

BUILDING A STARTUP WINE BRAND

by

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A Senior Project submitted

in partial fulfillment

of the requirements for the degree of

Bachelor of Science in Industrial Engineering

California Polytechnic State University

San Luis Obispo

Graded by: _____ Date of Submission: _____

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EXECUTIVE SUMMARY

Lisso Wine is a company that currently purchases wine from a California winemaker and resells it in China. In order to reach more customers and increase sales, Lisso wants to create their own brand of wine while keeping the winemaker as a supplier. However, they do not have a plan for the marketing, production, or distribution of their new product. This project will be treated as a startup venture by Lisso Wine and designed to be operated by a handful of people with limited resources. Sustainable and cost-effective materials were selected for the product and it's packaging in order to maximize profits and reduce the environmental impact of the product. With a strong focus on building relationships with customers online, this new brand of wine will be marketed through social media channels like Facebook and Instagram, and sold through a website hosted by Squarespace. Currently Lisso Wine does not have a workspace to operate in, so a facility was designed in SketchUp, a 3D computer modelling program, to determine what equipment will be needed and how it will be arranged to maximize efficiency and reduce waste. Breakeven analysis suggests that this startup venture is a sound investment and has the potential to generate over \$1,000 in profit from just 10 cases of wine, or 120 bottles. Although more information is needed before making sales projections, this business model can easily be scaled up if successful.

INTRODUCTION

Lisso Wine is a small business that purchases wine product from River Run Vintners of Watsonville, CA for international resale, predominantly in China. Sells wine internationally in China. Currently, Lisso Wine directly purchases and sells the wine as a River Run product, but doesn't have a plan for growth in marketing, production, or distribution.

In order to broaden their target market, create market awareness, and increase sales, Lisso Wine wants to change their business model and begin selling a new line of wine with their own modern branding, using River Run as the supplier for the bottled wine. This project will be treated by Lisso Wine as a startup venture.

The objectives of this project are as follows:

- Create a new, modern product design for the wine vintage
- Determine the capital resources required
- Design a workspace for inventory management and production
- Assess potential problems and generate solutions
- Lay the foundation to build customer relationships

The objectives will result with the following deliverables:

- Prototype wine label and package
- Cost analysis of wine label and package designs
- Facility and workspace design
- Marketing materials

The new wine label designs will be produced using Adobe Photoshop and facility layouts will be designed in SketchUp.

BACKGROUND

RIVER RUN VINTNERS

Founded in rural Watsonville, CA, River Run Vintners has been producing wine since 1982. The grapes used to produce River Run wine are carefully selected from vineyards in the Santa Cruz and Monterey region in Northern California. Meticulously sourcing the grapes allows the River Run's lead winemaker to produce a diverse spectrum of wine types that are suited to the environment they were grown in. With over a dozen vintages ranging from 2008 to 2013, River Run operates as a boutique winery, primarily selling their product locally through a monthly wine club, a biannual open house, and seasonal bottling events.



FIGURE 1: A SELECTION OF 2012 WINE VINTAGES CURRENTLY SOLD BY RIVER RUN VINTNERS

LISSO WINE'S STARTUP BRAND

Lisso Wine operates in partnership with River Run Vintners to transport and sell bulk orders of wine overseas in China. Although their reported customer satisfaction is high, customers of Lisso have expressed that the unremarkable product branding doesn't match up to the quality of the contents bottled within. Seeing the potential in the product, Lisso Wine wants to reimagine the way the wine is presented to provide their customers with a product experience that reflects the passion that was put into producing the wine. In doing so, they hope to take advantage of trends in modern wine culture and expand their target market in California.

The team behind this new product, five business and engineering graduates, will operate in Orange County as a startup business. Lisso Wine currently does not have existing set of plans for turning their concept into a reality; in turning the product concept into a reality, groundwork for the new business must be laid out and funding will primarily be out-of-pocket.

WINE 2.0

The wine industry began incorporating the internet into its business strategy as early as the 1990s, along with other major industries. Now, over 90% of wineries in the United States have some form of web presence. In recent years, the face of wine marketing has rapidly evolved. The growing influence of social media, blogs, online videos, and other internet outlets has led to the coining of the term 'Wine 2.0,' referring to the use of modern internet channels to engage with wine consumers in a time and manner of their choosing. In other words, as the

internet evolved in recent years, so has the way consumers interact with wineries, wine retailers, and other wine consumers [13].

In an analysis of over 200 US winery websites, 61% possessed e-commerce functionality, allowing customers to purchase wine from home through the winery's website. The remainder of the wineries still relied on Web 1.0 methods of providing a phone number, email address, visiting information, or fax number. In order to take advantage of the benefits of Wine 2.0, the study recommends starting with an online video blog, monitoring and responding to online brand conversations on social media, and creating a wine blog to engage consumers.

DIFFERENTIAL CONGRUENCE

In order to compete with existing retail businesses and corporations, smaller retailers must adopt distinguishing characteristics that will both attract customers and dissuade customers from taking their business elsewhere. In this sense, retail marketing strategy becomes particularly important for the survival of small businesses. By aligning the characteristics of the retailer with what the customer would like to buy, "differential congruence" is achieved [12].

When overlap between the unique features of the business and the customer's preferences subsequently become customers' deciding factor in making a purchase, the business is optimally taking advantage of its market opportunities. With the ability to rapidly change their goals and business strategy, small and medium sized businesses are better suited to achieving this congruence compared to large businesses. By establishing retail goals, businesses are able to establish a path to achieve their ideal market presence.

