, exposure to sunlight can cause heating and undesirably speed aging. Light also activates the synthesis of sulfur compounds that can lead to off-odors. It is preferable to store wine in darkness whenever possible (Jackson, 2008). Vibration is also thought to have a negative effect on wine.

One of the dimensions of quality established by Charters and Pettigrew (2007) has been described as the absence of faults. One wine consumer put it this way: “I hate buying wine that’s gone off, or it is oxidized, or you can get really bad colours” (p. 1000). These are faults that can occur after the wine has been bottled. Damage to the wine label itself or the capsule can serve to lessen the perceived quality of the wine. The prevention of such incidents is the focus of this article.

Supply chains typically have multiple vendors, manufacturers, distributors, and retailers dispersed around a region or around the world. It is often difficult to attribute performance results to one particular entity in the chain (Hervani et al., 2005).

**METHOD**

Interviews were conducted with industry professionals representing links in the supply chain from wine production all the way to the consumer in China. This included 4 winery owner/managers, 3 freight forwarders, 3 warehouse managers, and 2 members of the HKQAA. The interviews were semistructured, with a number of research themes raised rather than a series of specific questions. Field notes were recorded after each interview.

In the following sections, we demonstrate barriers to the maintenance of quality at various points along the supply chain and illustrate some methods for coping with these problems.
AT THE WINERY

_BARRIER:_ One barrier to export is that customers do not know how the wine has been produced. Although winemakers go to great lengths to produce the intended quality of wine, it can be difficult to prove. One way to reassure customers is to obtain certification that the wine has been produced and bottled correctly and shipped in a way that protects that quality.

_Bridge:_ At the Sonoma Wine Company plant in American Canyon, California, that meant obtaining ISO 22000 certification. According to General Manager Mark Castaldi, most of their effort is aimed at making sure the wine is right before it goes into the bottle (personal communication, February 28, 2012).

Sonoma Wine Company was the first facility in the Napa Valley to obtain ISO 22000 certification (as described earlier). It took the American Canyon facility about 1.5 years to obtain that certification. Benefits obtained from that effort include the following:

1. Differentiation: There are very few competitors in the wine contract services sector that have attained certification.
2. Improved quality: The written procedures and specified practices have contributed to a higher level of quality and increased consistency.
3. Additional revenue: Certification has opened the door for Sonoma Wine Company to perform bottling services for customers importing wine from Australia and Chile.

PRIOR TO EXPORT AND FREIGHT FORWARDING

_BARRIER:_ In order to get started in a foreign market, a winery must first allow potential customers to taste its wine. One Sonoma County winery found that just getting samples to prospective buyers for tasting purposes was difficult. The Chinese are known for their large bureaucracy. Even shipping a few sample cases requires that they be received by an authorized person. Correct labeling in Chinese has to be affixed to the bottle and an import permit has to be obtained. Otherwise, the shipment will be rejected. Kamal Azari, of Azari Vineyards & Winery, commented that package carriers were unwilling to accept shipments due to these documentation difficulties (personal communication, March 8, 2012).

_Bridge:_ A process for arranging the tasting of U.S. wines has been established with the help of the U.S. Export Assistance Center and Embassy Wine Distributors, LLC. Samples can be shipped to diplomatic posts around the world and made available for tasting, according to Bob Brun of Embassy Wine Distributors (personal communication, March 8, 2012). Video tastings have even been arranged where the winery can talk about the product while...
distributors overseas taste it. This gives the wineries an opportunity to establish an overseas distributor prior to encountering all of the documentation issues, according to Glen Roberts of the U.S. Department of Commerce (personal communication, March 8, 2012).

_Bridge_: Chuck Seymour, president of South San Francisco based Novo Express, specializes in ocean and air exports to Asia. He emphasizes the importance of “Guanxi,” an evocative business concept relating to the closeness and importance of personal relationships. This is a very important cultural norm in China. Accurate detailed shipment information and the ability to locate product in the U.S.-Sino supply chain is vital in China (personal communication, March 8, 2012).

