Cluster Analysis of the Wine Industry in the Walla Walla Valley Region

BADM 585 – Strategy, Competiveness, and Economic Development

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1.0 Executive Summary

Using Porter’s cluster model, this paper examines the strengths and weaknesses of the Walla Walla Wine industry as well as the Walla Walla wine region in general, where wine making first began in the 1800’s. Despite its long tradition as a winemaking region, the Walla Walla Valley is still currently in transition from an agricultural cluster to a more specific wine cluster. Walla Walla, currently in a factor-driven economy, has historically benefitted from economic growth premised on its rich natural endowments and cheap labor. While service-related sectors have emerged, commodities continue to comprise most of the overall economy. This report illustrates the economic breakdown of the Walla Walla Wine Cluster’s past, present, and possible future.

This analysis explores several key questions related to the development and concentration of the wine industry in the Walla Walla Valley. First, what can Porter’s cluster model contribute the understanding of the Walla Walla winemaking industry? Second, what can the model tell us about future growth and development prospects of the cluster? Third, what are the implications of the cluster model for economic development and policy recommendations to increase the competiveness of the cluster? This study is used to demonstrate the cluster’s distinct historical evolution and includes a literature review on clusters, relevant data on cluster performance, description and the mapping of the cluster, cluster competiveness, and identification of key competiveness issues facing the cluster in order to make policy recommendations to the Innovation Partnership Zone and increase the competitiveness of the cluster.

While this report considers fluctuations in the overall Innovation Partnership Zone economy, particular attention is paid to the area’s Wine Cluster, which is not limited to the industries directly involved in wine production, but also includes wine tourism.

In analyzing the wine cluster in the Walla Walla Valley Region, this region will be compared to the Napa Valley. Often the Walla Walla Valley has been called the next “Napa Valley” due to its abundance of world renowned wineries. Walla Walla is a place where winemakers from around the world are coming to start the next generation of legendary wineries. Thanks to a truly unique climate, character, charm, and culture, Walla Walla has become home to one of the finest wine regions in the nation growing from just 6 wineries in the 1990’s to 150 today. If the Walla Walla Wine Cluster is to remain competitive, it must deepen collaboration across the value chain and must takes steps to tackle threats to its terroir posed by climate change. Examination of the Walla Walla Region and the Walla Walla Wine Cluster will include key factors in the history, evolution, economic performance, competitiveness, and business environment for each. The fundamental elements for each of these areas will be used to create policy recommendations that can be initiated in order to increase competitiveness for both the region and the cluster.
2.0 Regional Analysis – Walla Walla Valley Region

Strong evidence continues to show that location plays a crucial role in competitive advantage; the competitive advantages of a location lie in the quality of the environment it provides for achieving high and rising levels of productivity in a particular field (Porter, 2008). Therefore, the geographic focus of this analysis includes the functional economic region of the Walla Walla Valley, which is one of thirteen American Viticultural Areas in Washington State. For the purpose of this analysis, the Walla Walla Valley Region was defined as the cities that lie within the economic area under analysis: Walla Walla County. The cities included in this analysis include: Burbank, College Place, Dixie, Prescott, Touchet, Waitsburg, Walla Walla and Wallula.

Walla Walla County is located in the southeast corner of Washington State; at the base of the Blue Mountains. The county spans approximately 1,271 square miles and is the 26th largest county in Washington State (Walla Walla County Profile, 2013). As of 2012, the county had a population of 59,404 and is expected to reach 79,333 by 2040. In comparison to Napa County (Napa Valley), The Walla Walla Valley Region is approximately double the size in square miles and half the population. Napa County, California is located north of San Pablo Bay and it approximately 788 square miles with a population of 139,045. It is officially one of nine San Francisco Bay area counties, and one of four North Bay counties.

One prominent motivation for the formation of early companies is the availability of pools of factors, such as specialized skills, university research expertise, an efficient physical location, or particularly good or appropriate infrastructure (Porter, 2008). Thus, in order to obtain a clear picture of how a successful cluster can develop it is necessary to analyze the region first. Therefore, Section 2.1 details a short profile of the region, Section 2.2 analyzes various economic performance factors, Section 2.3 gives an assessment of the profile of the region, Section 2.4 analyzes the macro environment, political, legal and social context, Section 2.5 analyzes the diamond model attributes, and Section 2.6 identifies key competitiveness issues facing the region. Moreover, the region analysis shall be compared to the state and national level in order to draw meaningful conclusions and recommendations in Section 2.7.

2.1 History of Economic Conditions

To better understand the development of cluster’s it is important to understand the history of the economic conditions of a region and how the history contributes to the overall development and competitiveness of the region. The City of Walla Walla is one of the oldest cities in the State of Washington. The area surrounding the city, known as the Walla Walla Valley, has a long and diverse
The town of Walla Walla was developed around the U.S. Military Fort Walla Walla in the 1850’s. A gold rush in the early 1860’s followed by a growing agricultural industry, made Walla Walla the largest city in the Washington Territory by 1880. By 1863, the deposits of gold in the mines had been depleted and miners were seeking prospects and supplies elsewhere. The growth that Walla Walla had realized was sustained by farming. By 1863, thousands of acres were being cultivated. Within 30 years, wheat became the backbone of Walla Walla’s economy. A variety of other crops were also planted with success, including apples (which reached their peak in the 1920s), peas (which reached their peak in the 1960s), concord and wine grapes (the latter of which became significant for the region at the end of the twentieth century), and onions (WWCC, 2011). The Walla Walla sweet onion, which was cultivated in the early twentieth century by the Italian immigrants who formed the core of Walla Walla’s gardening industry, became the official vegetable of Washington State in 2007.

Throughout the 1990’s, the Walla Walla Valley once a robust agricultural area experienced a significant decline. Wheat, the region’s primary crop, sold for prices at or below the cost of production. Food processing plants closed due to America’s demand on less expensive imported fruits and vegetables. Timber and milling activities declined. Unemployment rates increased and the region’s tax base significantly declined. This left the region in a need for the region to “reinvent itself” by diversifying its economy and identifying and marketing higher valued products. The region had a growing health care industry, emerging alternative energy production (wind farms) and a strong education system (three colleges in the valley).

Similarly to the county of Walla Walla, the development of the Napa Valley County also began during the mid-1800s. The first settler arrived in Napa Valley County in the 1830s with many others following close behind. Napa County was one of the original counties of California, formed in 1850 at the time of statehood. Once the producer of many different crops, today Napa County is best known for its regional wine industry.

2.2 Economic Performance

Regional economic performance varies considerably among regions as a result of a combination of interconnected factors such as geography, demographics, specialization, productivity, physical and human capital, infrastructure and the capacity to innovate. Therefore, it is necessary to analyze various economic performance factors within the Walla Walla Valley Region: Retail Sales, Market Value per Farm, Unemployment, Net Jobs Created, and Total Number of Firms and Their Net Annual Growth Rate.
2.2.1 Retail Sales

Annual taxable retail sales represent one of the most important measures of the size and changes in a local economy as income accounting, such as Gross Domestic Product (GDP), is not available at the county level (Walla Walla Trends, 2014). It is also a big component of total gross domestic product (GDP) in the United States, so any extended drop-offs in retail spending can trigger a recession by lowering tax receipts and forcing companies to reduce head counts. As a result, this measure is a key proxy of total county economic activity as consumption spending accounts for the largest part of any economy. The total taxable retail sales for Walla Walla County peaked in 2008 at $761 million, but declined 2.3% or $16 million since. In 2012, $745 million of taxable transactions were recorded in Walla Walla County, an overall increase of 61.3% since 1999 (Walla Walla Trends, 2014). The overall growth rate of 8.6% for Walla Walla County outpaced the growth rate of 5.6% for Washington State in 2012. This is a positive indication that the economy in Walla Walla remains stable as it continues to outpace the retail sales performance of the State of Washington. While Napa is roughly twice the size of Walla Walla, it is relatively small compared to its fellow California cities. Napa County may be mildly sized in population, but its retail sector is quite substantial with an average per capita sales which rank 19th out of 58 counties in the state. This is directly related to the wine industry and its activities and tourism in general.