RETAIL MARKETING MIXES

Retail sales are primarily dependent on constructing and managing an image by strengthening and changing as necessary. This image is composed of five retail mixes: goods and services, communications, pricing, human resources, and logistics [12]. In the goods and services mix, merchandise assortment, services, work in synergy to improve the appeal, reputation, and customer satisfaction of a business. The communication mix is the way the retailer conveys its message to its regular and prospective customers. Advertising and promotion should be taken full advantage of, without relying too heavily on word-of-mouth. As such, a combination of personal selling, sales promotion, and multimedia internet advertising can be utilized to help small retailers effectively connect with larger numbers of customers. The pricing mix is shaped by the efficiency in which a business is run, the competitiveness of the retailer's pricing level, and the image of "good value" that a company builds for itself. Pricing should be adjusted to make purchases justifiable, without creating the perception of being cheap or low-quality. The human resource mix is an extremely important competitive tool for small retailers because it is the catalyst for building relationships. For both selling and non-selling job positions, having a personable, social, knowledgeable, and innovative group of employees plays a major role in generating customer satisfaction. The human resources mix of a retailer is responsible for ensuring that the needs of customers are met in every way possible to increase the chance that they will return in the future. The logistics mix can be divided into two major components: in-store and out-of-store logistics. In-store logistics work to provide proper service to the customer through the presentation of merchandise in the right place and at the right time, playing a key role in retail success. Out-of-store logistics provides the ability to

support the continuity of the merchandise mix. By supporting all retail mix strategies, the intended image and perceived image of a retailer can be brought together to create a stronger market presence. Without considering each aspect of market strategy, small retailers generally less success and put their long-term survival at risk.

LIFE-CYCLE ASSESSMENT OF WOODEN BOX PACKAGING

In a study that combined EcoDesign and life-cycle assessment into the design of a wooden box made for carrying wine, it was found that the three most important processes in environmental consideration are the production of the wood-based materials, the required production of energy, and the transportation of the handle used [6]. Based on various impact categories, it was found that more than 57% of the environmental impact from the wooden box tested came from the assembly stage.

After analysis of design for environment (DfE) strategies, it was found that the biggest areas for potential improvement were: multifunctional design, reduction of resources used, sustainable material selection, and alternate forms of transportation of materials. Pine plywood was found to be a more responsible choice over medium density fiberboard (MDF) due to the energy and chemical requirements associated with the production of MDF. Additionally, it was also advised to define a protocol for disassembly and disposal of the product.

PRICING STRATEGIES FOR RED WINE

A study conducted in 2010 used dimensionality reduction methods to create sensory variables to test pricing strategies of wine identify buying patterns of domestic market wine consumers. These properties included label characteristics, chemical and sensory

characteristics, and panel judgements, and were compared in both large-scale retail stores and wine shops. Its results indicated that price formation follows significantly different patterns in the two shopping environments.

In the large-scale retail stores, label characteristics such as alcohol content, region of production, and brand name play a large role in deciding the price of wine. It is asserted that there are two main categories of customers that exist in the large-scale retail market. The first type of customer is less educated on the characteristics of wine and bases their purchase on the alcoholic content shown on the label. The second type of customer is already familiar with the wine selection and makes their purchase based on time and price. Both categories of customer rely on reading the wine's label to make their decision, and quality-related factors do not have a significant effect [2].

In wine shops, it was found that purchases were typically made based on specific characteristics of the wine. Customers in this market are typically looking for specific characteristics of the wine, beyond the label, and make their decisions because they are an expert on wine, or take the advice of an expert such as the shopkeeper. Here, sensory characteristics and quality had the highest influence on price.

Furthermore, the study indicated that wine sold in large-scale retail stores alone were priced about 30% cheaper than wine sold in both channels. Utilizing the two distribution outlets has a positive impact on the large-scale retail pricing, but no effect in wine shops. This can be attributed to a reputation effect, and has been confirmed by other studies.

THE EFFECT OF SUSTAINABILITY ON MARKET PERFORMANCE

Environmentalism has become much more popular in the wine industry, but little is known on how much this trend affects business performance outcomes. A study that gathered data from 56 wineries in the Northwestern United States found that emphasis on environmental practices led to improved wine quality and market perceptions, but did not have a significant result on market performance [11]. While the minor improvements observed could be explained by efforts in the wine industry to differentiate their products, additional research is needed to fully understand the results.

STORAGE TEMPERATURE AND PACKAGING

A vintage of Cabernet Sauvignon was split into groups and stored at three different constant temperatures for six months to study the effects of storage temperature and packaging on the sensory, chemical, and physical properties of the wine. At the end of the storing period, a panel was able to detect significant differences in aroma, flavor, taste, mouthfeel, and color characteristics between the samples. Wines stored at higher temperatures were “lighter, less red, and more brown-yellow” at the end of the test [7]. Glass bottles showed the least variation when compared to polyethylene terephthalate (PET) bottles and 3-liter bag-in-box (BIB) containers. Temperature had a significantly higher effect on the quality of wine when compared to packaging, with nearly twice as many sensory attributes being affected. The influence of packaging was shown to be more pronounced at higher storage temperatures.

DESIGN

In order to prepare for the launch of the new vintage, it is important to prepare the critical elements of the startup company so that it can begin generating revenue: a final product to sell, a way to interact with customers, and a facility for employees to work in. This section will cover the development of Lisso Wine's product design, web presence, and workspace design.

PRODUCT DESIGN

Product and package design are extremely important factors when it comes to brand image. When a customer is making a buying decision, much of it is based on emotions that they feel when examining or handling the product. Lisso seeks to capture the eye of young consumers through modern and minimalist design that has universal appeal. The first concept label designed, shown in **Figure 2**, took an unconventional urban approach with its sans-serif font and abstract logo. This was later replaced with a more traditional label with an elegant layout, as seen in **Figure 3**. On both labels, the bottle number and batch size are shown to convey the scarcity of the vintage to the customer. In addition, the glass used for the bottle has a standard shape and opacity, but is lightly thicker than average so that the bottle has a more substantial weight when being held, adding to the perceived value for the consumer [10].