There are many nontariff barriers to be surmounted, such as extensive documentation. Mr. Seymour suggests that wine quality can best be ensured by working with a freight forwarder that has close connections in Hong Kong. That may entail a wholly owned subsidiary in Hong Kong or an exclusive contractual agreement with an agent in Hong Kong that abides by “Guang Xi.” A competent freight forwarder can assist the wine exporter in preparing the following documents and executing the necessary activities:

1. Winery Commercial Invoice
2. Shipper’s Letter of Instruction
3. Transportation Security Administration (TSA) Consent Form on winery letterhead (carrier of record reports to U.S. Customs)
4. Hong Kong Import License: freight forwarder can assist in obtaining from HK government
5. Freight forwarder reports License information to HK Customs
6. Clearance and delivery can be facilitated by forwarder

Some relief may be on the horizon. A senior Hong Kong government spokesman recently declared that Beijing is considering realistic steps to simplify import requirements, according to Stanley Kwang, director Special China Programs at the University of San Francisco (personal communication, March 18, 2012).

**AT THE LOCAL WAREHOUSE**

_BARRIER_: This article was inspired by the corresponding author’s consulting project with a high-end winery in Napa Valley, California (it does not wish to be identified). The warehouse had adequate space and was run by competent personnel. The question was, “What can we do to improve?” The winery had plenty of space and experienced management but wondered what it could be doing better. There was no definitive resource available to
guide the winery concerning the adequacy of current practices. The absence of objective benchmarks led to a degree of uncertainty.

Critical issues to address concerned the floor plan, storage racking, library storage, and shipping procedures. There was no authoritative resource to consult to define the specifications and requirements for operating an excellent warehouse management system. The information was not codified in a central place. An objective set of standards and procedures was needed.

**Bridge:** The HKQAA system provides just such a resource. Several improvements have been implemented in accordance with standards set in the WSMS.

1. Delivery of the wine to the warehouse was often accomplished in a van. It was decided that the air conditioner should be used during transit.
2. Pallets of wine would no longer be double stacked unnecessarily.
3. Library wines would be stored on racks instead of pallets on the floor.
4. The refrigeration unit would be monitored regularly to ensure proper functioning.
5. A system was implemented to prevent counterfeiting. This entailed embedding a Radio Frequency Identification (RFID) chip under each label. It could be scanned later to ensure that the bottle was valid, not a counterfeit. A Quick Response code was burned into the wooden packing case for easy identification.

**SHIPMENT OVERSEAS**

**Barrier:** In global distribution it is important to ship the wine safely so it does not suffer spoilage, especially from temperature fluctuations. International shipment of wine is typically handled by freight forwarders who use refrigerated trains, trucks, and shipping containers. These freight forwarders will also assure that the wine is properly moved to a warehouse at its destination (Herman & Long, 2008).

**Bridge:** JIB International is a logistics provider in the Central Valley of California. In order to protect the wine from extreme temperatures (and more important—temperature variation), they recommend wrapping each pallet in an insulating blanket. The container is then delivered to the port 1 day ahead of loading in the ship. Optimally, it could be placed in the shade while awaiting loading (although that rarely occurs). Most important, instructions specify that the container be stored below the waterline in order to keep it cool. If it is stored below the waterline, a refrigerated container is not needed, according to Bob Brun of Embassy Wine Distributors (personal communication, March 8, 2012).

**Bridge:** It is helpful to use case dividers or special sleeves to prevent damage to the label and capsule. Scuffing can result from the bottle rotating
in the case during shipping. Condensation inside the shipping container can weaken shipping cartons leading to collapse and breakage. The container needs to be secure from pilferage (Lockshin & Spawton, 2008). Additional tools to help protect the wine include the following:

2. WineAssure: A system where a case of wine is placed in a larger box and surrounded on all sides by frozen WineAssure packs. Created by New Vine Logistics.
3. COX Temperature Recorder: A battery-powered instrument that tracks temperature over time and traces the data onto a paper strip chart. Available from COX Recorders.

**STORAGE AND HANDLING IN HONG KONG**

*Barrier:* Once the wine reaches China, another major hurdle to be cleared is the country’s difficult distribution system (Bretherton & Carswell, 2001). Quality control is not considered as important in China as it is in the West (Chu, 2000). For example, an Australian exporter suffered damage to its reputation because a shipment of wine was released to the market by its distributor in a spoiled condition. The distributor did not understand the need for special attention to wine products. It had been placed in a warehouse with other products and no temperature control. Its quality diminished over the summer and it was ultimately rejected by the customer (Beverland, 2002).

That type of handling is no longer sufficient. Calentone, Schmidt, and Song (1996) asserted that Chinese wine consumers are quality conscious and strive to purchase high-quality wines in order to reduce the risk of making a bad purchase. Wine is generally positioned and promoted as a luxury Western product in China. It is capable of boosting the consumer’s status among his or her peers (Lee, 2009). Unfortunately, many consumers were paying a high price for their wine only to discover that it had deteriorated.