2.2.2 Market Value per Farm

Walla Walla’s agriculture industry is the backbone of its economic vitality. Walla Walla is known as one of the most fertile agricultural areas in the nation, producing a variety of crops. This indicator first looks at the total market value of all agriculture products sold in the county, as well as, it calculates the measure as an average amount per farm. In 2007, the total market value of agriculture products produced in Walla Walla County was $344.5 million representing a 161 percent or $212.5 million increase since 1987 (Walla Walla Trends, 2014). The average value of agricultural products per farm in 2007 was $370,818 compared to $173,958 in 1987 (Walla Walla Trends, 2014). The average value of agricultural products per farm in Washington State was $172,917 in 2007. This is another positive indicator for Walla Walla County as the county is more than doubling the average value per farm performance of Washington State.

2.2.3 Unemployment

The unemployment rate measures the portion of the population who currently does not have a job and are actively seeking work in Walla Walla County. As one of the two components of the “misery index”, the unemployment rate measure a local economy’s success (or failure) in matching jobs with the available workforce (Walla Walla Trends, 2014). Economists have generally regarded a 4-5 percent
unemployment rate as one that reflects a fully employed workforce characterized by moderate wage growth that is matching gains in labor productivity (Walla Walla Trends, 2014). In 2012, the average annual unemployment rate for Walla Walla County stood at 7.2 percent. Although the unemployment rate has fluctuated since 1990, this only represents a net increase of .6 percent for the entire data set. The 2012 rate for Walla Walla County was much lower than the statewide unemployment rate of 8.2 percent and the U.S. rate of 8.1 percent. The U.S. rate has increased 2.5 percentage points over the period, while the state rate increased 3.1 percent. In comparison, according to the U.S. Bureau of Labor Statistics, Napa County ended the year 2013 with an unemployment rate of 5.9 percent. This percentage is less than that of the state of California which landed at 7.9 percent. At the end of 2013 Napa County had the 5th lowest unemployment rate for the state of California, and almost a percent and a half less than Walla Walla.

2.2.4 Net Jobs Created

Statistics on new hires are an important measure of the health of any local or regional economy. Job creation is one of the key goals of economic policy, at the local, state, or national level. This indicator measures the number of net jobs created, the annual average employment numbers, and the percentage changed from year to year in Walla Walla County. A positive number represents job growth, while a negative number represents the number of net jobs lost during the year. The percentage of yearly change for Washington State offers a benchmark. In 2012, Walla Walla County had 128 net jobs created. There have been 1,397 jobs created in Walla Walla County since 2006 (Walla Walla Trends, 2014). For the series, the year with the highest number of net jobs created, 1,019, occurred in 2008, while the year with the lowest number of net jobs created in the county, -287, occurred in 2011 (Walla Walla Trends, 2014). Walla Walla County had a 0.5 percent change in total number of jobs in the county from 2011 to 2012. The highest year of changed, 4.0 percent occurred in 2008, while the year with the lowest change, -1.1 percent, occurred in 2011. By comparison, Washington State had a 1.8 percent change in the total number of jobs in the state from 2011 to 2012. The highest year of change, 3.0 percent, occurred in 2006, while the year with the lowest change, -3.9 percent, occurred in 2009 (Walla Walla Trends, 2014).

2.2.5 Total Number of Firms and Their Net Annual Growth Rate

This indicator serves as a proxy for new firms created in Walla Walla County. As sign of a vibrant, entrepreneurial economy is the rate at which new firms arise. In 2012, the total number of firms in Walla Walla County stood at 2,356. This represents an increase of 611 firms from 1996 or an approximate 35 percent increase, and marks the highest number of firms in the county over the entire period (Walla Walla Trends, 2014). The rate of growth of firms in Walla Walla County has generally tracked the statewide growth rate and is experiencing a positive trend.
2.3 Assessment of Regional Competitiveness

The Walla Walla Valley Region’s overall competitive position is relatively strong. This research shows that while the national and state economy was in a state of contraction, the Walla Walla regional economy withstood the recession as demonstrated by the economic growth in retail sales and average market value per farm, unemployment, net jobs created, and firm growth. This part of the paper explores the successes and downfalls of the Walla Walla Region competitive position from the perspective of microenvironment in Section 2.4, as well as, the regional business environment in Section 2.5. Napa’s economy is based mainly on growing grapes, wine production, tourism, and related activities. Major employment sectors and leading areas in sales include agriculture (primarily vineyards), manufacturing (primarily wineries), local government, hospitality, retail, and healthcare. Business and construction are also big suppliers to the local economy. It is within these areas that Napa is able to create strength in its competitiveness.

2.4 Macroeconomic, Political, Legal, and Social Context

Walla Walla County has various taxes that are assessed to the business and the consumer. Retail sales tax is Washington’s principal tax source. Business’s making retail sales in Washington State collect sales tax from their customer; this is approximately 8.7 percent in Walla Walla County (Department of Revenue - Washington State, 2014). The state Business and Occupation (B&O) tax is a gross receipts tax. It is measured on the value of products, gross proceeds of sales, or gross income of the business. Washington’s B&O is calculated on the gross income from activities. This means there are no deductions from the B&O tax for labor, materials, taxes, or other costs of doing business (Department of Revenue - Washington State, 2014). The approximate B&O tax for the wine industry is 4.8 percent. The Department of Revenue administers numerous excise taxes in addition to the business and occupation, retail, and property taxes. The spirits tax is a tax on the selling price of spirits in their original container. The term “spirits” includes any beverage containing alcohol obtained by distillation, including wines with more than 24 percent alcohol by volume. The alcohol tax rate for sales to consumer is 20.5 percent. The tax rate for on-premise retailers such as restaurants, bars, etc. is 13.7 percent. Washington is one of just a few states that do not have a state income tax.

Washington State has a democratic-republic form of governance. It elects district representatives to the State House and State Senators to the State Senate as well as holds elections every four years for the governorship. With that being said, the Washington State public is very active and many policies are passed by initiative driven by the people.
In comparison, the local governments include counties, cities and special districts in the state of California. Those local governments also assign teams to assist them achieve their missions. Napa County is governed by the elected Board of Supervisors consisting of five members. Eighteen departments are charged with carrying out various aspects of the County's business. Historically, Napa County has been heavily Republican.

The largest prison in Washington is the Washington State Penitentiary (WSP) located in Walla Walla. Originally opened in 1887, it now houses about 2000 offenders. In addition, there are about 1000 staff members. In 2005, the financial benefit to the local economy was estimated to be about $55 million through salaries, medical services, utilities, and local purchases.

Walla Walla County has won several awards and recognition including one of 24 best places to live and work by Sunset Magazine in 2014, one of ten best wine travel destination in 2014 by Wine Enthusiast Magazine, Foder’s list of 10 best small towns in America in 2013, Tonique named Walla Walla as the most Authentic wine region in America in 2012, and 2011 they were named as one of the best small and friendliness towns in America by USA today, as well as, several other awards and recognition (City of Walla Walla, 2014).

2.5 Regional Business Environment – Diamond Model

The diamond model developed by Michael Porter is used as a basis of a framework to illustrate the determinants of national and regional advantage. The diamond model represents the playing field that countries and regions establish for their industries. The four broad attributes of the diamond model – Factor Conditions, Demand Conditions, Related and Supporting Industries, and Firm Strategy, Structure, and Rivalry, as discussed below, individually and as a system constitute the diamond of regional advantage. These determents create the regional environment in which companies are born and learn how to compete. Each of these four attributes defines a point on the diamond of regional advantage; the effect of one point often depends on the state of others and are reinforcing. Walla Walla County’s Diamond Analysis includes some strong elements but also includes some strong barriers to competitiveness as well.