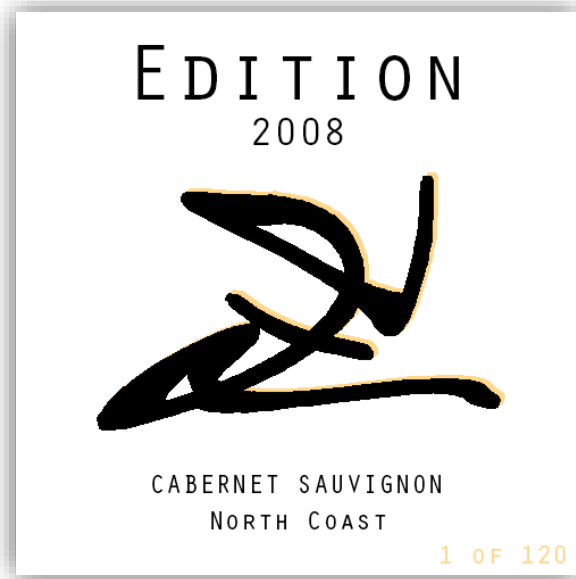


FIGURE 2: LABEL DESIGN CONCEPT



FIGURE 3: FINAL LABEL DESIGN

It is also important for a wine's packaging to be appealing to the customer to create a positive user experience. The main criteria used in selecting packaging were appearance, cost,

structural strength, and sustainability. It was originally planned that all bottles of wine sold would be packaged in wooden boxes, similar to the one shown in **Figure 4**. However, after evaluating the environmental impact of the use of wooden boxes and the increased shipping cost from the added size and weight, it was decided that wooden boxes would only be used in special cases. These cases include special orders where the customer requests and pays for the special packaging, and when Lisso Wine gives bottles of wine to customers and business partners as a gift or promotion. Otherwise, when cases and half-cases of wine are sold to customers, they will be packaged in corrugated cardboard boxes. Corrugated cardboard is a lightweight, strong, and cost-effective material that is widely used in the wine industry.



FIGURE 4: SELECTED WOODEN WINE BOX

WEB PRESENCE

A web presence is a business's collective representation on the internet. Unlike most winemakers, who are indistinguishable to non-expert consumers and make no attempt to attract the new generation of younger wine drinkers, Lisso will work to engage with their customers through internet channels and make their wine more accessible to modern consumers. When given as a gift or shared among friends, customers will have the option to share links to the pictures, videos, and stories that are directly related to their vintage of wine. For Lisso's existing partnerships with restaurants and realtors, in which they supply wine to be offered to their customers, both Lisso and the other business will be able to feature each other in their posts.

In order to reach the largest possible number of young adults, the marketing efforts of Lisso will be focused through Facebook and Instagram. Both of these online platforms have extremely large user bases and allow high quality images and videos to be uploaded and displayed for customers to see. The Facebook and Instagram pages will be populated by media captured throughout the growing, harvesting, winemaking, and bottling processes, along with blog-style updates. A mock-up of the Lisso Wine is shown in **Figure 5**.

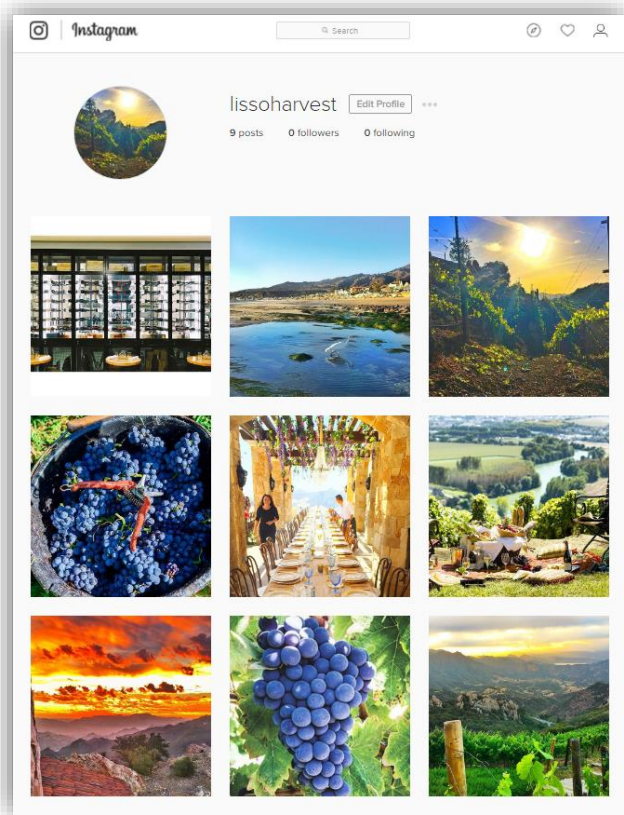


FIGURE 5: LISSO WINE INSTAGRAM PAGE

The social media pages will direct customers to a website that will function as Lisso Wine’s storefront and homepage containing detailed information related to Lisso Wine. This website is hosted through Squarespace, a paid content management system. Squarespace was chosen as a web host for the high quality website templates that they provide. Additionally, Squarespace has an integrated e-commerce platform that offers inventory and order management, as well as controls for tax and shipping options, which will assist in supply chain management. Transactions made through the Squarespace website do not have any transaction fees, compared to PayPal’s ‘2% + \$0.30’ fee attached to every order.

