

The feasibility of growing specific indigenous yeast as a service for South African wineries

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ABSTRACT

Winemakers are constantly exploring new ways in which to differentiate their product in the competitive South African wine industry. Indigenous yeast can help to enhance the specificity of a wine as well as contributing positively to the attributes of the wine, and thereby increasing the wine's level of uniqueness and marketing capital within the industry. Qualitative interviews were conducted and found that winemakers would like to use a spontaneous fermentation when making wine. Participants agreed that indigenous yeasts play a positive role in the fermentation, but because of risk should be utilised on a situation specific basis. Finally, it was found that there is an opportunity to offer a service aiding wineries in reducing the level of risk with spontaneous fermentations allowing them to further differentiate their products in a competitive marketplace.

DECLARATION

I, Stuart Allcock, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Stuart Allcock

Signed at

On the Day of 2017

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to determine the feasibility of a business venture that provides services allowing specific indigenous yeasts to be collected from wine farms. The yeast will be grown and then stored and grown within a laboratory environment and distributed when required to wineries so that the yeast cultures may be effectively utilised as an input into the wine fermentation process on wine farms within South Africa. By utilising indigenous yeasts, winemakers may better be able to differentiate their product within the highly competitive South African wine industry. This study will aim to determine whether the business idea makes sense to those working in the industry, to understand the challenges with the idea, as well as any close substitutes, other market players, and the willingness of winemakers in the industry to work with a potential new business venture such as this. Should the study be successful, then steps can be taken to develop the idea further under the right environmental conditions.

1.2 Context of the study

The number of wines in the South African marketplace is continually increasing (Engelbrecht, Herbst, & Bruwer, 2014). It is becoming more difficult to draw the customer's attention and buying power to individual wines, this is due to the ever-increasing quality and variety of wines on offer within the South African wine market. As a result, winemakers and marketers alike are continually on the lookout for new and innovative ways to differentiate and position their wine within the market (van Rooyen, Stroebel, & Esterhuizen, 2010).

A trend being used in the Gigondas and Bandol regions of France, but not frequently elsewhere in the world, is product diversification through adding more specificity to wines. Specificity is described by the English Oxford Dictionary as the quality or fact of being specific in operation or effect (Oxford English

Dictionary, 2017). A high level of specificity can be thought of as being unique. This extra layer of specificity is added to the wine by making use of yeasts specific to the vineyards on the wine farm. These yeasts are called indigenous yeasts.

The reasons for making use of indigenous, also known as wild yeasts, are twofold, the winemakers are more comfortable adding indigenous yeasts to the fermentation process over commercially produced yeasts as it helps them to more accurately express their terroir; and it is possible to utilise the extra layer of specificity within the wine as a marketing tool and increase the level of uniqueness of the wine, thereby creating a plausible argument to charge a higher price for the wine.

According to van Rooyen, Stroebel, & Esterhuizen (2010), in order for winemakers to trade globally and in a competitive manner, the quality of products as well as the prices they are supplied at need to be on par or better than their global competitors. This means that winemakers need to continue to experiment with new processes, methods, ingredients and technologies in order to stay competitive within the global market. According to SAWIS (2016), South Africa has 566 cellars in operation within its wine industry. Although these cellars have different focusses, the number of cellars in operation creates a highly competitive environment in which to operate. The level of competition does not decrease when looking at the global wine industry due to the continued growth of 'new world' wine countries against the more traditional 'old world' wine countries.

An output of this study is to determine the business feasibility of a service whereby indigenous yeast strains are collected from wine farms, stored and grown in a laboratory and made available on demand to wineries in the Western Cape. If implemented, this service would offer wineries a means to enhance the specificity of their products through the use of yeasts indigenous to their own vineyards and create additional marketing capital with which to differentiate their product in the marketplace.

1.3 Problem statement

1.3.1 *Main problem*

The feasibility of growing specific indigenous yeasts for South African wineries as an effective input to the wine fermentation process.

1.3.2 *Sub-problems*

The first sub-problem aims to analyse the current status and make-up of the South African wine industry.

The second sub-problem explores the opportunities and risks of using indigenous yeast inoculants in wine fermentation.

The third sub-problem investigates the role of specificity in the South African wine industry.

1.4 Significance of the study

Activities that create competitive advantages for wine businesses are understudied (Atkin, Gilinsky, & Newton, 2012). Wineries are constantly looking for new ways in which they can create methods of differentiation in order to stand out in the crowded marketplace of the South African wine industry (van Rooyen, Stroebel, & Esterhuizen, 2010). This study therefore will aim to contribute to the body of research on the topic of terroir based, minimal interventionist winemaking and its associated marketing processes in the South African wine industry.

The study aims to increase understanding about whether players in the South African wine industry feel they can enhance the marketing capital of wine products by utilising indigenous yeasts in the wine making process as a tool to increase the specificity of the product. The number of wine farms in South Africa has grown tremendously and South Africa has grown to become the seventh largest wine producer globally (Froud, 2015). According to a report by

Booyesen (2016) the South African wine industry in aiming to create more than 100,000 jobs over the next ten years through growth and improved trade agreements. The study seeks to understand from industry players whether the utilisation of specific indigenous yeast in the fermentation process would add to the marketing capital of the wine produced as well as increase sales of the wine and thereby benefit the farm financially.

If the outcomes of the question are in the affirmative, it could be argued that there is a potential foundation to the idea of offering of a service of collecting, storing and growing the indigenous yeasts for the wine farms. The significance of this study would contribute predominantly to identifying a product development process that may add to the quality of the product, additionally operating as a marketing tool, but also contributing in the areas of terroir and environmental and biodynamic agriculture.

This study, if found to be feasible, could potentially make a niche contribution to the wine industry, especially to boutique wine farms who utilise uniqueness as a quality to sell their products. It is possible that the use of indigenous yeasts could benefit the wine industry as a whole, and potentially help to make better wine and enhance the perception and profile of South African wine in the global wine industry. Wine makers in South Africa could use indigenous yeast to both diversifying their products from others in the market and use it to display their individual wine making style. Additionally, increased specificity would add to the marketing capital of the wine, allowing wines to be marketed as niche or unique, and this could arguably warrant a higher price in the market.

1.5 Delimitations of the study

- The study is limited to the South African wine and yeast industries.
- Only interview participants who are deemed knowledgeable about the yeast and wine industries will qualify as interview candidates.
- This study will cover but not extensively explore the science and biology behind the cultivating of yeast cultures, the interactions of yeast in the fermentation process, and all other scientific aspects that could potentially be associated with this study.
- Data collection approaches that require large samples were not considered due to the risk of not gaining access to a sufficient sample of participants with knowledge on this topic.
- The study will not look at determining price points for the proposed business need, as it would require too many respondents to collect sufficient data.

1.6 Definition of terms

Specificity: A quality or fact of being specific in operation or effect (Oxford English Dictionary, 2017).

Indigenous yeasts: The naturally existing yeast in the air, on vegetation, in vineyards, cellar and on equipment. Also known as wild yeasts.

Commercially cultured yeast: Yeasts produced in a laboratory to match certain criteria and sold by organisations with the intent of making profit.

Spoilage yeast: Any yeast able to change food sensorial characteristics (Loureiro & Malfeito-Ferreira, 2003).

Ambient yeast: Ambient yeast is yeast that exists on equipment and everything else within in the winery itself. Due to the age of the winery and the many strains of yeasts utilised over numerous vintages, there is no way of determining whether all of the strains of yeast existing in the winery are beneficial.

Spontaneous/natural fermentation: A spontaneous fermentation is a result of the indigenous or wild yeast growing within the grape must. The indigenous yeasts take in the sugars available in the grape must and produce flavours, colour, esters and alcohol as outputs.

Terroir: Terroir can be described as a spatial and ecological concept that links together actors, their histories, their social organisations, their activities, and most importantly their agricultural practices (Demossier, 2011).

Producer Cellar: a winery where grapes are received and processed on behalf of a group of wine grape producers, its members, into wine grape products and the marketing thereof as packaged or bulk (SAWIS, 2016).

Private Cellar: a winery belonging to an individual or group where grapes are received and processed into wine grape products and the marketing thereof as packaged or bulk (SAWIS, 2016).

Grape Must: Freshly pressed grape juice that may contain the skins, seeds, and stems of the grape.

Inoculation: The introduction of yeast into the grape must to encourage fermentation.

Cultivar: The resultant plant that is produced by breeding a specific variety (or varieties) of cultivated plant species, often selected to produce specific desired characteristics.

Yeast Strain: A strain is a genetic variant or subtype of a microorganism e.g. Yeast.

Yeast Culture: A yeast culture is the dried product composed of yeast, and the media it was grown on, dried in such a manner as to preserve the fermenting activity of the yeast.

1.7 Assumptions

- That this business need is currently not being met within the South African wine industry. This is a reasonable assumption as a number of contacts within the South African wine industry have mentioned that this is currently not a practice in operation within South Africa.
- Respondents will freely share their knowledge and understanding of the topics involved. As this is a research paper, and the South African wine community is traditionally an open and sharing community, it is reasonable to assume that the participants will share information freely. This is not a partially sensitive topic and therefore participants can be expected to share freely.
- Respondents will have sufficient knowledge to answer and discuss the interview questions in required depth and detail. Potential participants are not chosen at random and will be identified based on their knowledge and involvement within the industries. The selection process should ensure the participants have sufficient knowledge to contribute to the study.