2.5.1 Factor Conditions

Classical theories of trade propose that comparative advantage resides in the factor endowments that a county or region may be fortunate enough to inherit. Porter argues that a nation or region can crease new advanced factor endowments such as skilled labor, a strong technology and knowledge base, government support, and culture. According to standard economic theory, factors of production-labor, land, natural resources, capital, and infrastructure-will determine the flow of trade (Porter, 2008). Besides the natural
soil endowments the region was lucky to inherit, airports are an essential part of a community’s physical infrastructure. They facilitate the ability of its local businesses to conduct commerce, serve visitors who arrive for various reasons, and assist local residents with travel. Airport passenger activity also impacts the local economy through visitor spending, airport operations, capital projects, and employment. There is one small regional airport in Walla Walla County that provides air service for residents and visitors; the only airline to fly in and out of the airport is Alaska Airlines. The annual number of Walla Walla Regional Airport enplanements was 31,825 in 2012, an increase from 38.1 percent since 1996 (Walla Walla Trends, 2014). Boarding’s at Walla Walla Regional fell sharply in 2001 and 2010. After 2001 there were declines for several subsequent years, but increased 10.6 percent in 2011 (Walla Walla Trends, 2014). Since 2006, the annual growth of enplanements has been positive except in 2010 and 2012, when a decrease of .9 percent was recorded. Currently, the airport has two departures to Seattle, Washington and to arrivals from Seattle, Washington (Walla Walla Airport, 2014). Another important part of infrastructure is roads. Most Walla Walla roads are maintained with public funding. In 2011, local government road expenditures amounted to $4.39 of $1,000 of total personal income in Walla Walla County, which is a decline from the 2001 expenditure of $4.51 (Walla Walla Trends, 2014). In 2011, the Washington state local, government expenditures on road maintenance and operations captured $2.87 of total personal income. This represents a decline of approximately four percent since 2001. In all years, local government road expenditures in Walla Walla County, as a percentage of county total personal income, have been considerably higher than those of the state.

Community Colleges fill a vital need in the region, state, and nationally. Individuals need up-to-date skills and knowledge to enter into and be successful in the local workforce. Community Colleges provide an affordable access to a variety of workforce training programs. In the 2001-2012 academic year, there were 34.0 average annual full-time equivalent students per 1,000 residents in the Walla Walla College Service District attending Walla Walla Community College for the purpose of workforce training, increasing approximately 10.4 percent since 1999 (Walla Walla Trends, 2014). In the 2001-2012 academic year, there were 1,807 on an average annual full-time equivalent basis enrolled with the intent of pursuing workforce training; this is up 20.5 percent from the 1999 level of 1500 (Walla Walla Trends, 2014).

A college degree is often considered a proxy for a higher “human capital,” increasingly seen as the most important input in any sector. The indicator measures a region’s ability to create a productive and dynamic workforce. People with associate’s degrees help create a skilled workforce in a variety of fields. Those with bachelor’s degrees contribute to the pool of adults with essential skills for the knowledge economy. Those with masters and professional degrees represent a region’s ability to produce highly
qualified technical workers (Walla Walla Trends, 2014). This indicator tracks the degrees issues, by type, from the county’s three higher education institutions: Walla Walla University, Walla Walla Community College, and Whitman College. In 2011, the total number of degrees granted by the three institutions of higher education in Walla Walla County was 1,534. These included 734 Associate’s Degrees, 650 Bachelor’s Degrees, and 150 Master’s degrees (Walla Walla Trends, 2014). Since 2001, the total number of degrees granted from higher education institutions in Walla Walla County has risen 32 percent, from 1,162 and Associate’s Degrees have registered the most significant percentage increase at 59.2 percent (Walla Walla Trends, 2014). In 2011, 17.7 total degrees were granted per 1,000 persons in the Walla Walla District, this is slightly higher than it was in 2001 when there were 14.1 degrees granted. The share of the population age 25 and over in Walla Walla County who had an AA degree was 11.8 percent; which is 3.5 percent higher than it was 2005 through 2007 (Walla Walla Trends, 2014). The share of the population 25 and over in the state was substantially lower at 9.6 percent and the nation at 7.8 percent. The share of the population age 25 and over in Walla Walla County who had a bachelor’s degree was 14.7 percent and 10.5 percent for a graduate degree; both are lower than the state level of 20.1 percent for a bachelors degree and 11.4 percent for a graduate degree and the national level of 18 percent for a bachelors degree and 10.7 percent for a graduate degree (Walla Walla Trends, 2014).

2.5.2 Demand Conditions

Regions gain a competitive advantage in industries where the home demand gives their companies a clearer or earlier picture of emerging buyer needs, and where demanding buyers’ pressure companies to innovate faster and achieve more sophisticated competitive advantages (Porter, 2008). More important than the mix of segments is the nature of domestic buyers. A regions companies gain competitive advantage if domestic buyers are the world’ most sophisticated and demanding buyers for the product or service (Porter, 2008). The regional demand conditions is underpinned by a sophisticated consumer market and demanding regulatory standards.

2.5.3 Related and Supporting Industries

The structure of a local economy is revealed, to a large degree, by the relative employment levels among its top sectors (Walla Walla Trends, 2014). Different sectors usually show different average wage levels, so the percent of people employed in various sectors also gives insight into the total wage earnings (Walla Walla Trends, 2014). The North American Industry Classification System (NAICS) groups establishments into industries based on the similarity of their production processes e.g. manufacturing, health care, government, agriculture, etc. It is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data.
related to the U.S. business economy (United States Census Bureau, 2014). As shown in Table 1, the top five sectors in Walla Walla County in 2011 were: (1) Private Education and Misc. Administrative Services, (2) Government, (3) Agriculture, Mining, and Construction, (4) Health Care and Social Assistance, and (5) Trade which accounted for 70 percent of employment in Walla Walla County. The only two sectors that saw a decline in job decline from 2006 was Trade and Health Care and Social Assistance. Moreover, only three industrial sectors saw a decline in total earnings since 2006: Utilities, Administrative and Waste Services, and Arts Entertainment, and Recreation.

**Table 1: Region Jobs and Earnings**

<table>
<thead>
<tr>
<th>Description</th>
<th>NAICS</th>
<th>2006 Jobs</th>
<th>2011 Jobs</th>
<th>% Jobs Change</th>
<th>2006 Total Earnings ($1000)</th>
<th>2011 Total Earnings ($1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Mining, and Construction</td>
<td>11-23,21</td>
<td>5,083</td>
<td>6,404</td>
<td>20%</td>
<td>151,877.00</td>
<td>166,578.00</td>
</tr>
<tr>
<td>Utilities</td>
<td>22</td>
<td>105</td>
<td>158</td>
<td>50%</td>
<td>17,661.00</td>
<td>24,181.00</td>
</tr>
<tr>
<td>Trade</td>
<td>42,44,45</td>
<td>5,407</td>
<td>4,691</td>
<td>-13%</td>
<td>139,385.00</td>
<td>146,148.00</td>
</tr>
<tr>
<td>Finance, Real Estate, Misc. Professional Services</td>
<td>51-55</td>
<td>3,191</td>
<td>4,584</td>
<td>44%</td>
<td>133,877.00</td>
<td>241,125.00</td>
</tr>
<tr>
<td>Private Education and Misc. Administrative Services</td>
<td>56,61,81</td>
<td>5,837</td>
<td>7,023</td>
<td>20%</td>
<td>100,235.00</td>
<td>198,201.00</td>
</tr>
<tr>
<td>Arts, Entertainment, Recreation, Accommodate, and Food</td>
<td>71-72</td>
<td>2,668</td>
<td>2,785</td>
<td>4%</td>
<td>42,509.00</td>
<td>44,873.00</td>
</tr>
<tr>
<td>Government</td>
<td>90</td>
<td>6,419</td>
<td>6,640</td>
<td>3%</td>
<td>330,738.00</td>
<td>406,972.00</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>31-33</td>
<td>3,231</td>
<td>3,894</td>
<td>21%</td>
<td>181,647.00</td>
<td>216,981.00</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>62</td>
<td>5,125</td>
<td>4,918</td>
<td>-4%</td>
<td>208,260.00</td>
<td>216,623.00</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>48,49</td>
<td>493</td>
<td>720</td>
<td>46%</td>
<td>28,109.00</td>
<td>39,062.00</td>
</tr>
<tr>
<td>Total</td>
<td>37,560</td>
<td>41,817</td>
<td>411%</td>
<td>$1,335,400.00</td>
<td>$1,749,080.00</td>
<td></td>
</tr>
</tbody>
</table>

(Source: IPZ, 2011)

The presence of strong local rivals is a final, and powerful, stimulus of the creation and persistence of competitive advantage (Porter, 2008). Domestic rivalry can create pressures for companies to innovate. Geographic concentration magnifies the power of domestic rivalry. The more localized the rivalry, the more intense the competition. Regions need not to be competitive in all supplier industries for its companies to gain a competitive advantage. Measurement of growth rates and location quotients for each industry in a cluster, as well as, the total cluster, is one of the first steps towards determining where the region’s comparative advantage lies. Location quotients (LQ) is a way of quantifying how concentrated an industry sector is in a region compared to the nation, this gives an idea of how much a region is uniquely specialized in certain industries (EMSI, 2011). The basic uses of Industry LQ include: to determine which industries make the regional economy unique, to identify “export orientation” of an industry and identify the most export-oriented industries in the region, to identify emerging export industries beginning to bring money into the region, and to identify endangered export industries that could erode the region’s economic base (EMSI, 2011). Industry LQs are calculated by comparing the industry’s share of regional employment with its share of national employment. Table 2, highlights the concentrations change among NAICS sectors by outlining the 2006 and 2011 location quotients (LQs) for Walla Walla County compared to the Nation. As seen in Table 2, a majority of industrial sectors have increased since 2006. To the extent of that particular location quotient is greater than 1, the area is
considered to be more specialized in that industry or cluster than the nation is, and industries in the cluster are assumed to be producing for export as well as local consumption. The region’s economy remains highly specialized in agriculture, educational services, health care and social assistance, and government.