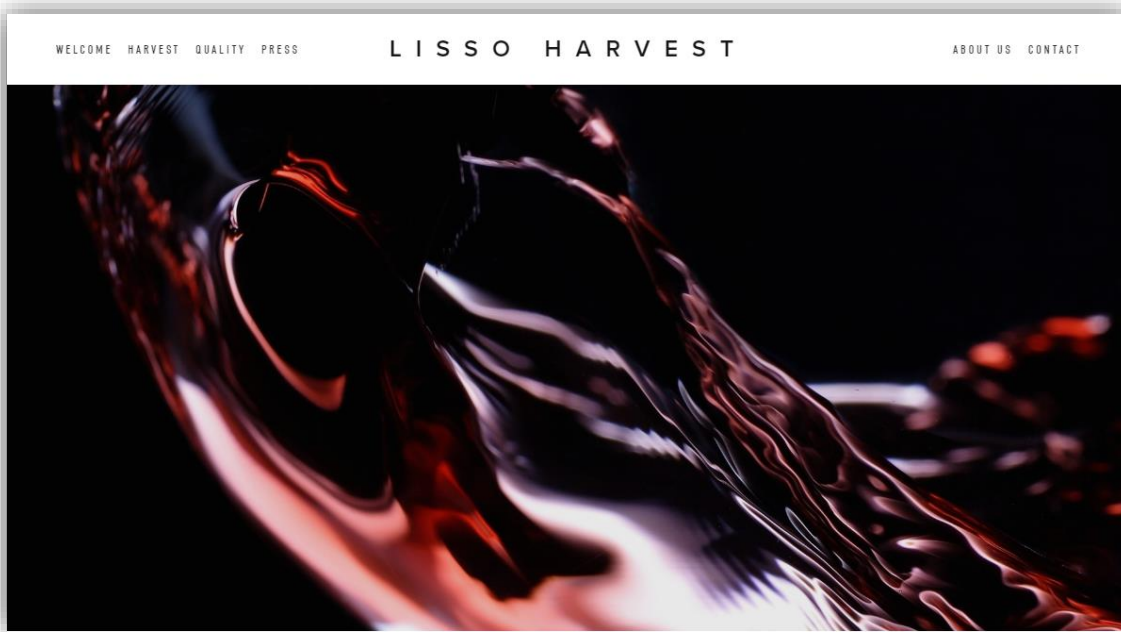


FIGURE 6: LISO WINE SQUARESPACE WEBSITE

It was decided by the company that other online channels such as Snapchat and Twitter would not be used due to Lisso's limited resources. Unlike Facebook and Instagram, both Snapchat and Twitter place an emphasis on frequent, small posts. In order to maintain a positive image on these platforms, Lisso workers would have to work continuously to develop new content, which would require more time and money than they can afford.

FACILITY DESIGN

Lisso Wine will purchase bottled wine directly from River Run Vintners in batches of 120 to 240 bottles. After these unmarked bottles of wine are brought to Southern California, the label designed by Lisso will have to be applied to the bottle and the finished product will be put in Lisso's designated packaging through a pull system. The designated space for these operations is a 5' wide by 20' long space along the wall of a large garage in Southern California.

It was necessary to place all of the equipment against the back wall in order to keep a sufficient amount of space open for walking and transporting materials.

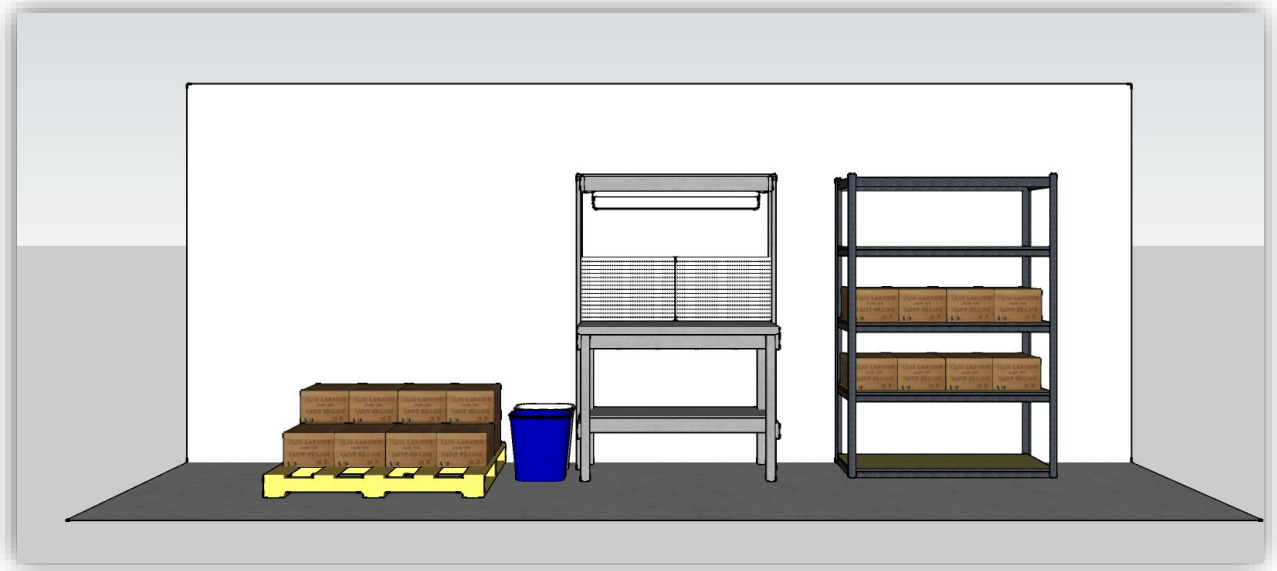


FIGURE 7: FACILITY DESIGN CONCEPT

In the facility design concept shown in **Figure 7**, equipment was placed with the workstation as the central focus in order to create an intuitive flow of work from left to right. Bottled wine will be purchased from River Run Vintners in batches of 100 to 200 bottles, which will arrive in the form of 9 to 17 cases of wine that are each 10 inches long, 12 inches wide, and 12 inches tall. These incoming boxes are stored on the wooden pallet to the left, processed on the middle workbench, then moved to the shelving unit on the right. A small waste bin and a recycling bin are placed to the left of the workbench to make disposal of packaging and labelling materials quick and easy. Waste and recycling bins for large-item disposal are located on the opposite side of the building, and are not shown in the facility design.