- Respondents will reflect the general perspectives and experiences of those working in the South African yeast and wine industries.
- It will be possible to interview between five and ten participants for this study. A number of personal contacts have already been identified to be asked to participate in the study and they are happy to give references to others allowing the sample number to most likely be met. Although it should be noted that the data collection will take place just before the harvest time for the participants which is a very busy time of the year.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This chapter is the review of literature for this study. Literature such as peer reviewed journals and industry statistics were used to form an overview of the South African wine industry. Industry publications and peer reviewed journals were analysed to determine the benefits and risks associated with using indigenous yeast in the fermentation process, and lastly peer reviewed journals were utilised to explore the idea of specificity as a strategy of differentiation in the wine industry. Each of these sub-problems will be explored individually and summarised as a hypothesis at the end of the section.

2.2 Definition of topic or background discussion.

A winemaker has a choice of many different yeast cultures to ferment the grape must in order to make wine. Grape must is the freshly pressed grape juice that contains the skins, seeds, and stems of the grape. These different yeast cultures will have diverse impacts on the colour, flavour, alcohol level, and complexity of the wine (University of California, Davis, 2014). A commercially produced yeast culture is a yeast culture that has been created in a laboratory to meet certain criteria and is sold by organisations with the intent of making profit. When a commercially cultured yeast is added to a fermentation this becomes known as an inoculated fermentation. The inoculant, the commercially cultured yeast, is added to the wine must as to ensure a full clean ferment of the must. The alternative to using commercially produced yeast is to use the yeasts naturally occurring on the grapes to ferment the must. This is called spontaneous fermentation. During a spontaneous fermentation a winemaker will leave the must to ferment on its own. This may take a longer period of time, but will add different characteristics to the wine (University of California, Davis, 2014).

For the purpose of this research the term indigenous will be used for yeasts naturally occurring on the grapes as it better suits the concept of specificity which is pivotal to the study. Both spontaneous fermentation and inoculated fermentation are associated with their own benefits and risks which will be explored during this study.

2.3 An analysis of the status of the South African wine industry

2.3.1 *South African Wine Industry status*

Wine markets continue to undergo many changes in terms of the behaviour of its consumers and the volumes that are required to supply the market (Mora, 2006). These changes have been accentuated by the effect of globalisation and its many impacts. Examples of this in the retail sector include consolidation, brand proliferation, overproduction, and fracturing of market segments (Mora, 2006). These challenges have created a wine industry in South Africa in which there is opportunity for growth through innovation despite to the level of competition in the industry (van Rooyen, Stroebel, & Esterhuizen, 2010).

Van Rooyen, Stroebel, & Esterhuizen (2010) state that wine industries and firms can be described as competitive when they are able to trade effectively in the global marketplace. Furthermore, in order to trade globally and in a competitive manner, the quality of products as well as the prices they are supplied at need to be on par or better than their global competitors. Whilst trying to maintain global competitiveness, resources such as capital, land, labour, technology and management skills need to be available when required (van Rooyen, Stroebel, & Esterhuizen, 2010).

Additionally, van Rooyen, Stroebel, & Esterhuizen (2010) found that the top 5 most enhancing factors for South Africa's wine industry were the competitiveness of the local market, international entry into the local market, affordable high quality products, entry of new competitors, and the uniqueness of services and processes. Despite these factors increasing the competitiveness of South

African wine in the global market since the 1990s, the trend has begun the decline. Reduced business confidence and global downturns have affected exports and prices. In order for wineries to effectively compete in today's almost saturated wine market, they require effective strategies to develop comprehensive and consistent messages (Matei, 2014). In order to improve the international competitiveness as well as differentiate themselves locally, South African wineries need to find new ways in which to market their products to consumers.

2.3.2 South African Wine Industry statistics

SAWIS (SA WINE INDUSTRY STATISTICS, 2016), stated that the total number of grape producing farms in South Africa in 2016 amounted to 3232. Of these, the total number of wine producing cellars amounted to 566. In South Africa, cellars are broken down into different categories depending on the volume of wine they produce per year. Categories and volumes for 2016 South African industry are shown below in Table 1:

Tons of grapes crushed – 2015	Number of cellars			
	Total	Private Wine Cellars	Producer Cellars	Producing Wholesalers
1 – 100	244	235	-	9
> 100 - 500	153	148	-	5
>500 - 1000	55	51	2	2
>1000 - 5000	59	51	4	4
>5000 - 10000	14	5	7	2
>10000	41	4	35	2
Total	566	494	48	24

Table 1: Cellar breakdown in tons of grapes crushed (SAWIS, 2016).

The smaller boutique wineries make up a large proportion of the wine cellars within South Africa. As such, there are many different wine products produced and supplied to the South African market. It therefore may be difficult for wineries to communicate the unique message of their product to the consumers in the marketplace. Small wineries, have the opportunity to market themselves in a different way from the bulk wine producers. Instead of having to rely on the strength of their overarching brand, the smaller wineries can make use of the specific attributes of an individual product to drive sales. This could be termed a niche marketing strategy, in which the wine is differentiated from the other products in the market place because of differences in the grapes, geography or vinefication process.

2.3.3 *Hypothesis 1*

The multitude of wineries in the South African wine industry create a high level of competitiveness in which it is difficult to differentiate products.

2.4 The effects of fermenting with Indigenous yeasts

According to Fleet (2003), wine is the product of complex interactions between fungi, yeasts, and bacteria that begin in the vineyard and continue throughout the entire wine making process. A grape cultivar and its cultivation provide the foundations of wine flavour, microorganisms, especially yeasts, impact on the subtlety and individuality of the wines character. As the prominent organisms involved in wine production, yeasts interact at different stages of the fermentation cycle depending on the yeast strain. Fleet & Heard (1993) argue that the uniqueness and individuality to the flavour of the wine that each yeast strain contributes, is an occurrence of the unique interactions of all the yeasts present at that particular stage of the fermentation process.

There are three schools of thought within the global wine industry around the use of indigenous yeast in the fermentation process. Put simply, the first school of thought, who believe in using inoculations of commercially cultured yeast, see indigenous yeast as microorganisms that can inhibit an effective fermentation. Winemakers with this belief spray their grapes with sulphur to slow the activity of indigenous yeast to lesson or nullify its effect during fermentation and allow the commercial yeast inoculation, that hasn't been affected by sulphur, to trump the indigenous yeast and ferment the grape must and produce the flavours and alcohol in the wine.

The second school of thought is that of natural or spontaneous fermentation. Natural fermentation is the process of leaving the indigenous yeasts to spontaneously ferment. The indigenous yeasts already existing on the skins of the grapes colonise and grow to numbers large enough to ferment the batch. Utilising indigenous yeast in fermentations may provide a wine with either advantages or disadvantages depending on the different yeast strains contained in the indigenous yeast and how effectively the process of picking, transporting, sorting, and fermenting the must has been controlled. These are two difficult aspects to maintain sufficient control over, and they therefore introduce a high level of risk into the wine making process. This has historically been the reason winemakers use commercially produced yeasts, they are reliable and produce repeatable results.

The last option open to winemakers is that of combining the first two strategies. Winemakers may rely on spontaneous or natural fermentation for as long as they may think it is prudent and then add a commercially cultured yeast to ensure the fermentation finishes and thereby minimise the risk of a wasted batch due to an unfinished fermentation.

2.4.1 *Benefits of using indigenous yeast in a fermentation*

Indigenous yeasts originate from the flora of the grapes and their surroundings in the vineyard as well as, the flora associated with the surfaces of winery equipment and in the winery itself (Fleet & Heard, 1993). Indigenous yeast is the naturally existing yeast in the air, on vegetation, in vineyards, cellar and on equipment (University of California, Davis, 2014).

According to University of California, Davis (2014), the microbial flora present on grapes have strong influence on the composition of the wine. This influence may affect the wine's aroma, flavour, and complexity of the finished product. Complexity flavours are a hallmark of the top rated wines across the world, and improving the complexity of wine is a goal of most wineries across the world. The microbial flora found on grapes in vineyards around the world differs due to many factors, such as environmental conditions such a climate, altitide, grape variety, vineyard practices, and seasonal conditions, and human intervention (University of California, Davis, 2014). These factors are referred to in the wine industry as terrior. A winemaker may chose to try and make wine that is supported by the terrior the grapes are grown in to create the best possible wine he or she can.

Terroir can be described as a spatial and ecological concept that links together actors, their histories, their social organisations, their activities, and most importantly their agricultural practices (Demossier, 2011). An indigenous yeast fermented wine is fermented only with yeasts native to its terroir. This could be a location as specific as the block of vines the grapes come from or from anywhere on the greater area of the farm. Yeast strains vary widely from place to place and thus the yeasts indigenous to a particular area are an important part of what gives wines their character. Additionally, the opportunity to enhance the use of terroir in the winemaking process by using indigenous yeasts over commercial yeasts is be something a winemaker would be excited about (Demossier, 2011). The business benefit of this opportunity is that the process may additionally add to the marketing capital of the product.