Table 2: Region Industry Location Quotients

<table>
<thead>
<tr>
<th>Description</th>
<th>NAICS Code</th>
<th>2006 Jobs LQ</th>
<th>2011 Jobs LQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Mining, and Construction</td>
<td>11,21,23</td>
<td>2.78</td>
<td>4.03</td>
</tr>
<tr>
<td>Utilities</td>
<td>22</td>
<td>0.88</td>
<td>1.1</td>
</tr>
<tr>
<td>Trade</td>
<td>42,44,45</td>
<td>1.05</td>
<td>0.87</td>
</tr>
<tr>
<td>Finance, Real Estate, Misc. Professional Services</td>
<td>51-55</td>
<td>0.52</td>
<td>0.59</td>
</tr>
<tr>
<td>Private Education and Misc. Administrative Services</td>
<td>56,61,81</td>
<td>1.7</td>
<td>1.95</td>
</tr>
<tr>
<td>Arts, Entertainment, Recreation, Accomodation, and Food Services</td>
<td>71,72</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Government</td>
<td>90</td>
<td>1.28</td>
<td>1.15</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>31-33</td>
<td>1.03</td>
<td>1.34</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>62</td>
<td>1.34</td>
<td>1.07</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>48,49</td>
<td>0.36</td>
<td>0.51</td>
</tr>
</tbody>
</table>

(Source: IPZ, 2011)

2.5.4 Firm Strategy, Structure, and Rivalry

In conjunction with Washington State, the Port of Walla Walla has developed an Economic Development Plan to enhance the economic health of Walla Walla County. Several incentives are available to new and existing companies. Washington State offers tax incentive by business cluster which can include B&O tax credits and sales and use tax credits (Department of Revenue, 2014).

In addition, there are also workforce training incentives and commute reduction incentives. The Washington Customized Training program was created by state legislature to provide training assistance to businesses that provide employment opportunities in Washington. The Customized Training Program is a tool for enhancing the growth of Washington’s economy, increasing employment opportunities, and adding to the state’s quality of life. Under the Customized Training Program, the State Board for Community and Technical Colleges (SBCTC) pays the costs up front for customized training. After training is completed the business repays the costs to the SBCTC interest free. The first payment will be equal to 25% of the full cost of the training program and is due upon completion of the training. The remaining 75% is spread over the next 18 months. As each payment is made the business may take a state B&O tax credit equal to 50% of the payment. Thus, the total tax credit will be equal to 50% of the full cost of the training program (Washington State Board for Community and Technical Colleges, 2014).
Policy makers enact quality legislation but not without consequence. Rigid wage structures can hinder productivity; Washington State is home to the highest minimum wage in the nation. In 2013, the minimum wage stood at $9.19 an hour in comparison the federal minimum wage of $7.25.

2.6 Identification of Key Competitiveness Issues Facing Region

This analysis concluded there are a couple key competitiveness issues facing the Walla Walla Valley. First, minimum wages continue rise in Washington State. In 2014, the minimum wage for Washington will increase to $9.32 an hour. This could potentially constrain productivity, growth, and employment levels. Second, the labor pool in Walla Walla is critical to the success of various industries. Workforce training is essential for a competitive advantage. Third, Walla Walla tourism is in part determined by accessibility to population centers. Walla Walla Valley is disadvantaged by its distance from the key urban centers of Portland and Seattle. Additionally travel from those cities takes a visitor through larger competitors Yakima and Tri-Cities. The highway extension will help perhaps in travel time and perception, but the mileage stays the same (City of Walla Walla Tourism Commission, 2004). Airlift into Walla Walla is minimal which affects the potential for selection as a conference site for groups coming any distance. Unlike Walla Walla, the location of Napa County is an advantage for the region, as it lies between Sacramento, San Francisco, and Santa Rosa. All of these areas are widely populated and attract tourism. This convenient spot between these three popular areas aid in the success of the region.

2.7 Policy Recommendations

In order to remain competitive, Walla Walla must invest in its infrastructure. Tourism is an important economic development initiative for Walla Walla County. Partnering with Tourism Walla Walla in the bi-monthly economic development meeting the region can gain an understanding to these limitations and will allow tourism marketing to appropriately focus on a) leisure getaways (where reasonable distance is an asset), b) drive markets where distance is expected or incidental (young, tournament/event goers, smaller meetings) and c) markets for whom distance or flight is not a significant factor (private planes, executive retreats, people with significant leisure time). Second, due to the limitations of the airport infrastructure, travel to Walla Walla can be difficult. Partnering with the Walla Walla Regional Airport, Walla Walla County can develop a plan for flight and airport expansion opportunities. While this may not be feasible at this time due to low demand, given time this may be a viable option. Third, Walla Walla Community College plays an imperative part of economic development. Collaborating with local business entities in order to respond to skills gaps that limit business expansion and growth the region can gain and meet changing industry and business needs. Moreover, by collaborating with local workforce development entities for the purpose of supporting industry skills panels or cluster based industry
activities, the Walla Walla Valley Region can leverage available resources and increase the competitiveness of area employers.

3.0 Cluster Analysis

Our next task involved assessing the competitive performance of the Walla Walla wine cluster and the drivers of its growth in the Walla Walla Valley Region. Clusters are geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated industries in particular fields that compete but also cooperate, all linked by commonalities and complementarities (Porter, 2008). Industry clusters represent the entire value chain of a broadly defined industry from shared suppliers to end products, including supporting services and specialized infrastructure. Porter’s theory gives clusters a prominent role in national, state, and local competitiveness within the context of a global economy. Therefore, the notion of “cluster-led” development is based on the idea that a collection of different industries has common interests and actions that benefit one industry within the cluster benefits the entire cluster. Viewing a group of companies and institutions as a cluster highlights opportunities for coordination and mutual improvement in areas of common concern without threatening or distorting competition or limiting the intensity of rivalry (Porter, 2008). Industry clusters have become an important theme in local and regional development in recent years. Analysis of industry clusters therefore, help in defining economic drivers within a geographic region and facilitate a better understanding of regional economies and how they evolve over time. Economic planning agencies can formulate policies targeted to key industries that will promote competitiveness and further interrelationships among cluster industries with the potential to contribute to the industry cluster development. Thus, in order to obtain a clear picture of how a successful cluster can develop it is necessary to first provide a historical evolution of the cluster in section 3.1 and then analyze various factors within the wine cluster such as economic performance in section 3.2, description and mapping of the cluster ins section 3.3, as well as, the cluster diamond model in section 3.4 in order to draw meaningful conclusions and recommendations.

3.1 Historical Evolution of the Walla Walla Wine Cluster

A cluster’s roots can often be traced to parts of the diamond model that are present in a location due to historical circumstances (Porter, 2008); therefore for this analysis it is necessary to understand the historical evolution of the wine cluster in the Walla Walla Valley which has been home to great grapes for more than 150 years. The Walla Walla Valley became an early leader in the beginnings of the Washington Wine industry when the town of Walla Walla was founded by Hudson’s Bay Company as a trading post in the 1840’s. French fur trappers settled in a small town outside the city known as
Frenchtown near Lowden and began planting Washington’s first grapes. In the late 1850’s, a settler named A.B. Roberts established the first nursery in Walla Walla, importing grape vines from Champoeg, Oregon. In 1859, the city of Walla Walla was incorporated and the Idaho gold rush of 1860 helped make the area a bustling trade center. When the gold rush ended, the economic focus of the state switched to Western Washington and the city of Seattle, lessening the influence of Walla Walla. This essentially cut off Walla Walla from the growing markets of the west. The same year a severe frost devastated the area’s grapevines and caused a lot of the earlier grape growers to abandon their crops. The dawning of Prohibition in the United States in the early 20th century finished off the remaining aspect of the area as a wine region. The rebirth of the Walla Walla wine industry occurred in the 1970’s when Leonetti Cellars was founded in 1977, by Gary Figgins, on a 1-acre of Cabernet Sauvignon and Riesling. Figgins traces his interest in wine back to his grandparents, Frank and Rose Leonetti, who had immigrated to the Walla Walla Valley from Italy, cultivated a vineyard, and made their own wine. The winery gradually expanded and achieved worldwide recognition as it became one of Washington’s most sought-after “cult” wines.