FIGURE 8: FINAL FACILITY DESIGN, ISOMETRIC VIEW

After reviewing the initial concept design with Lisso wine, it was later improved to become the final design shown in **Figure 8**. The major factors driving further improvements were a need for additional storage space for labelling and packaging materials, as well as risks related to lifting heavy boxes from ground-level to arm-level heights. The wooden pallet was replaced by an additional shelving unit that would hold the incoming bottled wine from the supplier and boxes of labels. Additionally, wooden boxes for special packaging are stored on the bottom of the right shelving unit, close to the rest of the packaging-related inventory. To make lifting boxes to and from high shelves easier for workers, a folding aluminum step ladder was added between the left-hand shelves and the workbench. It was placed on the left, rather than the right, in order to be closer to where the majority of the high-shelf lifting takes place. The workstation in the middle was chosen to be a standing workbench to eliminate the need to

change to and from standing positions, as well as to reduce the vertical distance that objects would have to be moved by employees.

WORKSTATION DESIGN

Most of the value-added work performed by employees is contained within the labelling and packaging processes, and both take place on the workbench in the middle of the facility. Consequently, the workbench was designed so that their work could be performed with minimal waste. The final workstation design is shown in **Figure 9**. In order to reduce clutter in the work area, a workbench with an attached pegboard was selected to provide more storage space. All unnecessary items that are not related to the labelling and packaging processes have been removed from the work area in order to eliminate obstructions and make work easier. The useful items that remain are neatly arranged in designated spots so that they are easy to access when working and easy to identify if missing. Items related to the labelling process are all positioned on the left-hand side of the workbench so that they are closer to the unlabeled bottles, while items related to the packaging process are on the right-hand side, closer to the rest of the packaging materials. The objects that aren't held by containers– the scissors and packing tape gun – have their outlines drawn onto the pegboard in blue to help employees remember to return the objects back to their proper place. Furthermore, the items' locations are labelled to help employees remember the organization system and discourage them from making careless rearrangements.

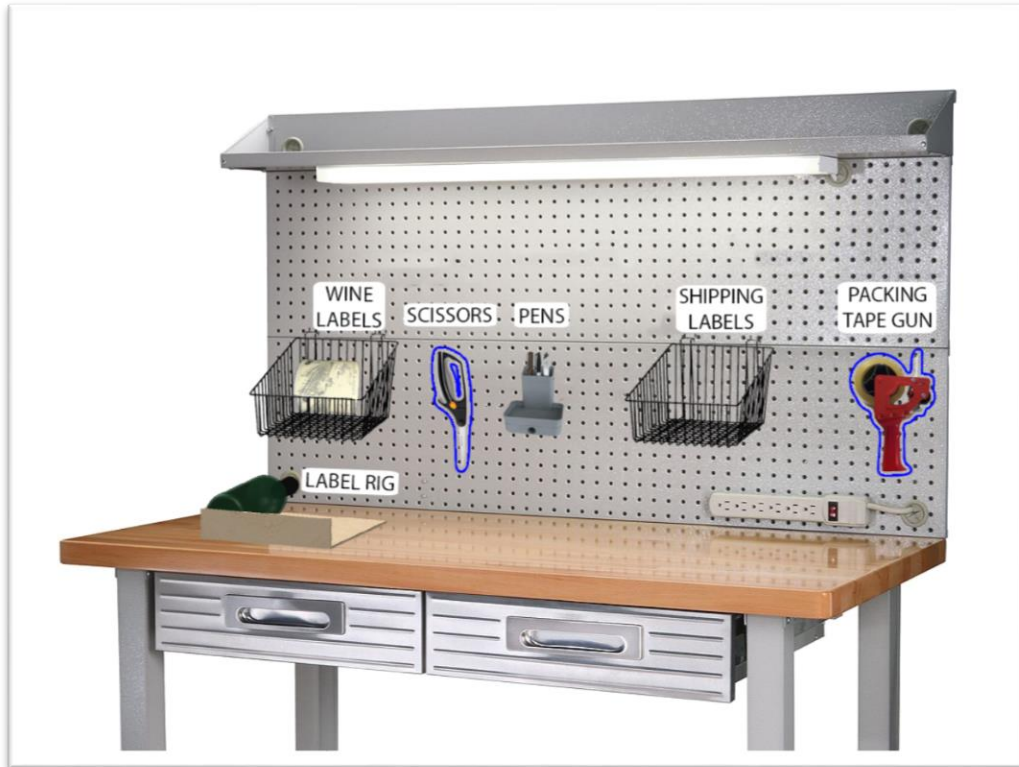


FIGURE 9: LABEL APPLICATION AND PACKAGING WORKSTATION

The labelling process requires workers to apply a paper label sticker directly onto each unmarked bottle. To reduce the time wasted in trying to put the label on straight and at the right height, a 12-inch by 12-inch wooden frame was modified to function as a poka-yoke, or a mechanism that helps prevent human errors. In this 'label rig,' the wine bottle can be laid against the corner of the frame to prevent it from sliding around on the table. When the bottle is stable, the employee then lines up the label with markings on the left wall of the rig so that it is placed at a 90-degree angle at the proper height.