*Bridge:* The HKQAA developed the WSMS certification scheme in order to ensure that the quality of the wine being stored or transported is not compromised. It is intended to enhance the confidence of consumers and wine collectors (HKQAA, 2010).

In order to provide assurances to both buyers and sellers, the HKQAA has developed a framework for establishing wine storage systems that can be uniformly applied by wine storage facilities and retailers (See Table 1).
Fine wines that need time to mature and improve can rapidly deteriorate if kept under inadequate conditions. This can cause depreciation in value.

The HKQAA developed a certification scheme to do the following:

- Reduce the risk of deterioration
- Enable fast response to customers’ requests for updated systems
- Enhance staff awareness and competence
- Raise the level of customer satisfaction

Certification is based upon an audit in which management systems are assessed. It is similar to ISO 9000 programs, which have been instrumental in the implementation of TQM systems worldwide. Stage 1 includes a review of documentation and preliminary assessment of the WSMS. Temperature and humidity sensors are installed at this point to gather information for review. Once the data has been gathered, a more detailed and comprehensive assessment is performed in Stage 2.

A code of practices is also included in the scheme, which provides specifications for control of conditions including temperature, humidity, lighting, and vibrations. Other aspects include equipment maintenance, security, inventory, management, hygiene, and insurance. Specifications tailored to the fine market are more stringent than those for commercial wine storage.

### TABLE 1 Fine Wine Storage: Key Performance Indicators

<table>
<thead>
<tr>
<th>Key Performance Indicator</th>
<th>Standard Degrees Fahrenheit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. storage temperature</td>
<td>11°C 52</td>
</tr>
<tr>
<td>Max. storage temperature</td>
<td>17°C 63</td>
</tr>
<tr>
<td>Max. daily fluctuation range</td>
<td>3°C 4.4</td>
</tr>
<tr>
<td>Max. annual fluctuation range</td>
<td>5°C 9</td>
</tr>
<tr>
<td>Humidity as a running average</td>
<td>55% to 80%</td>
</tr>
<tr>
<td>Storage areas shall be isolated from external lights</td>
<td>Yes</td>
</tr>
<tr>
<td>Low UV lights (i.e., LED lights) shall be used to replace regular fluorescent lights</td>
<td>Yes</td>
</tr>
<tr>
<td>Storage areas shall not subject to continuous vibrations</td>
<td>Yes</td>
</tr>
<tr>
<td>Suspension systems underneath cellar floorings shall be installed if continuous vibrations occur</td>
<td>Yes</td>
</tr>
<tr>
<td>Regular maintenance shall be carried out on all requirements (refrigerators, humidifiers, etc.)</td>
<td>Yes</td>
</tr>
<tr>
<td>Calibration of conditional controllers and sensors shall be carried out</td>
<td>Once/Year</td>
</tr>
<tr>
<td>Accuracy of temperature sensors</td>
<td>+ or −0.5°C</td>
</tr>
<tr>
<td>Accuracy of humidity sensors</td>
<td>+ or −5%</td>
</tr>
<tr>
<td>Insurance coverage based upon contractual agreements with clients</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Source: Hong Kong Quality Assurance Agency (2010).
AT THE CONSUMER

Barrier: Master of Wine Jeannie Cho Lee could tell instantly when she tasted fake wine at a Hong Kong dinner party (Dunlop, 2012). She was able to discern that it was a fake from the color and the nose based upon her expertise. Less educated consumers are not so lucky. China has become the world’s fifth largest consumer of wine and the market there can have a significant impact on global prices. Unfortunately, there has been a proliferation of knockoffs and counterfeit wines that take advantage of inexperienced Chinese consumers.

This has diminished consumers’ confidence in the product and some believe that it has led to a reduction in demand, especially for fine wines. The good news is that bidders at Hong Kong auctions are willing to pay a premium for guaranteed authenticity (Dunlop, 2012). They are also willing to pay more for perfect stock—wines that have not deteriorated. As consumers become more knowledgeable, they are going to demand that the wines have been properly cared for and secured.

Bridge: One of the components of the WSMS is that adequate security be provided for the wine. Also, systems such as the one provided by eProvenance use RFID technology to track the ownership of the wine and help to prevent counterfeiting. Dealing with a reputable third-party logistics company can also help to provide security and brand integrity.