The founding of Woodward Canyon Winery in 1981 and L’Cole No. 41 in 1983 added to the area’s visibility in the wine world. In the 1980s, Leonetti Cellar, L’Ecole No. 41, and Woodward Canyon received great accolades for their cabernet sauvonnons and merlots. In 1984, with only four wineries and 60 acres of vineyards, the Walla Walla Valley became an official American Viticultural Area (AVA). By the time Walla Walla was recognized as an AVA, the Valley was gaining attention from within the wine industry, as well as, attracting publicity from journalists and media outside the Region. The benchmark for quality and the foundation was laid. Although nearly all Walla Walla wines were made initially with grapes from the Columbia Valley, substantial plantings were started in 1981, by Seven Hills, and in 1991, by Pepper Bridge. By 1990, there were six wineries and the grape acreage was around 100 acres. The interest in Walla Walla spread rapidly. The early 1990’s brought on more planting of vines and the establishment of another large-scale vineyard, Pepper Bridge. A group of local investors laid the foundation for Canoe Ridge Vineyard, the Valley’s first winery supported by major outside investors. As the industry grew, many established wineries helped new wineries get their start. Close personal relationships were formed throughout the local industry. By the turn of the century, the wine industry in Walla Walla had grown to 22 wineries and 800 acres of grapes. In 2000, the Walla Walla Valley Wine Alliance was formed with 100% of the Valley’s wineries and 98% of the Valleys planted acreage (Hollander, 2012). Today, roughly 150 wineries are present with more than 1,700 acres of Walla Walla Valley grapes. The primary varietals of wine include Cabernet, Sauvignon, Merlot and Syrah. Other Varietals include: Sangiovese, Cabernet Franc, Chardonnay, Gewurztraminer, Pinot Gris, Riesling, Sauvignon Blanc, Semillon and Viognier. Walla Walla has become known for the quality and style of its red wines, especially the Cabernet Sauvignon and Merlot.
The early historical evolution of the Napa County wine cluster is very similar to that of Walla Walla’s. The first vineyards emerged at the same time as the gold rush, which suggests that there was some level of demand of wine locally. Unique factor conditions such as the suitable growing conditions for wine led to the first vineyard in Napa Valley in the late 1830’s. The wine industry continued to grow, and is now considered very highly developed.

3.2 Performance of the Cluster

Cluster analysis can provide a clear picture of the regional economy. Analysis of industry clusters is a starting point in formulating economic development strategies as economic development strategies designed for industry clusters will have more effect on regional growth than the ones designed for individual industries. Therefore, it is necessary to analyze the performance of the wine cluster in terms of direct wine cluster employment, industry cluster comparisons, and total wine cluster economic impacts.

3.2.1 Direct Wine Cluster Employment

One way of evaluating the importance of clusters to the economy is to consider employment impacts. Though the wine industry in the Walla Valley is comparatively young, it has experienced significant growth since the Valley’s first present-day winery was founded in 1977. Growth in the wine cluster employment has been sharp since 2000 growing from 31 wineries to 151 by 2011. Total direct wine cluster employment grew from 214 in 2000 to 1,117 in 2011 (EMSI, 2011). Average annual growth has increased to 193 jobs per year from 2007 to 2011. The greater Walla Walla Valley Region is responsible for 72 percent of job growth (967 jobs) and composes 78 percent of total cluster employment (EMSI, 2011).

Napa County wine and their associated industries, both directly and indirectly, provide full-time equivalent jobs for more than 46,000 workers in Napa County. A large percentage of Napa’s vineyard labor full time employees that are locally based. According to the research conducted by Stonebridge on the economic impact of Napa County’s wine and grapes, the Napa wine and grape industry, with related activities, accounts for more than two-thirds of all the full time jobs reported within the county in May 2012.

3.2.2 Industry Cluster Comparisons

Comparing the wine cluster to other regional industry clusters in Table 3, the fourth and fifth columns display the 2007 and 2011 cluster location quotients. Cluster location quotients indicate how specialized the regional economy is in a particular cluster compared to the U.S. economy as a whole. Location
Quotients of 1.0 indicate jobs in the cluster account for the same portion regionally as they do nationally. Location quotients of less than 1.0 indicate a cluster that is relatively underrepresented in the region, while location quotients greater than 1.0 indicate relative regional specialization. As seen in Table 3, the wine cluster is 50 times more specialized than the nation.

Table 3 Cluster LQ Comparison

<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>2011 Jobs</th>
<th>2011 Jobs %</th>
<th>2007 LQ</th>
<th>2011 LQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and food production</td>
<td>769</td>
<td>18.4%</td>
<td>2.7</td>
<td>3.4</td>
</tr>
<tr>
<td>Government and civic organizations</td>
<td>569</td>
<td>13.5%</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Health and Life Science</td>
<td>503</td>
<td>12.0%</td>
<td>1.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Higher Education</td>
<td>379</td>
<td>9.0%</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Non Wine Manufacturing</td>
<td>279</td>
<td>6.6%</td>
<td>...</td>
<td>1.3</td>
</tr>
<tr>
<td>Wine</td>
<td>2061</td>
<td>4.9%</td>
<td>54.1</td>
<td>50.3</td>
</tr>
<tr>
<td>Entertainment and travel</td>
<td>177</td>
<td>4.2%</td>
<td>9.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Lumber, wood, and paper manufacturing</td>
<td>1556</td>
<td>3.6%</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>All Other</td>
<td>11,920</td>
<td>27.9%</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

(Source: IPZ, 2011)

3.2.3 Total Wine Cluster Economic Impacts

The data in Table 4 compares direct jobs from the wine cluster as a percent of regional jobs. Since 1991, the total number of direct jobs has increased from 35 to 2,061 in 2011, which represent 4.9 percent of employment in the Walla Walla Valley Region. This is a sharp increase from .8 percent of jobs dependent on the wine cluster in 2007. The change from .8 percent in 2007 to 4.9 percent in 2011 shows the dependence of the regional economy on the wine cluster has grown by approximately 16 percent.

Table 4 Wine Cluster Employment

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Jobs</th>
<th>Total Regional Jobs</th>
<th>% Wine Related Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>35</td>
<td>31,588</td>
<td>0.1%</td>
</tr>
<tr>
<td>1992</td>
<td>41</td>
<td>32,363</td>
<td>0.1%</td>
</tr>
<tr>
<td>1993</td>
<td>41</td>
<td>33,391</td>
<td>0.1%</td>
</tr>
<tr>
<td>1994</td>
<td>42</td>
<td>34,725</td>
<td>0.1%</td>
</tr>
<tr>
<td>1995</td>
<td>66</td>
<td>35,469</td>
<td>0.2%</td>
</tr>
<tr>
<td>1996</td>
<td>71</td>
<td>35,574</td>
<td>0.2%</td>
</tr>
<tr>
<td>1997</td>
<td>95</td>
<td>36,178</td>
<td>0.3%</td>
</tr>
<tr>
<td>1998</td>
<td>138</td>
<td>36,637</td>
<td>0.4%</td>
</tr>
<tr>
<td>1999</td>
<td>168</td>
<td>37,064</td>
<td>0.5%</td>
</tr>
<tr>
<td>2000</td>
<td>286</td>
<td>38,097</td>
<td>0.8%</td>
</tr>
<tr>
<td>2001</td>
<td>497</td>
<td>38,721</td>
<td>1.3%</td>
</tr>
<tr>
<td>2002</td>
<td>613</td>
<td>39,151</td>
<td>1.6%</td>
</tr>
<tr>
<td>2003</td>
<td>678</td>
<td>38,919</td>
<td>1.7%</td>
</tr>
<tr>
<td>2004</td>
<td>797</td>
<td>38,200</td>
<td>2.1%</td>
</tr>
<tr>
<td>2005</td>
<td>886</td>
<td>38,643</td>
<td>2.3%</td>
</tr>
<tr>
<td>2006</td>
<td>1,015</td>
<td>37,560</td>
<td>2.7%</td>
</tr>
<tr>
<td>2007</td>
<td>1,094</td>
<td>38,417</td>
<td>2.8%</td>
</tr>
<tr>
<td>2008</td>
<td>1,303</td>
<td>41,021</td>
<td>3.2%</td>
</tr>
<tr>
<td>2009</td>
<td>1,510</td>
<td>40,811</td>
<td>3.7%</td>
</tr>
<tr>
<td>2010</td>
<td>1,758</td>
<td>40,969</td>
<td>4.3%</td>
</tr>
<tr>
<td>2011</td>
<td>2,061</td>
<td>41,817</td>
<td>4.9%</td>
</tr>
</tbody>
</table>
Next comparing the data to the actual jobs in the Region, we can see that the Walla Walla Valley Region would have experienced a -4.9 percent growth without the direct jobs from the wine cluster suggesting 7 percent of the region’s growth is directly attributable to the presence of the wine cluster as seen in Table 5. The wine cluster remains one of the primary driving forces behind the recent economic growth in the Walla Walla Valley Region.