METHODOLOGY

BUSINESS MODEL CANVAS

A Business Model Canvas is a one-page strategic management overview that is used to break down and clarify a business's customers, infrastructure, value proposition, and finances. As shown in **Figure 10**, a Business Model Canvas template typically includes the following elements: key partners, key activities, key resources, value propositions, customer relationships, channels, customer segments, cost structure, and revenue streams. By developing summaries of these key areas through collaboration and rapid iteration, an enterprise is able to boil down its business concept into a transparent summary of what its goals are, how it will go about achieving those goals, and potential trade-offs. This played a key role in focusing the product design and web presence around the main goals of Lisso Wine. Over the course of the project, adjustments would be made to the Business Model Canvas, then submitted to Lisso Wine and other shareholders for additional input to be used in future iterations.

<p>Key Partners</p> <p>River Run Vintners Provides high quality wine, meeting all necessary health regulations.</p> <p>Suppliers: bottles, labels Provides materials required for bottling and assembly</p>	<p>Key Activities</p> <p>Maintain a strong, positive, stylish social media presence.</p> <p>Individually marked small-batch vintages.</p> <p>Build partnerships with local businesses.</p> <p>Key Resources</p> <p>Product-driven business</p> <p>Supplier partnerships Sales team Product design team</p> <p>Social media presence.</p>	<p>Value Propositions</p> <p>Modern brand of wine designed for the new, younger generation of wine-drinkers.</p> <p>Focus on limited, small-batch production to create a personal connection.</p> <p>Creates a sense of style and exclusiveness at an affordable price.</p> <p>Functions as a novel gift for special occasions.</p>	<p>Customer Relationships</p> <p>Customers follow us on social media outlets. They place orders online, through our website. Product is individually shipped. We can be contacted at any time for support through email.</p> <p>Channels</p> <p><u>Marketing:</u> Instagram, Facebook <u>Storefront:</u> Website <u>Payments:</u> PayPal <u>Service:</u> Our employees</p>	<p>Customer Segments</p> <p>Single-sided market: consumers</p> <p><u>Persona:</u> Instagram-user, 24 years old, has a full-time job, drinks socially with friends at home, eats at trendy restaurants</p> <p>New, younger wine-drinkers are generally unfamiliar with brands of wine.</p> <p>Most wines are not designed with modern consumer culture in mind and have no distinguishing features.</p> <p>People often need a present to give people.</p>
<p>Cost Structure</p> <p>Wine. Bottle, label, cork, packaging. Shipping costs. Marketing materials. Inventory costs.</p>		<p>Revenue Streams</p> <p>Product sales. Deals and coupons. Business partnerships (e.g. restaurants, sales organizations).</p>		

FIGURE 10: LISSO WINE’S BUSINESS MODEL CANVAS

5S ANALYSIS

The design of the work facility and workstation was significantly influenced by 5S Analysis. In lean manufacturing, 5S Analysis is a tool used to increase efficiency and reduce waste by encouraging employees to follow a system of arrangement, organization, and cleanliness. 5S is driven by the following five core principles:

- Sort – Including only necessary items in the workplace
- Set – Organizing items to increase workflow efficiency
- Shine – Keeping the work area clean and tidy
- Standardize – Setting a standard and consistent workflow

- Sustain – Maintain the improvements made from the other 5S activities

Following this system, each piece of equipment used in the facility and workstation was evaluated for usefulness before being included in the design. The items were then assigned to functional groups so that items involved in the same process – either labelling or packaging – could be arranged in close proximity, minimizing wasted movements. In order to keep this system of organization in place, the location of each object is clearly marked and labelled for employees to see.

3D MODELING IN SKETCHUP

The facility design was created in SketchUp, a 3D modeling computer program, because it provides continuous visual feedback on what the facility will look like and how an employee would operate in the space. Visually accurate models of equipment and inventory were downloaded through SketchUp's 3D Model Warehouse, which is shown in **Figure 11**, and modified to match their actual dimensions. These objects could then be rearranged in rapid iterations to follow the organization system generated by the aforementioned 5S Analysis.

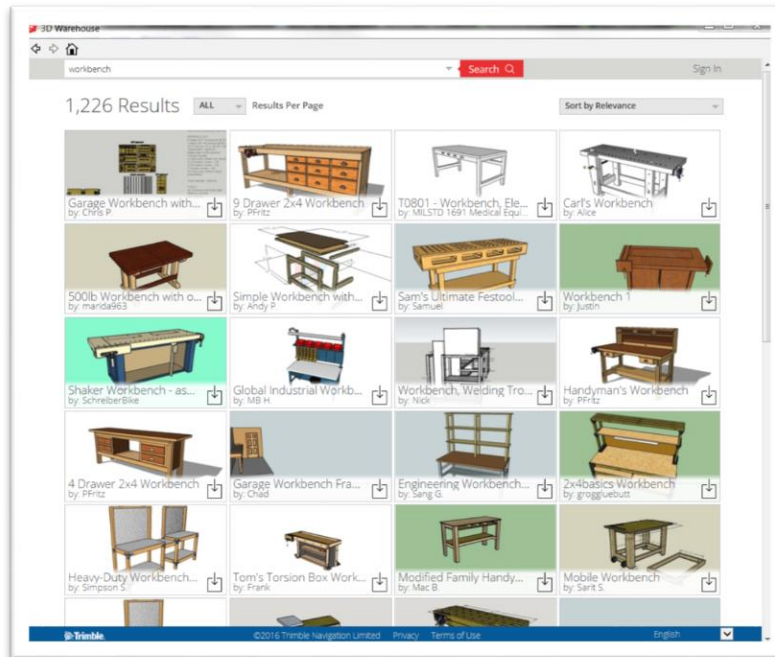


FIGURE 11: SKETCHUP'S 3D WAREHOUSE

RESULTS AND DISCUSSION

Lisso Wine highly approves of the final design of the product, web presence, and facility design, and have prepared the capital to purchase the required equipment and an initial batch of 10 cases of wine, or 120 bottles. The only element of the project that hasn't been approved for final production is the label design; employees from Lisso Wine want put additional thought into the brand's stylistic elements before placing orders for the labels and packaging. Lisso Wine's Facebook, Instagram, and Squarespace pages are currently operational, but will remain private until additional marketing material featuring the final product can be produced.