2.4.2 Risks of using Indigenous yeast in a fermentation

Yeasts can also affect wines in a negative way, and affects wine flavour and quality. Indigenous yeasts take approximately a week to grow to sufficient levels in order to ferment the must. This is longer than commercial yeast, which is inoculated in high quantities to ensure that there is a very low risk of sluggish or stuck fermentations. As indigenous yeast occurs naturally and is not inoculated into the must, the time it takes the yeast to grow to sufficient numbers opens the must up to risk (Fleet G. H., 2003). The timing of the interactions between different yeasts strains varies during the fermentation process and cannot be predicted. Due to this fact, winemakers have little control over the fermentation on a microbiological level in which the complexity and flavours are developed in the must by the indigenous yeast strains. Winemakers have to try and control the process as far as possible through maintaining set temperature ranges, frequently measuring acidity levels, and closely monitoring the quantities of inputs into the batch.

Indigenous yeasts also have the power to spoil wines through their interactions during a number of different phases during the production process. Spoilage yeasts are found in both the vineyard and the winery (Loureiro & Malfeito-Ferreira, 2003). An individual yeast strain within a culture can produce undesirable flavours and esters during alcoholic fermentation causing defects to the wine. Additionally, during the storage of wines in tanks or barrels, yeast strains can also create spoilage. A common situation found with spoilage yeasts occurs with wine that has been exposed to excessive amounts of air. The spoilage occurs when a barrel is not filled completely and the remaining air allows the oxidative yeast species such as *Candida* and *Pichia sp.* to colonize and cover the surface of the wine (Fleet G. H., 2003). It is therefore very important to carefully manage the storage of wines, as well as to vigilantly monitor the must as the yeast performs its role in the fermentation.

2.4.3 Hypothesis 2

The benefits of using indigenous yeasts in wine production outweigh the risks assuming the indigenous yeast can be monitored closely, the environment controlled effectively, and there is room for some experimentation.

2.5 Differentiation and specificity as marketing tools in the South African wine industry

Marketing has proven to be very useful instrument in the wine industry. In order to compete in today's almost saturated wine market, wine farms must formulate cohesive and comprehensive marketing strategies (Matei, 2014). Given the wide variety of wines on offer in the local and global marketplace, winemakers need to acutely understand the value of marketing in order to be profitable or even sustainable in an intensely competitive market (Matei, 2014).

2.5.1 Differentiation as a marketing strategy

Atkin, Gilinsky, & Newton (2012) describe competitive advantage as distinctive competencies that are created through an organisation's strengths. These competencies usually lead to a competitive advantage in either a lower cost strategy or a differentiation strategy and can be described in terms of resources or capabilities as well as their VRIO. VRIO is the acronym for the VRIO framework, value, rarity, inimitability, and organisational sustainability. VRIO assesses the distinctive capabilities of something by using the four key criteria. (Johnson, Whittington, Scholes, Angwin, & Regner, 2014). Following a differentiation strategy challenges an organisation to offer its customers a product that is unique or different to other products, but at the same time adds value to the customer. This value potentially allows the organisation to charge a premium for the product (Atkin, Gilinsky, & Newton, 2012).

Mora (2006) notes that it is crucial in the wine industry that wine products try to be different from each other. In seeking a unique identity, a wine product can take advantage of other marketing strategies relating to the product's positioning, its price and how this is communicated. The South African wine industry contains approximately 6800 individual labels which reflects both the high level of competition and the need for wineries to differentiate themselves from other producers (SAWIS, 2016).

One approach utilised in the wine market is to develop a unique identity through a brand. The brand conveys the value proposition of the product as well as its unique identity (Mora, 2006). This approach is traditionally utilised by the large wine farms who produce many different products. Each of the products benefits because they fall under a strong brand and are therefore purchased by the customer because of the brand rather than the individual product. A smaller wine farm may make use of a story or stories to market their one or two products on offer. The consumer relates to the story of the individual product rather than the overall brand of the farm.

Mora (2006) proposes that wine consumers can be categorised into four general segments namely: wine connoisseurs, wine students, new wine customers, and bulk wine customers. Mora (2006) also states that these categories will be common across different wine regions allowing for a slight variation due to the traditions in old and new wine countries. Different categories of customers mean different interpretations of marketing efforts. This highlights the importance of alignment between marketing strategy and long term business strategy.

Passebois-Ducros (2010) identified that the representation of a brand changes depending on whether the customer is an expert or a novice in the wine industry. The level of interest or involvement in wine suggests that the more involved a customer, the more likely they were to make their choice based on the information cues provided. Low levels of involvement suggested a customer to prefer to buy wine that they deemed as low risk based on price, grape variety, and label. Additionally, the power of a brand is also mitigated by the knowledge of a consumer.

Higher levels of knowledge lead to lower levels of brand influence on the consumer (Passebois-Ducros, 2010). The study also showed different interpretations of brands by experts than novices, this is important for marketing purposes. Differentiation can therefore be a very strong tool to help wine farms target a certain consumer market, for example a small farm could use it to try to create their own niche in the wine market, or a large farm could try to offer a product different from their traditional brand by differentiating it.

Matei (2014) found that wine farms attempting to use a pull strategy are usually made use of by the most recognised brands. In a pull strategy, wine farms focus their marketing directly towards a customer's interpretation of its brand, as they need to obtain the customer's interest at the point of sale. The alternative to a pull strategy is a push strategy. A push strategy is easily associated with a differentiation strategy. In this situation a wine farm attempts to get customers to taste new wine through supplying the customer with readily available information on brochures and online. Through this process the customer can more completely understand the product's attributes and what makes it unique, rather than just making a decision based on the brand of the wine. The push strategy is used frequently in online wine sales (Matei, 2014).

Differentiation is not only used as a way to create brand attraction but also to enhance the value placed on a product. Pricing strategies are derived from the use of differentiation in a product, including the grape variety, or even vinification process. For a differentiation strategy to be effective, marketers must identify segments that are willing to pay higher prices for the differentiated product (Mora, 2006).

Product differentiation is used successfully in many different ways within the wine industry and it is a good strategy to follow in enhancing the value of a product. Engelbrecht, Herbst, & Bruwer (2014), who use the example of region of origin as a differentiation strategy amongst wineries, confirm this. Product differentiation in coordination with effective marketing can be very productive and help a winery compete even in a saturated market (Matei, 2014).

2.5.2 *Specificity as a form of differentiation*

Fensterseifer & Rastoin (2010) state that one of the assets of value to a wine farm is the natural capital. Natural capital includes resources such as climate, soil and sustainable supply of water, and the attractiveness of the viticulture landscape. This natural capital is what helps a winemaker to produce the quality of wine. The more natural capital the greater the potential to make high quality wine. Natural capital is closely linked to the concept of terroir and to the idea of an environmental management strategy. Three purposes for employing an environmental management strategy include, ensuring the environment is well looked after to promote longevity and sustainability, optimising the economic return on investment, and lastly trying to improve the quality of the crop by creating an environment rich with naturally occurring nutrients and other resources. The winemaker has the option to create terroir driven wines that express the land the grapes come from. Wine that is made in this fashion is unique as no other farm is exactly the same as another. Winemakers following a terroir driven approach to winemaking are there differentiating their product from others based on their terroir. Atkin, Gilinsky, & Newton (2012) suggest that there has been gradual move towards more environmental strategies as well as more sustainable farming practices within the global wine industry, the goal of these being a differentiation of the producer's brand (Atkin, Gilinsky, & Newton, 2012).

Wineries are constantly looking for new opportunities to differentiate themselves in a saturated wine industry; this is especially true for small boutique wineries with small marketing budgets and relatively low volume production. This challenge world round has given rise to the creation of wine routes and the concept of Wine of Origin or region of origin. Wine of origin has helped winemakers by establishing the foundation whereby specificity can play a role in the marketing of a wine. According to Wine of Origin, a wine may be grouped by the region in which it was produced as it shares the geography and natural capital with other wines from the area. The wine may state the region, the sub-region, the ward, and potentially even the vineyard it belongs to. This associative marketing technique helps winemakers to differentiate their product

from others from different parts of the South Africa, whilst allowing consumers to build a connection with a vineyard, the wine farm, and the wine region all at the same time (Engelbrecht, Herbst, & Bruwer, 2014).

Engelbrecht, Herbst, & Bruwer (2014) performed the first study of its kind within South Africa, when they assessed the feasibility of region of origin as a marketing strategy in the South African wine industry. Engelbrecht, Herbst, & Bruwer (2014) found that there were two ways in which wineries could compete with each other, either by a lower cost strategy or through a differentiation strategy. Engelbrecht, Herbst, & Bruwer (2014) stated that large wineries preferred the lower cost strategy whereas the small and medium sized wineries preferred differentiation strategies. This was also found in the South African wine industry, in which large volume brands adopted a lower cost product strategy.