**Table 5 Total Wine Cluster Impact on Regional Growth**

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Jobs</th>
<th>Total Regional Jobs</th>
<th>Total Jobs Without Wine Cluster</th>
<th>Annual Growth</th>
<th>Growth Without Wine Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>35</td>
<td>31588</td>
<td>31553</td>
<td>-0.8%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>1992</td>
<td>41</td>
<td>32363</td>
<td>32322</td>
<td>2.5%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>1993</td>
<td>41</td>
<td>33301</td>
<td>33262</td>
<td>3.2%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>1994</td>
<td>42</td>
<td>34725</td>
<td>34683</td>
<td>4.0%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>1995</td>
<td>46</td>
<td>35464</td>
<td>35424</td>
<td>2.1%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>1996</td>
<td>71</td>
<td>35574</td>
<td>35534</td>
<td>0.3%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>1997</td>
<td>95</td>
<td>36178</td>
<td>36138</td>
<td>1.7%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>1998</td>
<td>138</td>
<td>36637</td>
<td>36599</td>
<td>1.3%</td>
<td>-0.4%</td>
</tr>
<tr>
<td>1999</td>
<td>168</td>
<td>37669</td>
<td>37631</td>
<td>2.2%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>2000</td>
<td>286</td>
<td>38097</td>
<td>37951</td>
<td>2.8%</td>
<td>-0.8%</td>
</tr>
<tr>
<td>2001</td>
<td>497</td>
<td>38721</td>
<td>38581</td>
<td>1.6%</td>
<td>-1.3%</td>
</tr>
<tr>
<td>2002</td>
<td>678</td>
<td>39113</td>
<td>38973</td>
<td>1.1%</td>
<td>-1.6%</td>
</tr>
<tr>
<td>2003</td>
<td>697</td>
<td>39199</td>
<td>39061</td>
<td>0.5%</td>
<td>-1.7%</td>
</tr>
<tr>
<td>2004</td>
<td>797</td>
<td>39200</td>
<td>39061</td>
<td>1.8%</td>
<td>-2.1%</td>
</tr>
<tr>
<td>2005</td>
<td>886</td>
<td>38643</td>
<td>38504</td>
<td>2.2%</td>
<td>-2.3%</td>
</tr>
<tr>
<td>2006</td>
<td>1,015</td>
<td>37560</td>
<td>37421</td>
<td>2.8%</td>
<td>-2.7%</td>
</tr>
<tr>
<td>2007</td>
<td>1,094</td>
<td>38417</td>
<td>38273</td>
<td>2.3%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>2008</td>
<td>1,263</td>
<td>40121</td>
<td>39978</td>
<td>6.8%</td>
<td>-3.2%</td>
</tr>
<tr>
<td>2009</td>
<td>1,310</td>
<td>40811</td>
<td>40666</td>
<td>0.5%</td>
<td>-3.7%</td>
</tr>
<tr>
<td>2010</td>
<td>1,758</td>
<td>40960</td>
<td>40816</td>
<td>0.4%</td>
<td>-4.3%</td>
</tr>
<tr>
<td>2011</td>
<td>2,061</td>
<td>41817</td>
<td>41672</td>
<td>2.1%</td>
<td>-4.9%</td>
</tr>
</tbody>
</table>

Washington wine, directly and indirectly, has a total economic impact in Walla Walla County of more than $502 million (Stonebridge, 2012). Wine growing and wine making account for most of the wine related employment in the county, but winery visitors also generate tourism related employment. Washington wine and related activities generate more than $46 million in tax revenues in Walla Walla County, including $23.8 million in state and local taxes and $22.9 million in federal taxes (Stonebridge, 2012).

The wine industry of Napa County extends across a comprehensive system of economic benefits. The income from the wine industry turns into income for other workers and firms. This pattern extends throughout Napa County, California, and across the US. These individuals spend more money on further goods and services in order to continue the cycle.

### 3.3 Description and Mapping of the Cluster

Industry clusters are groups of similar or related industries that are geographically concentrated and may achieve collective efficiencies and increasing returns to scale through transactions, shared labor pools, infrastructure, knowledge, and technology spillovers, and other complementsaries (WWCC, A Study of the Economic Impact of the Walla Walla Regional Wine Cluster as a Basis for Development of an Economic Development Plan for the Walla Walla IPZ, 2011). The Walla Walla wine cluster comprises grape growers, vertically integrated wine producers, and brand owners who source grapes from grape growers.
for winemaking purposes. There are a wide variety of firms within the cluster the cluster supporting grape-growing in Walla Walla, providing services such as tressling, fencing, and vineyard equipment and consulting services. Wine producers are supported by industries manufacturing bottles, corks, and barrels. The cluster also comprised of viticulture and enology research bodies, a range of institutions for collaboration and a range of state and federal statutory bodies. Although a number of suppliers to the industry within the state have grown significantly, the Walla Walla wine industry still acquires much of its equipment from specialized suppliers outside of the region. Much of the specialized equipment in wineries is still produced in Europe, although final processing of some products has shifted to the United States. Less specialized equipment—tanks, valves, irrigation equipment, bottles—and construction tends to be acquired domestically. These components of the cluster map are set forth in the Walla Walla in cluster map below.

**Exhibit 1: Walla Walla Wine Cluster**

![Cluster Map Diagram](image)

### 3.4 The Walla Walla Wine Cluster Business Environment - Diamond Model

To understand the strengths and weaknesses of the various components of the cluster map and the Walla Walla wine cluster in general, an analysis of the Walla Walla wine cluster diamond model is necessary. For a region to sustain a competitive advantage in a particular industry sector requires dynamic advantage: firms must broaden and extend the basis of their competitive advantage by innovation and
upgrading. The dynamic conditions that influence innovation and the upgrading are far more important than initial resource endowments in determining national patterns of competitiveness.

3.4.1 Factor Conditions

Factors of production are the basic inputs to competition; they include land, labor, capital, physical infrastructure, commercial or administrative infrastructure, natural resources, and scientific knowledge (Porter, 2008). Earlier this year a survey of 33 of wine industry representatives from around the globe found terroir, proximity to large urban markets, and institutions of collaboration were the top three factors in the success of global wine industries (Mitham, 2012). A major strength of the Walla Walla wine cluster is the richness and diversity of its terroir. A mix of natural resource endowments, creativity, and the luck of earning national accolades early put Walla Walla on the map as a world class wine producing region (WWCC, 2011). The geologic past of the Walla Walla Valley is riddled with cataclysmic events that have contributed to today’s fine grape-growing soils (Wines Northwest, 2014). The wines of the Walla Walla Valley are known for their refined elegance, structure and complexity, firmly rooted in the unique terroir of the Walla Walla Valley. The bedrock in the Walla Walla Valley is Columbia River basalt. It is one of the largest areas of basalt rock on the continents anywhere in the world. The ocean basins are 100 percent basalt, which is a relatively rare rock type on the continent. The Walla Walla Wine Region has four distinct soil terroirs: Alluvial gravel, Wind-deposited silt (loess), Loess over Missoula flood sediment, and Loess over basalt. Growers in the Walla Walla Region favor the growing conditions in the Walla Walla Valley, located 46 degrees north, latitude that lies midway between the famous French wine appellations of Burgundy and Bordeaux. The relatively high latitude provides vineyards in the Walla Walla AVA with an average of 30 minutes more daily sunshine during growing season than vineyards in the famous Napa Valley of California. The Western lower elevation part of the AVA annually receives less than 18 cm of precipitation due to the rain shadow produced by the Cascade Mountains while as much as 65 cm of precipitation falls in the higher eastern part of the AVA. Very little rain falls during the growing season, so water uptake by the vines is precisely controlled by irrigation.