A breakeven analysis shows that revenues will exceed the costs of the project after the sale of 44 bottles of wine. This break-even point is lower than what Lisso Wine originally

estimated due to improvements made in the selection of materials and services during the design phase of the project. The calculation for this analysis, shown below in **Table 1**, uses a conservative value for the sales price of the product. In reality, the product will only be sold at a price of \$35.00 to businesses like restaurants that have a markup when subsequently selling the wine to their customers. To customers that directly make purchases through Lisso Wine’s website, each bottle will be sold for approximately \$50.00, potentially leading to a higher net profit than originally calculated.

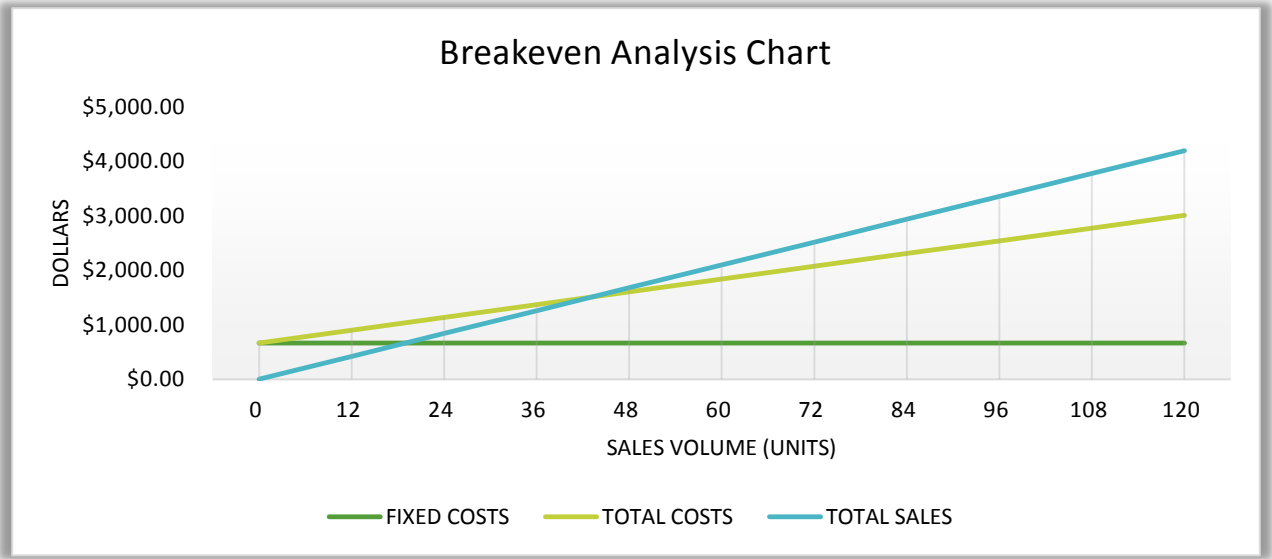


FIGURE 12: BREAKEVEN ANALYSIS CHART

AMOUNTS SHOWN IN U.S. DOLLARS

SALES

SALES PRICE PER UNIT	\$35.00
SALES VOLUME PER PERIOD (UNITS)	120
TOTAL SALES	\$4,200.00

VARIABLE COSTS

Bottled wine, per unit	\$17.00
Wine label, per unit	\$0.49
Shipping, per unit	\$1.96
Packaging, per unit	\$0.08
Utilities	\$0.01
Transaction fee	\$0.00
VARIABLE COSTS PER UNIT	\$19.54
TOTAL VARIABLE COSTS	\$2,344.39

FIXED COSTS

Squarespace services, annual	\$312.00
Workbench, one time purchase	\$204.25
Shelving units, one time purchase	\$81.44
Custom wooden wine box, 20 units	\$70.00
Rent	\$0.00
TOTAL FIXED COSTS	\$667.69

RESULTS

BREAKEVEN POINT (UNITS):	43.18
UNIT CONTRIBUTION MARGIN	\$15.46
GROSS MARGIN	\$1,855.61
NET PROFIT	\$1,187.92

TABLE 1: BREAKEVEN ANALYSIS CALCULATION

The sales volume analysis shown in **Table 2** of the Appendix strongly suggests that this project is economically viable. Successfully selling 120 bottles of wine at Lisso Wine’s lowest price point would generate \$1,114.11 in net profit. However, accurate information on the future demand of the new vintage is not available at this point in time.

Sales of the initial batch of wine will be monitored to provide data for forecasting the demand of larger batches of Lisso wine in the future. Any profits generated from sales of the first batch will be used to produce Lisso Wine's next vintage. This second batch of wine will be significantly larger than the first, at around 20 cases of wine.

CONCLUSIONS

Lisso Wine noticed a lack of development in marketing, production, and distribution in simply reselling River Run wine. In order to reach new customers, improve brand recognition, and increase sales, a new product, web presence, and work facility was designed.