The success of a differentiation strategy relies on the idea that the point of differentiation creates value for consumers and that the point cannot be easily replicated by other wineries as per the VRIO framework. Specificity in the wine industry speaks to that exact idea, the point of differentiation is unique to the winery and is almost impossible to replicate by other competitors. This idea is endorsed by Mouton (2006) who states that the natural environment in which grapes are grown offers a uniqueness that would be difficult to duplicate. As a wine producing region, South Africa is fortunate to have a wide array of geographical areas in which specificity can be found in many different forms.

Engelbrecht, Herbst, & Bruwer (2014) found in their findings of their study that the growing region was not the prominent factor in the consumer's purchasing decision-making process but it was a contributory element when combined into a regional composite variable that included grape variety. Specificity therefore does play a role, albeit not the leading role, in the marketing of a wine in the South African industry.

2.5.3 Hypothesis 3

Specificity is a valuable marketing tool within the South African wine industry, and should be seriously considered by small volume producing wineries.

2.6 Conclusion of Literature Review

The South African wine industry faces the challenge of how to grow the industry without diluting the level of competition and ending up with only a handful of strong wineries dominating the market. Indigenous yeast fermentations can create more benefits than risks if the fermentation process is controlled effectively. However, the use of indigenous yeast will not ensure the production of great wine; it may merely provide a contribution towards enhancing the quality of the wine. Specificity is already used as a tool in the South African wine industry, it can be further used to bolster the argument for a higher price for the product. It is important to remember however, that specificity is not the determining factor for consumers when purchasing wine, but rather a complementary factor towards a more unique product.

2.6.1 Hypothesis 1:

The multitude of wineries in the South African wine industry create a high level of competitiveness in which it is difficult for a winery to create a unique image for itself.

2.6.2 Hypothesis 2:

The benefits of using indigenous yeasts in wine production outweigh the risks assuming the indigenous yeast can be monitored closely, the environment controlled effectively, and there is room for some experimentation.

2.6.3 Hypothesis 3:

Specificity is a valuable marketing tool within the South African wine industry, and should be seriously considered by small volume producing wineries.

CHAPTER 3. RESEARCH METHODOLOGY

Chapter 3 describes the methodological process that will be followed for this research project in order to adequately address the research problem and sub problems. This section will describe the research paradigm, the research design, the population and sample, the research instrument, data analysis, collection, and interpretation techniques to be used, as well as comments on the limitations, reliability and validity of the study.

3.1 Research methodology

A qualitative research paradigm that will be used for this study. Denzin & Lincoln (2013) describe qualitative researchers as “stressing the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry.” The aim of the study is to understand whether indigenous yeast inoculations would be feasible in the South African wine industry. As such, it is important to understand for what reasons respondents believe this to be a feasible idea or not. Creswell (2012) furthermore suggests that qualitative studies follow an inductive reasoning logic as the research seeks to develop an increasingly detailed knowledge of the topic. This objective is in-line with determining the feasibility of the research question and is therefore appropriate for this study.

3.2 Research Design

The qualitative research paradigm that will be used for this study. Denzin & Lincoln (2013) describe qualitative researchers as “stressing the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry.” The aim of the study is to understand whether indigenous yeast inoculations would be feasible in the South African wine industry. As such, it is important to understand for what reasons respondents believe this to be a feasible idea or not.

Creswell (2012) furthermore suggests that qualitative studies follow an inductive reasoning logic as the research seeks to develop an increasingly detailed knowledge of the topic. This objective is in-line with determining the feasibility of the research question and is therefore appropriate for this study.

The methodological approach to be followed will be semi-structured interviews for this study. In this study, interviews are best able to achieve the epistemological assumption that qualitative studies attempt to get as close to the topic and interview participants as possible (Creswell, 2012). As the research question examines a topic that is the personal choice of the winemaker, it makes sense to attempt to understand the reasons for this choice in a much detail as possible. The advantages of this approach to research design are represented in the first hand reasoning and information that will be collected from winemaker's responses on their particular situation (Creswell, 2012). This approach has the effect of minimising the distance between the researcher and the source of information. However, a disadvantage of this approach may be that access to winemakers in a position to entertain the research question may be limited. This approach to winemaking is not appropriate for all wine farms and therefore limits the population that could potentially be interviewed. The size of the sample required for qualitative interviews is smaller than that of a quantitative study, and whilst the depth of information is greater, there is potential for the range of answers to be limited because of the small sample size (Denzin & Lincoln, 2013).

3.3 Population and sample

3.3.1 *Population*

The population for this research includes all people who are well-respected players and interested parties within the winemaking or yeast for wine industries. People from both of the industries will be able to contributed valuable information towards the research question posed.

3.3.2 Sample and sampling method

The sampling method selected for this study is the purposeful sampling method. This method attempts to maximise the depth and richness of the interview while identifying shared understandings across the range of participants (DiCicco-Bloom & Crabtree, 2006). The number of samples that will be selected will fall within the range of 5-10 participants, with a minimum of five being required for the study. This sample range of semi-structured interviews should allow for the conveying of key information but without creating a case of constant repetition (Creswell, 2012).

Participants will be identified through personal contacts, references from personal contacts and interview candidates, as well as references from the Cape Winemakers Guild. I believe that these channels will allow for the identification and interview of between 5 and 10 participants for the study. It should be noted that the sample numbers might change during the study depending on the quality of the completed interviews and the availability of the participants.

Table 2: Profile of respondents

Description of respondent	Number to be sampled
Winemaker	7
Yeast Expert	2
Wine Marketing expert	1

3.4 The Research Instrument

The research instrument will form part of the data collection technique and will take the form of researcher-led, repetitive, semi-structured interviews. The structure of the instrument will follow a set of questions that will be posed to participants will be open ended and leading in order to ensure the participant answers the questions relating to the sub-problems and does not drift off course in a major way. These interviews will be scheduled with the participants and take place in the Western Cape.

The instrument will comprise of open-ended questions addressing the key points of the study's sub-problems. This instrument has the potential for few usability issues. The research instrument can be administered easily during a meeting booked in advance. Furthermore, if the participant needs to seek clarity on any of the questions, they can be reworded or expanded upon to ensure full understanding as interviewer interaction is allowed and no time limit is placed on the discussion.

The instrument will be broken up into three sections, each addressing a single sub-problem. The first section's questions will attempt to analyse the make-up of the South African wine industry. The question will aim to explore the risk profile and the opinion of the participant on the feasibility of the business need. This is important to understand, as a winemaker who would make use of this proposed business service would have to be open to new and innovative ideas. If the participants are very risk averse, it could be argued that the South African wine industry is not at a level of maturity that makes it possible to satisfy the business need.

The second section of questions will focus on the benefits of utilising indigenous yeast in a fermentation process. Each participant will have their own opinion on this topic, as an opinion will most likely be a function of the participant's experience and knowledge on the topic. A winemaker for example may be pro or con the idea of using indigenous yeast simply because of their previous work experience. The questions will seek to ascertain why a participant is for or against the idea of using indigenous yeast in the fermentation process.

Lastly, the third section of questions will seek to understand the value that can be derived from using specificity within the South African wine market. Questions covering this point will aim to understand how specificity is currently being used in the South African market as well as how else it could possibly be used regarding indigenous yeast. It is important to note that there are very few peer-reviewed articles on this subject focussed on South African and the answers from the participants will be a very important source of information.

3.5 Procedure for data collection

Before any data is collected, clear communication to the participant about the intention of the research should occur. Once this has taken place, a consent form needs to be signed by the participant, stating that they are happy that the interview can be used for research purposes, and that the interview be recorded to ensure no key data is lost before analysis. The recording will be done via a voice recorder, and the post the interview the recording should be guarded with due care. Once the recording has been transcribed and analysed, the recording should then be destroyed to protect the participant's anonymity (DiCicco-Bloom & Crabtree, 2006).

3.6 Data analysis and interpretation

Analysis will occur concurrently to data collection so that each interview can be more informed on the topic than the last. This gives direction on which are the right questions or follow-up questions to ask the participant (DiCicco-Bloom & Crabtree, 2006). This approach becomes an iterative process from one interview to the next and aims to eventually reach a point of information saturation in which no new themes are emerging from the interviews (Denzin & Lincoln, 2013). A thematic approach to data analysis will be followed for this study. Thematic analysis is a search for themes that emerge as being important to the description of the phenomenon (Fereday & Muir-Cochrane, 2006). Thematic analysis occurs through a process of identifying and coding themes within the data. In their article Fereday & Muir-Cochrane (2006) refer to themes as patterns that organise and help to interpret observations in the data. This approach will enable the important information from the data collection phased to be identified and further analysed in the context of business feasibility.