Remarkable geographical characteristics also contribute to the success of Napa Valley County. Geographical position, climate, water courses, and topography all work together to create the unique environment that is Napa Valley. The mix of rocks, mineral deposits, and volcanic evidence work together to create a unique soil within the county which can be divided into five classes. These unique soils have aided in the county’s ability to create wines, some ranked the best in the world. The area’s volcanic past may have been devastating at the time, but eventually became a positive factor by contributing to the creation of these unique soils.
The California wine cluster is endowed with large parcels of relatively flat land that rely on capital-intensive operations to produce large quantities of wine at low production costs despite relatively high land prices, ranging from $8,000 to $150,000 per acre. The Walla Walla Valley’s vineyard land prices are cheaper than California’s, ranging from $6,000 to $40,000 per acre, but industry production costs are higher ranging from $20,000 to $30,000 per acre (depending on site and vine density), as well as, its small parcels, hilly terrains, scattered sites, and reliance on hand labor.

Factor conditions for Napa County include its geographic location and very good growing conditions that are created due to specific natural resources such as energy and raw materials. The skilled labor, specific scientific infrastructure and specific knowledge is among the best in the world, led by the instruction and training offered at the Department of Viticulture and Enology at U.C. Davis which is one of the best wine research institutions in the world. Specific capital resources, cluster-specific information, impact from the government, and the impact of selective factor advantages and disadvantages on segment focus and innovation are other factor conditions that play a role in Napa County’s wine cluster.

3.4.2 Demand Conditions

The continued growth of the U.S. wine industry faces increasing challenges as wine’s retail sales and wholesale channels continue to consolidate and as foreign wine producers target U.S. markets with growing inventories, government support, and saturated home markets. Per capita U.S. wine consumption ranks 38th in the world. Imports of wine to the U.S. market have risen consistently for the last decade. The share of U.S. wine market represented by wines made in the U.S. declined from 81.6 percent in 1998 to 73 percent in 2005 (Stonebridge, 2012). Imports now represent more than 27 percent of wine consumer in the U.S. to regain its share of a growing market, continuing investment in quality and value as well as further opportunities to access the consumer market are need by the American wine industry. Attracting and retaining consumer attention in this extremely fragmented market demands expensive and specialized marketing and merchandising skills. Wines in all segments of the market face pricing pressures and price erosion even as winemakers and growers face relentless pressure to improve quality and distinctiveness. Alcoholic beverages are the only industry in America with their own constitutional amendment. The 21st amendment, which signaled the end of prohibition in the U.S., led to a series of complex regulations and structures which vary by state for the sale of wine, wineries to sell to licensed distributor which ten sell to retail and restaurant outlets. The vast majority of wineries in the U.S. sell most of their wine directly from winery to consumers, wither tourists visiting a tasting room, festival or farmers market, or to members of their wine clubs and mailing lists. Many wineries lacking distributor also market their own wines directly to local retailers and restaurants. Maintaining winery direct-to-
consumer and self-distribution is critical to the survival of America’s small wineries and to the efforts to revitalize many struggling rural communities.

As of 2007, Walla Walla held 20.2 percent of the number of wineries in the State of Washington but only produced 3.6 percent of Washington wine production or approximately 965,649 gallons (Stonebridge, 2012). More than 30 percent of the Washington wine is sold in Washington State, up 25 percent before the recession, and more than one-third sold in the Pacific Northwest. Washington wines claim about 16-18 percent share of the Pacific Northwest wine market, including 18 percent of the Oregon wine market. Washington wines have 3-5 percent share of the national wine market. The weaker penetration of the national market reflects low levels of awareness about Washington state wines in the national market, especially with consumer. Most Washington wineries are small and thus lack the sales force to develop a national market, complicating the challenge of building Washington wine “brand” in the national market. Roughly 3 percent of Washington wines are exported.

3.4.3 Related and Supporting Industries

Despite a long winemaking history, the Walla Walla Valley Region is still transitioning from an agricultural cluster to an emerging wine cluster. Much of the region’s infrastructure for fruit or vegetable growing is being used for wine production. Most grape harvesting is still being done manually by migrant farm workers, so little grape harvesting equipment is needed. This suggests that resource infrastructure focused primarily on wine production still has yet to be developed. Most of the farm equipment originates from the local farm equipment suppliers, while other supplies originate from outside of the region; for example, bottles from Illinois and France, barrels from California and France, corks from Portugal, and capsules from Australia and Spain. The few large wineries have their own marketing and promotion professionals on staff, but much of the public relations and advertising is done cooperatively through institutions of collaboration.

American Viticultural Areas (AVA) is geographical wine grape growing regions in the United States. Their boundaries are defined by the Alcohol and Tobacco Tax and Trade Bureau (TTB) and established at the request of wineries or other petitioners. Washington State currently has thirteen AVA’s. When a U.S. Winery states the geographic pedigree of its wine, it uses a tag on its label called an Appellation of Origin. Appellations are defined either by political boundaries, such as the name of a county or state, or by federally recognized growing regions called American Viticultural Areas (AVA) (Wine Institute, 2014). With a Viticulture Area of Appellation of Origin, the labeled area is recognized by the government of the country of origin as a delimited grape-growing/viticulture area. Not less than 85 percent of the volume of the wine is derived from grapes grown in the labeled viticulture area and the
wine conforms to the requirements of the foreign laws and regulations governing the composition, method of production and designation of wine available within the country of origin (Alcohol and Tobacco Tax and Trade Bureau, 2014). Appellations define and protect geographically names wines, where the climate and soil—which define the quality of the grapes grown—vary extensively by region. For example, the name Napa Valley demonstrates that the wine being purchased comes from a part of the world known for its high-quality wines (Center for Wine Origins, 2014).

The Walla Walla Valley wine industry has access to research, training, and networking facilities that can support innovation, productivity improvements, and competitiveness of the cluster. Institutions of collaboration have played a critical role in the development and the success of the Walla Walla wine cluster. The institutions of collaboration are numerous and operate across the entire value chain, operating at both the federal and state level. These institutions are engaged in critical intermediary activities, most notable facilitating collective actions and disseminating industry information. The Walla Walla wine cluster has benefited from this intensive collaboration, which has led to advances in technologies. Trade associations representing all or most cluster participants can command greater attention and achieve greater influence than can individual members, and an association or collective body creates a vehicle for cost sharing (Porter, 2008). The opportunity for associations to enhance cluster competitiveness is great and associations or collective bodies institutionalize cluster linkages.

While the state of California provides roughly 300 public and private colleges and universities, there are only a few located within 10 miles of Napa County. The Napa Valley Cooking School offers a Food and Wine Enthusiast Program that indirectly promotes the powerful wine industry of Napa County, as well as a Viticulture and Winery Technology Program that is directly related to winemaking. This program joined that of Walla Walla Community College on the list of the best schools with viticulture programs.

All state sponsored wine and grape growing research is overseen by the Wine Advisory Committee (WAC), as a subcommittee of the Washington State Wine Commission. The Washington State Wine Commission represents every licensed winery and grape grower in Washington State. Guided by an appointed board, the Commission provides a marketing platform to raise positive awareness of the Washington State wine industry and generate greater demand for its wines through marketing and education while supporting viticulture and enology research to drive industry growth (Washington State Wine Commission, 2014). Funded almost entirely by the industry—through assessments based on grape and wine sales—the Commission is a state government agency, established by the legislature in 1987 (Washington State Wine Commission, 2014). Research tends to focus more intensely on viticultural issues, given Washington State’s unique environment, particularly moisture/irrigation management, site
and varietal suitability, clean plant development, and harvest we well as fermentation management. Key issues include more efficient water use, developing planting and farming techniques most appropriate to the challenging climate and clone selection to best survive the winter and maintain crop load.