MANAGEMENT IMPLICATIONS

The global wine industry continues to be characterized by the dual trends of consolidation and fragmentation. Large wineries are merging to form even larger companies while the number of small wineries continues to grow (Marshall, Akoorie, Hamann, & Sinha, 2010). The risk for smaller wineries is that they cannot get the same degree of attention that the larger firms get from distributors and warehouses. They need a mechanism to control what happens to their wine during shipment and storage.

In the wine business, there is a lack of systems to measure performance across organizations as the product works its way down the supply chain to the customer. Supplier certification is one tool that can be used to implement a quality strategy (Sanders & Reid, 2001). ISO type certifications are a series of process quality standards. Buying firms benefit from suppliers achieving certification because the buyer doesn’t actually have to conduct its own quality audits. The supplier assumes responsibility for meeting these internationally recognized standards. It is not a guarantee, but suppliers who earn ISO registration demonstrate higher quality than suppliers that do not (Monczka, Handfield, Giunipero, & Patterson, 2009).
The experience of the HKQAA provides an excellent model for establishing a quality system for the transport and storage of wine. Carriers and distributors could be urged to develop and adhere to the criteria specified by the WSMS. This would be effective for both domestic and export shipments in all countries, not just China. Such an external certification is especially important when distribution suppliers are located a long distance from the winery.

There is a strong parallel in the experience of firms implementing environmental practices. It has been shown in the environmental literature that firms with a formal certification system see more positive impacts on performance than firms that are not certified (Melnyk, Sroufe, & Calentone, 2003). We believe that the same would be true for warehouse systems. Positive impacts of certification in the environmental area include improvements in the following:

1. Employee awareness
2. Operational efficiency
3. Managerial awareness
4. Operational effectiveness (Rondinelli & Vastag, 2000)

An important outcome stemming from ISO 14000 certification and the adoption of a strengthened Environmental Management System (EMS) was found to be behavioral. It made everyone more aware of environmental aspects, regulations, and impacts (Rondinelli & Vastag, 2000). In other words, employees pay extra attention when the criteria are formalized. The EMS required more and better record keeping and documentation and forced management to find a better way.

The success of eco-labeling programs is still being debated in the literature, but some programs have had success in adding value to products by indicating the company’s participation and compliance with voluntary standards (Corsi & Strom, 2009). Barber, Taylor, and Strick (2009) found that members of the Society of Wine Educators would be willing to pay a premium of $4.00 to $7.00 on a $23.00 bottle of wine if it was produced in an eco-friendly manner.

Similar gains may be found in the transport and storage activities. For example, an independent third-party body could be created to administer and certify a “Certified Stored Correctly” label. It would be similar to the approach being used in California, where a “Certified California Sustainable Winegrowing” program has been developed by the California Sustainable Winegrowing Alliance (Berghoef & Dodds, 2011). Collective reputation is an important determinant of the success of specialty or local products. In order to maintain and build on its past good reputation, the California/Sonoma wine industry should consider establishing minimum quality standards for the storage and transportation of wines.
LIMITATIONS AND FUTURE RESEARCH

This article has been exploratory and based upon a literature review and semistructured interviews with industry professionals. As such, the implications cannot be generalized to the wine industry as a whole.

The research leads to several other interesting questions. First, a survey of wineries and distributors would help to establish if there is a desire on their part to pursue some sort of certification system to formalize shipping and storage requirements. Beyond that, there may be an opportunity to coordinate requirements on an international basis. This could be analyzed from the perspective of the companies and the governments of the importing countries. ISO certifications in general provide international standards that assist corporations to harmonize and simplify their management practiced in a coherent framework. This could reduce the need for multiple requirements under different national guidelines (Cascio, 1994).

CONCLUSION

Exporting wine to China offers a great opportunity to wineries that are patient and willing to invest time and effort in that endeavor. A review of the literature, as well as the experiences of the professionals interviewed, illustrate both the barriers to successful exporting and some tools to bridge those barriers. A strong recommendation has been developed for the adoption of a certification system similar to the WSMS promulgated by the HKQAA.

Wine is an example of an “experience good,” a product whose quality is unobservable until it is consumed (Winfrey & McCluskey, 2005). Foreign customers typically have less of an opportunity to monitor the performance of a winery. A certification is likely to be a signal to others in the marketplace of a high-quality management system in place (Johnstone & Labonne, 2009; King, Lenox, & Terlaak, 2006; Potoski & Prakash, 2005). Such a system would reassure both customers and suppliers that the wine will deliver the desired experience.

REFERENCES


**CONTRIBUTORS**

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