3.7 Limitations of the study

- There is a risk that the interview participant will not share all of their knowledge during the discussion. The participant may also have other thoughts on the topic after the interview has been conducted, these thoughts cannot be included in the study. The implication of these risks to the study is that the study may not be able to capture all of the information that could possibly be ascertained. This in turn may skew the results of the study.
- Only a small sample of the total population of participants can be interviewed. The views of the sample population may not be in line with those of the rest of the population. Additionally, the sample population may give answers that are aligned to the total population but may not provide the range of answers a larger sample population might provide. The implication of this limitation is collecting a non-representative set of data or only a small section of the data representative of the total population.
- The data collected from the interviews may not be correlated. Each participant may answer the questions in a unique and different way that does not allow for major themes to be created from the data analysis. The implication of this outcome would be many and varied opinion on the topic, but no consensus that can be drawn from the interviews.
- The interviews may not accurately support the feasibility of the business venture. That in itself is not a problem, however this could be because of the industry not currently being mature enough for this business need to be met. The implication of this result is that the business need is a future business need rather than a current need.
- Diversified opinions may cause the thematic analysis to not produce major themes, rather only minor themes. Despite a lack of frequency, each theme should be analysed individual and independently to critically assess its importance as a minor theme that is identified may be a very important consideration within the feasibility of the business need.

- Leading questions may prompt respondent's answers rather than the respondent coming up with the idea themselves. This may bias the importance of that particular idea from the respondent.
- There are very few peer-reviewed articles on this topic in the case of South Africa. Therefore, both South African and international articles need to be included when compiling the review of literature on the topic.
- Due to the nature of a master's study, the data will be analysed by a single person and discussed with a supervisor. This allows for consistency but not for multiple perspective or varied skills and expertise which could improve the study

3.8 Validity and reliability

Validity is the extent to which a research instrument performs as it is supposed to perform (Denzin & Lincoln, 2011). Content validity refers to the appropriateness of the content of an instrument (Denzin & Lincoln, 2011). Content validity will depend on how the participants answer the questions during the interview. Content validity in qualitative studies can be checked through comparing the data obtained from one participant with the data from other participants and the review of literature. This process is called data triangulation. Validity for this study is the quality of data that can be obtained through the interview of participants.

Reliability can be described as the consistency of the instruments output (Denzin & Lincoln, 2011). As the interviews will be qualitative in nature, different results are expected from each participant. The data analysis technique will follow a reliable thematic process approach and each interview will be analysed in the same way, following the same process.

3.8.1 External validity

External validity is the extent to which the findings of a study can be extrapolated from a small sample to a greater population (Denzin & Lincoln, 2011). In the context of this study, each product (wine) has its own history and story of how it was made. No two vintages of a wine are identical and therefore each participant's perspective should be seen as independent. However, the fermentation processes are all very similar and despite the differences in the wines, using specificity as a marketing tool can be seen as a common technique and therefore these answers will be externally valid in the wine industry. As the sample size is small, participants will be chosen from both the yeast and wine industries to ensure the opinions shared are varied enough to represent the industry opinion.

3.8.2 Internal validity

Internal reliability will be achieved through the review of any inferences and conclusions drawn from the data by the research supervisor. Additionally, participant's responses will be checked for validity through data triangulation.

3.8.3 Reliability

A semi structured interview guideline and thematic data analysis process will be followed for each instance of the sample data. This process is repeated until the interview process is complete and a situation of data saturation is arrived at. These processes will be followed identically and will not differ between different data instances as all data will be treated in the same manner. The process will be outlined in the research methodology chapter in the data collection and data analysis sections to ensure the process is defined adequately. The results of the data analysis will then be compared and any outliers identified and explained.

3.9 Demographic Profile of Respondents

The demographic profile of respondents matched the planned demographics. All respondents fitted the planned profiles of either winemaker or yeast expert, no interview was possible with the wine marketing expert. Eight interviews in total were conducted instead of the planned ten, this was due to a lack of availability on the part of two of the respondents as they were readying themselves for harvest season.

Table 3: Profile of actual respondents

Description of respondent	Number sampled	Respondents
Winemaker	7	P1, P2, P4, P5, P6, P7, P8
Yeast expert	1	P3
Wine marketing expert	0	
Total Number sampled	8	

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

The interview transcriptions were analysed using a deductive or data-driven thematic analysis approach consisting of several re-iterative stages. Each subsection was identified by distilling the data through the respective stages and ensuring the eventual themes accurately represent the majority opinions on the topic, surprising responses, as well as aspects respondents highlighted as very important.

The sequence of the thematic analysis process can be described as follows:

- i) Transcribe interviews
- ii) Ensuring familiarity of transcriptions
- iii) Breaking-up the sections of the transcriptions into units of meaning.
- iv) Perform initial coding of these units
- v) Identify broad themes by analysing units and combining codes
- vi) Distil broad themes into a smaller number of inclusive themes called major themes

The results of the study have been presented in their identified themes. These themes are aligned to the research question they pertain to.

4.2 Results pertaining to Hypothesis 1

Differentiating a wine

Participants agreed that the wine industry is very competitive currently and the globalisation and importing and exporting of wine did not make that easier. There was a distinction made between premium and commercial wines.

“It is important to differentiate in this market in terms of product as well as from a price point of view”: Participant 4.

Commercial wines tended to compete on price mainly and value second, whereas premium wines competed on profile, quality and style before price.

Participants stated that it was important to always be trying to differentiate their products and improving the quality of the wine at the same time.

“What we are all hoping to do is to create wines that have a sense of place, which tell a story, and with which you can differentiate yourself from others”: Participant 5.

The study found a strong trend towards a more terroir driven approach to winemaking, thereby making the wine unique but also serving a niche market. This is important as it was unanimously noted that the marketing and selling of the wine was much more challenging than making the wine.

“Everyone involved in the business agrees that the concept of indigenous yeast and spontaneous fermentation is in line with the non-interventionist, the pure wine making”: Participant 5.

4.2.1 Conclusion pertaining to Hypothesis 1

It can be summarised that it is difficult to compete in the current wine market due to the number of producers and the number of different products currently in the market.

4.3 Results pertaining to Hypothesis 2

Situational Spontaneous fermentation

Participants all liked the idea of spontaneous fermentation, the risk associated with the practice caused hesitancy amongst some of the participants. It was agreed that the risk was very real but that there were ways in which to mitigate the risks. Large wineries were not likely to accept the risk of losing a tank due to a stuck fermentation but agree that there are benefits to using indigenous yeast.

“There is definitely a market for it. I would focus my energy on winemakers that are scared of spontaneous fermentations and who want to make quality wine but would like to minimise the risk”: Participant 1.

Smaller boutique wineries were much more open to spontaneously fermenting their wine, this was due to their agility and smaller batch size. Other factors that contributed to a positive view of spontaneous fermentation was the winemaker's confidence and skill, the microclimate of the vineyard, control or influence over the supply chain, and the degree of financial backing and responsibility.

“Spontaneous fermentation definitely affects the complexity and the array of flavours. The wines don't seem so manufactured, they become more interesting with a diversity of colours and flavours “: Participant 7.

“I try to be weary of the alchemy and marketing and its effect on the winemaking, more alchemy is employed the less a winemaker has confidence in his terroir. The more confident you are, the less you want to interfere with it”: Participant 5.

“If you could do this successfully, and you could grow cultures from your own property, for a specific vineyard, it would be really great from a winemaking point of view, and exceptionally cool from a marketing point of view”: Participant 8.

4.3.1 Conclusion pertaining to Hypothesis 2

The benefits of spontaneous fermentation can outweigh the risks providing the winemaker is in the correct situation and has control over the winemaking and supply chain processes.

4.4 Results pertaining to Hypothesis 3

Wine of origin

Good concept, but needs to be applied with practicality to not dampen experimentation. Great initiative going on in the Swartland currently. This concept can help South African wineries to specialise and grow regions that are known for particular styles of wine.

“Wine of Origin helps to create awareness around wine regions as well as farms. It also plays a large role in the sale of the wine and conveys the story of the farm”: Participant 4.

The wine of origin concept is already contributing to the specificity of products on a regional basis, and tends to benefit premium wines more than commercial wines. The single vineyard wine is the best example of this on a granular level and is heralded as a very positive differentiation move in both the quality of wine made within the industry and in its marketing strategy.

Organic and bio-dynamic farming

Organic wine is seen as a trend that is seen as growing steadily. This trend started in the food industry but has grown consistently in the wine industry over the last ten years. The view of the participants is that consumers are more aware about what they are eating and drinking and that there is definitely an opportunity to sell organic products moving into the future.

“Organic products are definitely a move customers are wanting. They also like the experience of integrated farming when visiting a farm, it helps with the story”: Participant 1.

Participants noted that there are lots of challenges with organic farming, and that it is not easy to change vineyard practices from traditional to organic and bio-dynamic. The restrictions around organic farming pose challenges when there is bad weather and during the conversion phase as the yield drops but as the soil improves so does the quality of the fruit, when compared to conventional farming practices. More microflora found in biodynamic vineyards,

this is good for indigenous yeast fermentations and it is thought of as supporting the specificity of the vineyard.

“The research found that there are 1000x more micro flora diversity in a bio-dynamic vineyard compared to the vineyard next door which was being farmed conventionally”: Participant 7.

Growing consumer knowledge and curiosity

Agreed that access to information has grown tremendously through the internet as well as through mobile apps such as Vivino. However, information is not knowledge. The increased access to information has led to a more curious consumer, who will try different wines for the experience. This benefits the niche style wines but does not grow their market permanently.