The Washington Wine Institute (WWI) is the leading advocate for Washington wineries. They represent the dynamic and diverse wineries across the state to ensure the collective strength of the industry’s voice is heard in the state capital, Olympia, WA. During every legislative session, they strive to work side by side with state lawmakers to shape legislative and regulatory policy decisions that impact the Washington wine industry (Washington Wine Institute, 2014). They strive to protect the industry needs, while promoting its tremendous growth. In 2003, the Washington Wine Institute and its educational partners celebrated the state’s $2.3 million investment (per biennium) to create new 2-year and 4-year degree programs supporting Washington’s growing wine industry (Washington State Wine, 2014). The program provides an educated work force to satisfy the needs of the growing industry. A degree program, ongoing education and research enhance the state’s reputation as a quality wine producing region. More recently, the industry voted to increase their annual assessments to fund a world-class Wine Science Center at Washington State University with construction to begin in 2013 (Washington State Wine, 2014). A critical piece the industry was missing was a research institute. Washington State University will build a research and teaching facility, located in the heart of wine-country on the Tri-Cities campus in Richland, WA, equal to those at other top research universities world-wide. It will be a gathering place to spark innovation, fuel economic development, support local, regional, national and international collaboration, and provide a catalyst for research breakthroughs (Washington State University, 2014).

Wine and grape related education is provided buy a network of university, community college and extension programs providing degree programs at associate, bachelors, and graduate levels, plus along with an extensive program of professional certificate level training. The Viticulture and Enology major in Integrated Plant and Sciences (IPS), at Washington State University, was created for students interested in wine-grape growing and winemaking, as well as contributing to critical research and development opportunities in the wine industry. This program offers the technical scientific and practical experience needed to gain the essential skills for producing high quality grapes and premium wines. It prepares students for successful careers in the wine industry in the Washington State and beyond (Washington State University, 2014).

The Walla Walla Institute for Enology and Viticulture at Walla Walla Community College was established to: 1) facilitate alliances with vintners and viticulturists in the Walla Walla Valley and throughout Washington State, 2) promote the economic development of the wine industry, and 3) provide
education and training to those with an interest in the industry (Walla Walla Community College, 2014). The Institute for Enology and Viticulture provides students with hands-on experience in winemaking, viticulture practices and wine sales. The Institute as developed several acres of teaching vineyards where students actively participate in vineyard management and the growing quality of wine grapes used to support the teaching winery. In addition to the teaching vineyard, the Institute has created a state-of-the-art commercial teaching winery at College Cellars where students are responsible for winemaking and wine-related chemistry (Walla Walla Community College, 2014).

Collaboration and innovation are the dual roads that lead to success of a region. The purpose of Innovation Partnership Zones is to offer a unique environment that brings research, workforce training, and private sector businesses together in a close geographical proximity to create new companies, products and jobs. Innovation Partnership Zones are set up by cluster and each is sited to develop prototypes, incubate start-ups, and develop critical training programs and pool best practices in order to blaze new trails in innovation. The Walla Walla Innovation Partnership Zone (IPZ) vision is to foster a healthy economy and a healthy environment through collaborative partnerships that seek to maximize a combine the strengths and capabilities of participating organizations with an overall goal of maintaining and creating living wages, advancing jobs, advancing wages, and improving the quality of lives for all who live in and directly affected by the IPZ (The Walla Walla Innovation Partnership Zone Business Plan, 2014).

In addition, “Taste of Washington”, is the nation’s largest single-region wine and food event held annually in Seattle, Washington. This provides ample opportunity to build links between food, tourism, and wine industries.

3.4.4 Firm Strategy, Structure, and Rivalry

According to Porter (2008) the context for firm strategy and rivalry refers to the rules, incentives, and norms governing the type and intensity of local rivalry. Economic with low productivity demonstrate little local rivalry. Most competition, if it is present at all, comes from imports, local rivalry, if it occurs, involves imitation. The Walla Walla Region is dominated by relatively small, privately owned wineries. As mentioned, a strong desire to expand production to meet potential regional or national demand for wine does not appear to have emerged. This suggests the competitive environment is immature. This can potentially undermine the incentive to upgrade the capital equipment, skills, and technology needed to drive down costs and develop the cluster into a large producer of high quality wines.
3.5 Identification of Key Competitiveness Issues Facing the Cluster

First, as winery numbers grew in Walla Walla over the decade, the industry has become increasingly fragmented. While some of these smaller producers are quite sophisticated, many lack the scale and resources (volume, marketing, sales force, or expertise) needed to build national presence and awareness. Many of the smaller producers may be under-capitalized in this quite capital-intensive industry. The majority of the wine produced in Washington State is sold in the Pacific Northwest, with 35 percent or more sold within the state. Thus, Washington wine is estimated to only have about a 3-5 percent share of the overall market. Wineries have proven adept at producing a wide range of varietals and wine styles well. However, this successful diversity may also complicate the development of a clear image for the Walla Walla Region among consumers. Image clarity is further complicated by the physical separation of grape and wine production, with wineries sourcing from multiple appellations and vineyards.

Second, climate change threatens the most important endowment of the Walla Walla wine cluster: its terroir. The predicted water shortage within the next decades, due to early snow melts and unavailability in season following, could lead to potential crop loss. Because wine varietals are highly sensitive to temperatures, an increase could cause several Eastern Washington area to move out of the ideal range for certain varietals. The climate shift could make western Washington areas more ideal for wine production. If the magnitude of the warming is 2 °C or larger, then a region may potentially shift into another climate maturity type, which is the specific climate favorable to maturing a certain type of grape. The shift of vineyard concentration to the coastal regions would mean a shift in local land value and use, production, revenue and employment. This shift would be due to an increase in average temperature. However, scientists’ main concern is not the gradual increase, but that global climate change will cause more instances of extreme weather. Increased extreme weather would result in greater losses for vineyards, especially those grown east of the Cascade Range.

Third, the recession has led the state to reduce research and education funds, including those for viticulture and enology. Research programs have been cut, and viticulture and enology programs across the state have waiting lists of students. The industry has stepped up to fill the gap and has pledged major support for the critical missing piece of the cluster, the Wine Science Center. As wine grape production enters its second modern generation of planting, vineyard development now reflects increased grower sophistication and far more advanced knowledge, focusing on site characteristics, clone and rootstock selection, supported by increasingly cohesive research programs, active exchange of information and expanded training programs led by a strong growers association. Five regional two year program
complement Washington State University’s degree, graduate, adult and extension and regional and technical society training offerings, enabling the state to develop its own professional. The challenge now is to fully integrate these programs and put together a cohesive strategy for facilities, funding, researchers, and education.

3.6 Policy Recommendations to Increase the Competitiveness of the Cluster

Despite these challenges, the Walla Walla wine industry is well-positioned for continued growth. The Walla Walla wine industry has retained and reinforced its reputation for excellent quality and value in all wine segments. Despite the concerns noted above, Walla Walla has an excellent environment for wine grape growing, with abundant water and a long growing season. Neither phylloxera nor Pierce’s disease can survive the severe winter cold, enabling Walla Walla to grow wine grapes on their own rootstock, unlike California which depends on grafted rootstock.

First, marketing initiatives can increase the brand awareness of the Walla Walla Wine cluster. Consumer education will be essential for competitive sustainability and advancement. This can be done by sponsoring more events in the Walla Walla Region and developing a regionally tailored marketing campaign and educating the press, trade, and consumers about the quality of Walla Walla wine. In addition, the “Taste of Washington” is the largest single-region event in the nation. This event can foster the links between local wine, food, and art industries.

Second, climate change will influence planning for all future viticulture. The Walla Walla wine cluster in conjunction with the Innovation Partnership Zone will need to develop a plan to preserve the region’s terroir to the best of their ability. This can be started by developing sustainable ecologically friendly farming best practices to preserve and protect the terroir such as alternative energy sources (windmills) and water saving techniques.

Third, The Center for Enology and Viticulture is a key element in contributing to the growth of the wine cluster by building workforce competences, fostering, entrepreneurialism, and generally enhancing the strategic advantage of the wine cluster (EMSI, 2011). The Innovation Partnership Zone in conjunction with Walla Walla Community College need to develop and initiative to develop and maintain workforce education and training that supports the needs of the wine industry. By seeking to understand the type of knowledge and skills needed to meet the needs of the producers and growers the community college can continue to provide training and education that ensures students are prepared for skilled jobs in the wine industry, as well as, address any opportunities for improvement.
3.7 Works Cited