- The most important result of this project was the design of the work facility because it lays the foundation for production and sales to begin.
- By guiding the creation of an optimal layout in SketchUp with an efficient system of work, 5S Analysis was extremely beneficial in reducing potential sources of waste.
- With the establishment of their new product design and business infrastructure, Lisso Wine will be able to move forward in producing and selling their new brand of wine.

The societal of this project is an improvement in how companies in the wine industries can connect and interact with their customers online, increasing customer satisfaction. This product had a positive environmental impact in leading Lisso Wine to use more sustainable materials in their packaging, reducing their carbon footprint and consumption of resources.

Moving forward, I recommend gathering more information on sales to reduce waste in inventory management and production planning. Furthermore, it would have been helpful to

extend the time frame of this project to allow more ideas to be explored. In the time I spent working with Lisso, I learned that there are many difficulties that come with starting a business because there is no one telling you exactly what to do or how you should do it. In order to make progress, you have to consider what is most important to you, set specific goals, and choose your own direction.

REFERENCES

- [1] Barber, Nelson, D. Christopher Taylor, and Time Dodd. "The Importance of Wine Bottle Closures in Retail Purchase Decisions of Consumers." *Journal of Hospitality Marketing & Management* 18 (2009): 597-614.
- [2] Brentari, Eugenio, Rosella Levaggi, and Paola Zuccolotto. "Pricing Strategies for Italian Red Wine." *Food Quality and Preference* 22 (2011): 725-32.
- [3] Brunner, Markus. "Wholesale Price Discrimination with Interdependent Retailers." *OR Spectrum* 35 (2013): 1009-037.
- [4] Business Model Canvas. *Development Impact and You*. Nesta, 2014. Web.
- [5] Cholette, Susan, and Kumar Venkat. "The Energy and Carbon Intensity of Wine Distribution: A Study of Logistical Options for Delivering Wine to Consumers." *Journal of Cleaner Production* 17 (2009): 1401-413.
- [6] González-García, Sara, Francisco Javier Silva, Maria Teresa Moreira, Rosario Castilla Pascual, Raul Garcia Lozano, Xavier Gabarrell, Joan Rieradevall Pons, and Gumersindo Feijoo. "Combined Application of LCA and Eco-design for the Sustainable Production of Wood Boxes for Wine Bottles Storage." *Int J Life Cycle Assess* (2011): 224-37.
- [7] Hopfer, Helene, Peter A. Buffon, Susan E. Ebeler, and Hildegard Heymann. "The Combined Effects of Storage Temperature and Packaging on the Sensory, Chemical, and Physical Properties of a Cabernet Sauvignon Wine." *Journal of Agricultural and Food Chemistry* 61 (2013): 3320-334.
- [8] National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention. *Ergonomic Guidelines for Manual Material Handling*. Vol. 131. N.p.: California Department of Industrial Relations, 2007.
- [9] Petti, Luigia, Ioannis Arzoumanidis, Graziella Benedetto, Simona Bosco, Maurizio Cellura, Camillo De Camillis, Valentina Fantin, Paola Masotti, Claudio Pattara, Andrea Raggi,

Benedetto Rugani, Giuseppe Tassielli, and Manfredi Vale. "Life Cycle Assessment in the Wine Sector." *Life Cycle Assessment in the Agri-food Sector* (2015): 123-84.

[10] Piqueras-Fizman, Betina, and Charles Spence. "The Weight of the Bottle as a Possible Extrinsic Cue with Which to Estimate the Price (and Quality) of the Wine? Observed Correlations." *Food Quality and Preference* 25 (2012): 41-45.

[11] Pullman, Madeleine E., Michael J. Maloni, and Jesse Dillard. "Sustainability Practices in Food Supply Chains: How Is Wine Different?" *Journal of Wine Research* 21.1 (2010): 35-56.

[12] Samli, A. Coskun. "Retail Marketing Strategy Development." *Coping with Retail Giants*. 2015.

[13] Thatch, Liz. "Wine 2.0 - The Next Phase of Wine Marketing? Exploring US Winery Adoption of Wine 2.0 Components." *Journal of Wine Research* 20.2 (2009): 143-57.

[14] Xie, Yani. "Wine Bottle Design and Consumer Preferences." *Green Communications and Networks* 5 (2012): 639-45.

RELATED COURSEWORK

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- BUS 382: Organizations, People, and Technology

APPENDIX

Figure 13: Final Facility Design, Front View



Figure 14: Workbench Dimensions



Table 2: Sales Volume Analysis

SALES VOLUME	0	12	24	36	48	60	72	84	96	108	120
SALES PRICE PER UNIT	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00
FIXED COSTS	\$667.69	\$667.69	\$667.69	\$667.69	\$667.69	\$667.69	\$667.69	\$667.69	\$667.69	\$667.69	\$667.69
VARIABLE COSTS	\$0.00	\$234.44	\$468.88	\$703.32	\$937.76	\$1,172.20	\$1,406.63	\$1,641.07	\$1,875.51	\$2,109.95	\$2,344.39
TOTAL COSTS	\$667.69	\$902.13	\$1,136.57	\$1,371.01	\$1,605.45	\$1,839.89	\$2,074.33	\$2,308.77	\$2,543.20	\$2,777.64	\$3,012.08
TOTAL SALES	\$0.00	\$420.00	\$840.00	\$1,260.00	\$1,680.00	\$2,100.00	\$2,520.00	\$2,940.00	\$3,360.00	\$3,780.00	\$4,200.00
NET PROFIT	(\$667.69)	(\$482.13)	(\$296.57)	(\$111.01)	\$74.55	\$260.11	\$445.67	\$631.24	\$816.80	\$1,002.36	\$1,187.92