“Yes, the knowledge of consumers has improved. It has become easier for consumers to learn about wine”: Participant 2.

This improved experience of the consumer helps to grow their understanding of wine and its regions thereby further understanding the role specificity plays in the wine market. The challenge still exists for the winemaker is how to improve customer loyalty to their products when there are so many to choose from.

4.4.1 Conclusion pertaining to Hypothesis 3

Specificity plays a role in differentiating wines and their styles. As a tool, specificity is more valuable to premium wines than commercial wines, and as such is an important tool for boutique wineries who do not produce large volumes of wines.

4.5 Summary of the results

Differentiation is very important to ensure the wine is sold. The difficulties faced by commercial wine makers are different to those faced by premium winemakers, nevertheless it is not an easy market to do business in.

Spontaneous fermentation is a very situation specific decision. There are benefits associated with it as well as risks. If the winemaker is in the right situation it is possible to mitigate the risks and enhance the quality of the wine using indigenous yeasts. The decision also needs to be supported by the style and taste profile of wine that is being made.

CHAPTER 5. BUSINESS CASE

5.1 Introduction

This chapter helps to formulate the case on how to meet the market gap identified in Chapter 1. Chapter 5 aims to put forward some well-reasoned scenarios on how best to approach the market need through a new business venture. The scenarios will include the benefits, risks, a cost estimate and key players required to make the scenario viable. One scenario will be highlighted as the preferred scenario based on the analysis performed throughout the project.

5.2 Problem Statement

The South African wine industry comprises of almost 600 different wineries. There is an on-going need for winemakers to differentiate their products in order to stand out within the market. By making use of indigenous yeast within their fermentations, winemakers can enhance the specificity to the product and better stand out within the South Africa wine market. Indigenous yeast fermentations come with various risks, there is an opportunity to work with winemakers to reduce the risk associated with indigenous yeast fermentation by collecting, storing, and re-activating indigenous yeast cultures when required for the winemakers.

5.3 Mission or Vision Statement

This new business venture is a trusted partner of wineries making use of spontaneous fermentation methods. The services offered by the new venture have encouraged and enabled more South African wineries to utilise indigenous yeasts in their fermentations and thereby creating wine that is more interesting and exciting. These wines are able to stand out within the market place because of their quality and finesse.

This shift in the mindset of winemakers has supported the initiatives started in the Swartland area, and continues to strengthen South Africa's reputation as one of the most exciting wine producing regions of the world.

5.4 Specific Objectives

To provide services to wineries in the Stellenbosch and Swartland areas that allows clients to:

- Organise a collection of an indigenous yeast culture at a particular time and place
- Store indigenous yeast culture associated to either a particular cultivar or a specific vineyard
- Store the yeast within the laboratory at a temperature of +2-+8 degrees centigrade to preserve the culture
- Set a re-inoculation date and time for re-activated indigenous yeast culture inoculant to be delivered

As a result:

- Winemakers can store indigenous yeast cultures from good years and have them available to inoculate with during years where poor environmental conditions might lead to issues during spontaneous fermentations.
- Winemakers can enhance the specificity of their wine by producing it on the farm, from fruit grown on their farm, and fermented with yeast indigenous to the farm, thus increasing the marketing capital of the product.
- There is a backup mother culture stored in the laboratory that can be culture into an inoculant whenever required without losing the mother culture.
- Opportunity to further work on understanding the indigenous yeast strains found in the vineyard and their affects within a fermentation.

5.5 Preferred Approach

5.5.1 *Statement of approach*

The first phase of the preferred approach is to run a pilot study to ensure the process works correctly and to identify any unforeseen challenges, identify time restraints and other variations that need to be taken note of. All data on pilot studies as well as engagements will be stored in a safe online location in the cloud to allow for on demand reference, data analytics, and trending of the data over time, and funding applications. The pilot study can be run at a fairly low cost and can be performed in conjunction with industry partners such as the agricultural research institute and a winery willing to share their ferment for experimentation purposes.

Should the pilot study prove successful, there will be a progression to the second phase focusing on funding. Funding will have to be secured to begin the venture officially. Funding will be applied for from the following:

- SAWIT, the South African wine industry trust, whose mission it is to support the commercial development and promotion of the South African wine industry to ensure global competitiveness and sustainability.
- SAVCA, the Southern African Venture Capital and Private Equity Association.
- A company such as Terroir Capital, a venture capital company with a focus on winery investments.

It should be noted that the operational model will be as lean as possible. Due to high fixed costs, a loan was not considered as a preferred option for funding the venture. In line with this thinking, the operation should be run in an efficient manner and quickly grow the brand and the client relationships in order to build a stable revenue stream as well strong relationships within the industry.

The third phase focusses on operations. The venture would follow a market penetration strategy as depicted in the Ansoff Growth Matrix. The new venture will be operating in an existing market with existing products. In order to grow, new venture therefore will be aiming to grow its number of clients (Johnson, Whittington, Scholes, Angwin, & Regner, 2014).

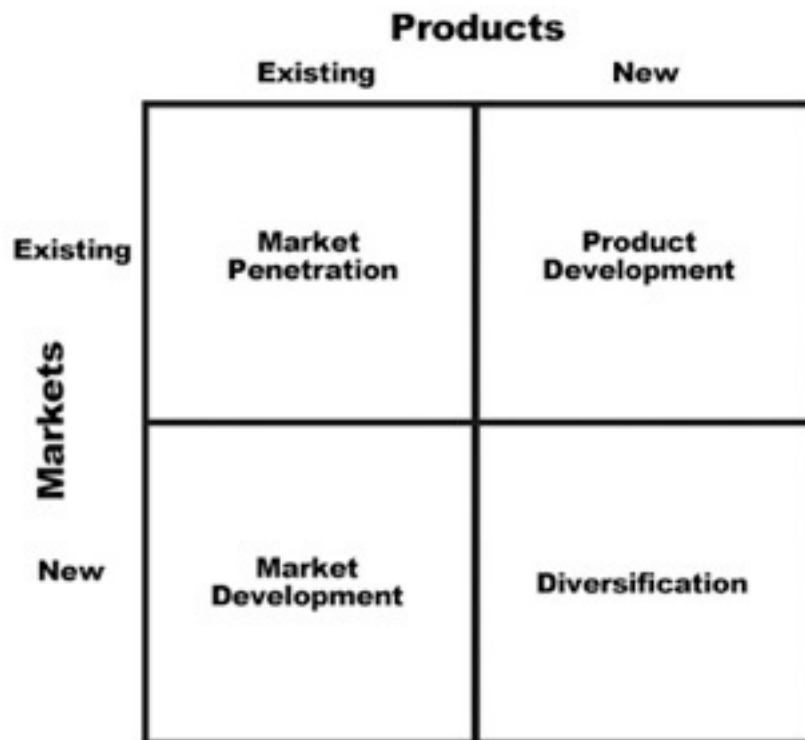


Figure 1: Ansoff Growth Matrix

(Johnson, Whittington, Scholes, Angwin, & Regner, 2014)

The small scale operation will focus on building long term relationships with wineries in the Western Cape. A basic operational model will be established with two employees, one manager and one employee. During the operational phase, the focus will be on building a brand and gaining clients. Trust will be built with clients by maintaining good operational management standards, sharing microbiological insights, and offering affordable skills and services that help wineries compete in a congested industry.

In order to mitigate the risks associated with spontaneous fermentation, the approach recommended for the new business venture is to start by offering basic collection, storage and growing services. The service will be offered to wineries in the following manner:

- A sample of early to mid-fermenting must is collected and transported back to the laboratory in a mini keg.
- Once in the laboratory in Stellenbosch, duplicate samples are processed and stored at a temperature of between 2-8 degrees centigrade.
- During harvest time, the client may ask for the culture to be grown up and delivered in order to supplement the fermentation of a particular batch.

The fourth phase of the approach outlines an idea of how to use the laboratory to help build trust with clients. A demonstration area can be created to share knowledge with clients and explain to them the intricacies of the yeast culture interactions. Internships will be encouraged to build relationships with universities and the agriculture research centers.

The final and fifth phase to this approach focusses on trying to spread knowledge around spontaneous fermentations and the benefits of indigenous yeasts. Hosting tasting evenings with partner wineries, and inviting winemakers to come and share their thoughts with wine enthusiasts and wine journalists. These may occur on a quarterly basis and help to market the new venture, provide a platform to build relationships, and spread knowledge around the use of spontaneous fermentations which may bring in future business.

Wine tasting on spontaneous ferments

It is important to note that this venture is a small scale venture. It can be run as a single venture with a long-term view or it could also be a service adopted by another company to decrease the high level of startup costs. In this study it is being planned as a single venture.

5.5.2 PESTAL Analysis

						
Issue	Uncertainty around future of agricultural land reform	New minimum wage and higher taxes	Wine drinking seen to be aspirational	Access to information about wine and wine products	Organic and bio-dynamic trends	No organic legislation in the near future
	Little support for agriculture from Government	Increase in wine tourism	Health consciousness	Different channels to market wine product	Climate change	Increased maturity of wine of origin regulations
		Globalisation of wine industry and market	High levels of unemployment	Technology playing a larger role in production and analysis of wine	Winemaking following terroir driven approach	Challenges with organic certification requirements locally and globally
		Increased sin taxes by treasury	Alcohol abuse problem			
		Inexpensive labour	More people are drinking wine			
Business Impact		Rising costs of agriculture				
	Investment confidence in Agricultural sector low	Increased cost pressure on wine industry	Focus on organic products	New venture marketing cheaper and easier via digital channels	Opportunity to convert vineyards practices to organic and bio-dynamic	Perform horizon scanning regularly to stay ahead of pending legislation
	Increased pressure on pricing	Increase in market size	Improved data analytics and customer targeting required	Ability to share targeted topical insights easily	Practical decision making crucial when farming	Stay aligned with most stringent organic certification
		Opportunities for new ventures		Improved access to clients and potential clients	Identify other eco-friendly opportunities in the wine industry	
		Decrease in sales of luxury goods	Help spread awareness around the problems of alcohol abuse			

Figure 2: PESTEL Analysis

5.5.3 Target Market

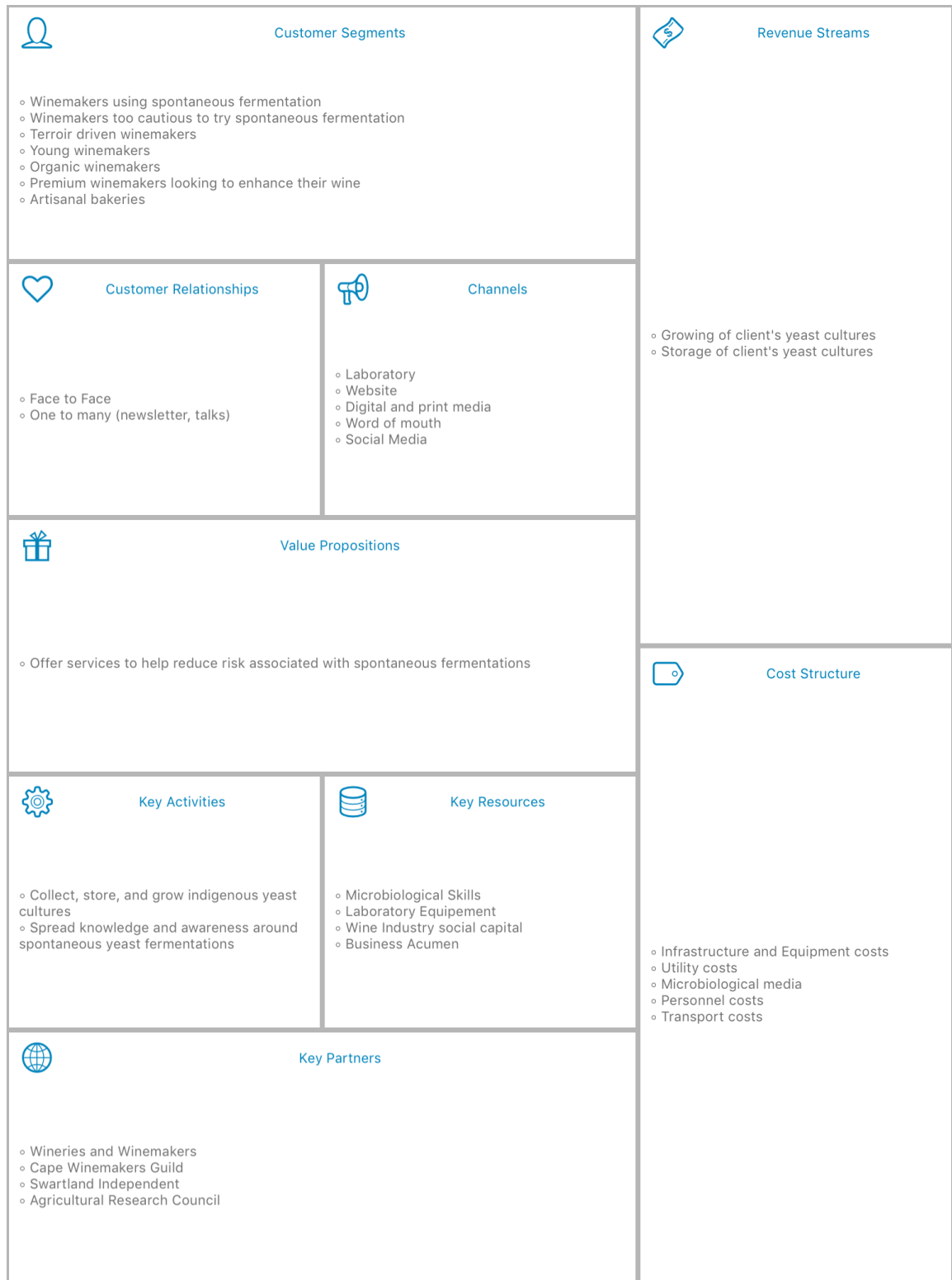
The laboratory will be set up within the regional Stellenbosch science park. This is to take advantage of the scientific startup incubator, the entrepreneurial thinking, and the other resources at the disposal. One of the targeted areas for clients will be the Swartland wine region. This region has established the Swartland Independent, which is a group of winemakers producing wines that are truly expressive of their origin and may not make use of commercial yeast thereby making it a good area to build relationships and potentially find clients.

The target market for this new venture includes but is not limited to:

- Winemakers currently spontaneously fermenting their wine
- Winemakers who would like to spontaneously fermenting their wine, but currently cannot accept the risk
- Winemakers trying to enhance their terroir driven approach to winemaking
- Young winemakers producing new styles of wine
- Organic winemakers
- Premium winemakers looking for ways to enhance their product
- Artisanal bakeries and beer brewers

These categories are not mutually exclusive, but these aspects might in an individual or combined fashion, draw them to this approach.

5.5.4 Business Model Canvas



MetaCanvas by WhatEverApps.co

Figure 3: Business Model Canvas

5.6 Expected Benefits

The expected benefits of starting this new venture aim to positively affect the new venture, the winemaker, and the South African wine industry as a whole.

5.6.1 *New venture preferred approach benefits:*

- Mitigated risk for spontaneous fermentations
- Service operates in line with terroir driven approach to winemaking
- Service operates in line with organic wine making regulations
- Opportunity for winemaker to differentiate their product
- Increased understanding of yeast interactions through mutually beneficial partnership between laboratory and winery.
- Enhanced product story and marketing capital for wine
- Replication of 'good year' yeasts for winemakers
- Artisanal baking synergy

Benefits to South African wine industry include:

- Sharing wine knowledge with consumers and making wine exciting and interesting
- Platform for Improved industry collaboration around spontaneous fermentations

5.6.2 *VRIO framework analysis*

The VRIO framework can be used to analyse an opportunity to create a competitive advantage. The opportunity is evaluated using each attribute of the VRIO framework. The figure below indicates the result of a VRIO analysis on a sliding scale, slowly incorporating each attribute and depicting each of the results. In the case of indigenous yeast usage by a winemaker:

- Is indigenous yeast valuable? Indigenous yeast adds value to the wine through its interactions within the fermentation adding complexity, flavours, colour, and a fuller pallet. It is assumed that this indigenous

yeast was collected and stored during a good year.

- Is the indigenous yeast rare? Yes, it is very rare, this specific culture of indigenous yeast is a product of its microclimate, the state of the vineyard, and the level of human interaction.
- Is it difficult to imitate? It is incredibly difficult and expensive to imitate as it is a naturally occurring culture rather than a combination of commercially manipulated yeast strains.
- Lastly, is the organisation organized around this opportunity for a competitive advantage? No, it is not. Utilising indigenous yeasts is a way to enhance a wine. The winery is organised around the broader issue of making wine which may or may include the use of indigenous yeasts.

According to the analysis conducted above, it can be concluded that the opportunity to make use of indigenous yeast is an unused competitive advantage within the wine making industry.

VRIO Model

Is valuable?	Is rare?	Is difficult to imitate?	Is organization organized around?	What is the result?
NO				COMPETITIVE DISADVANTAGE
YES	NO			COMPETITIVE EQUALITY / PARITY
YES	YES	NO		TEMPORARY COMPETITIVE ADVANTAGE
YES	YES	YES	NO	UNUSED COMPETITIVE ADVANTAGE
YES	YES	YES	YES	LONG-TERM COMPETITIVE ADVANTAGE

Figure 4: VRIO Framework

(Johnson, Whittington, Scholes, Angwin, & Regner, 2014)

5.6.3 Source of Competitive Advantage for Winemakers

Porter's generic strategies model depicts the different sources for competitive advantage within a marketplace. In this study the source of competitive advantage for winemakers making use of indigenous yeast in the fermentation is differentiation. This is due to there being no focus on the cost of the product but rather a difference in the product itself. If there is an indirect cost effect, then that is a bonus. Additionally, there is a broad scope for use of indigenous yeasts within the wine industry as the type of wine made using this process can be very varied.

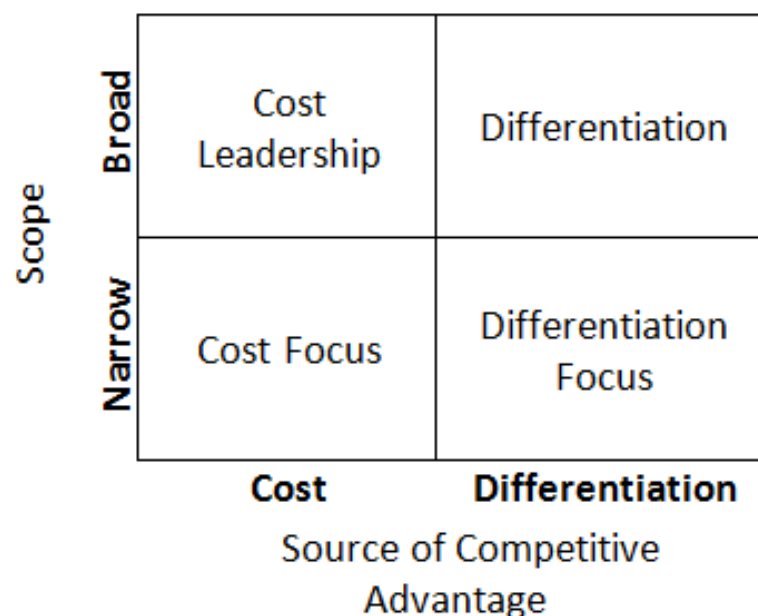


Figure 5: Porter's Generic Strategies

(Johnson, Whittington, Scholes, Angwin, & Regner, 2014)

5.7 Performance and Progress Measures

In any new organisation it is very important to measure progress made and track expenditure as the venture progresses and establishes itself. The following are metrics that would provide critical information in order for this new venture to grow successfully:

- Percentage of successful fermentations in which new venture supplied services
- Average annual amount saved by wineries by not purchasing commercial yeast
- Number of new clients per month/quarter
- Conversion rate of customers
- Customer acquisition cost
- Lifetime customer value
- Ratio of customer acquisition cost to customer lifetime value
- Customer acquisition cost recovery time
- Customer retention rate
- Customer satisfaction level
- Referral rate of existing customer
- Most successful sources of referral
- Annual Revenue per client
- Monthly overhead expense
- Monthly burn (monthly expense)
- Runway time in months
- Profit margin on services
- Client enquiry turnaround time

5.8 Risks and ways to address them

As with any new venture, there are risks associated with the investment in a new idea. The risks identified for this new business venture and how they will be tackled are expanded upon below.

The risk of not taking the opportunity and investing in this niche area of the South African wine industry. This is a risk but will not have a major effect. There is a market opportunity that can be taken advantage of and that opportunity will be lost along with any potential profits and foothold in the industry that could have been the result of the investment.

Client trust breakdown is a large area of concern as winemakers have a lot invested in each fermentation batch. If the trust is broken between winemaker and the new venture, it will most likely result in the loss of the winemaker as a client. In order to prevent this, strong measures should be put in place to build trust and foster a long-term relationship with the winemaker. From regular updates and contact to sharing insights from a thought leadership perspective and professional service whenever dealing with a client. The client should be given no reason to doubt that the relationship will be anything other than a success. Transparency and honesty is a large part of this effort.

Economic and cost pressure are currently playing a large role in decisions made within the wine industry. Adding extra costs for indigenous yeasts services onto the cost of production is not something the winemaker will be too happy about. The indigenous yeast service costs however aim to replace the cost of yeast and perhaps reduce the cost of production inputs for the winemaker.

A challenge for this new venture will be only growing yeast cultures once a year during harvest periods. This means that a large portion of revenue comes in once a year, it also means that there will potentially be high levels of demand to cater for during that period. Projects will be run to utilise the laboratory effectively during the remainder of the year to create new revenue streams.

5.9 Project Management, Business Functions, and Staffing

Two roles have been identified for the new business venture. A manager and a Yeast Technician. Due to the small size of the venture, two employees will have to cover a number of roles, this will be an expectation regardless of whose ultimate responsibility the activity is.

The roles and responsibilities for the employees are as follows:

Manager: The Manager will be the business lead and responsible for the general administration of the venture. The Manager will oversee any new projects or initiatives and spend a large amount of time on client facing responsibilities. The client facing responsibilities include customer relationship management and new lead generation. Human resources management and business venture marketing will also be the responsibility of the Manager.

Yeast technician: The Yeast Technician will be the scientific lead and responsible for the all the technical scientific work and support for clients. The primary responsibility of the Yeast Technician will be the collecting, storing, and growing of yeast cultures. The secondary responsibilities for the Yeast Technician will include looking after the laboratory and its maintenance as well as performing technical demonstrations clients, generating technical insights and content for newsletters and knowledge sharing at events. There will also be a marketing and customer relationship management aspect to this role due to the client interaction.

An external advisory board will also be assembled. The advisory board will consist of mentors and industry experts who can provide an outside view of the venture and share their knowledge and experience as the venture grows.

Roles responsible for the different functional areas of the business venture include:

Human Resources: Human Resources will be the responsibility of the Manager. The Manager will be responsible for recruiting the right people for the business, with the right skills, qualifications and experience. The Manager will also be responsible for organising training where required and ensuring the career development of the business's people.

Marketing/Promotions: Marketing and promotion will be overseen by the Manager with help from the Yeast technician where required. The Manager will determine the best ways to communicate with existing and potential customers, identify ways in which to effectively promote the business and develop a long term marketing strategy for the business.

Customer Service Support: Customer support will be provided by both the Manager and the Yeast technician depending on the required area of expertise. If the support is provided by the Yeast technician, the customer will have the opportunity of escalating the issue to the Manager if necessary. The customer support provided will include dealing with customer inquiries, complaints and orders, as well as service before, during, and after sales. It is the responsibility of both the Manager and the Yeast technician to build relationships with customers.

Sales: The Manager is responsible for sales in the new venture. The manager will ensure the sales goals are in line with the marketing strategy and customer service strategy in order to generate sales in line with sales forecasts.

Accounting and Finance: The Manager is responsible for the Accounting and Finance function within the new venture. The Manager will keep track of the cash flows within the business and ensure that all required the financial compliance is met.

Distribution: Distribution is the responsibility of the Yeast technician. The technician will ensure that the product reaches the customers in a timely manner and in the form requested by the customer. The Manager may play a backup role in this regard if required.

Research and Development: Research and Development will be a joint effort between the Yeast technician and the Manager, as well as with industry partners such as universities and agricultural research institutes. These relationships will be used to try and further the products being grown for the customers.

Administrative and Management: The Administrative and Management responsibilities will fall to the Manager who will oversee the business strategy, decision-making, planning and financial review of the new venture.

Production: Production will be run by the Yeast technician. This is the technician's area of expertise and will ensure the products are free from defects and of good quality. The technician will also have a large contribution to make on which raw materials and equipment are used, as well as refining the production process from collection to delivery.

Operations: The Manager will oversee the Operations processes with consistent input from the Yeast Technician. As it is a small business venture, the Operations and Production processes will have to work together seamlessly.

Information Technology Support: The IT requirements of the business for the venture will be overseen by the Manager. There is an opportunity to outsource the support of the IT setup for the venture to a local IT company. The Manager will be responsible for setting up the SLA between the venture and the local IT company to ensure that the IT setup enables the venture to perform all activities that are necessary.

Purchasing: The purchasing of raw materials, equipment, supplies and other ad-hoc purchases is the responsibility of the Manager. Requirement will be sent from the Yeast technician to the Manager who will approve the purchases.

Legal Department: The Manager will oversee any legal requirements, regulations, and complaints and act as the official and formal representative of the business.

5.10 Cost Estimate and Funding Sources

Total setup costs for the new venture will be R 890000, thereafter monthly expenses will total R 63200. Initial costs are primarily made up of the equipment for the laboratory. The monthly expenses include transport, facilities costs, and personnel costs. Personnel costs make up a large portion of the monthly expense budget due to the specialised skills required for the venture, however these are salaries and are subject to change if required. The full budget is available for reference in Appendix B.

Equity funding rather than loan funding was selected as the best means to raise capital. The implication of this is a share in the ownership of the venture and a dividends distribution from the profits rather than trying to cover loan repayments every month. This is especially relevant as the venture will take some time to turn a profit. This means no monthly repayments and dividends from the time the venture is profitable.

The required funding amount is set at R3,25 million, this will give the venture 37 months of runway. This estimate is in line with the critical cost revenue forecast in which the venture will be able to attract 54 clients at the end of the third year of business. At the stage annual revenues will exceed annual costs and the venture will start making a profit. This is a conservative estimate and is based on each client storing two cultures, there will be clients who store more, and some who store less. The goal of 54 clients represents 10.5% of the current winery market, or 104 cultures which forms 1,5% of market share in terms of labels currently being sold. There is therefore room for future growth.

It is important to note that this is a lean long-term venture with opportunities to grow other revenue streams as the venture matures. Two immediate options are the artisanal baking and craft brewing industries. If the initial outlay needs to be reduced, some of the equipment could be leased rather than purchased.

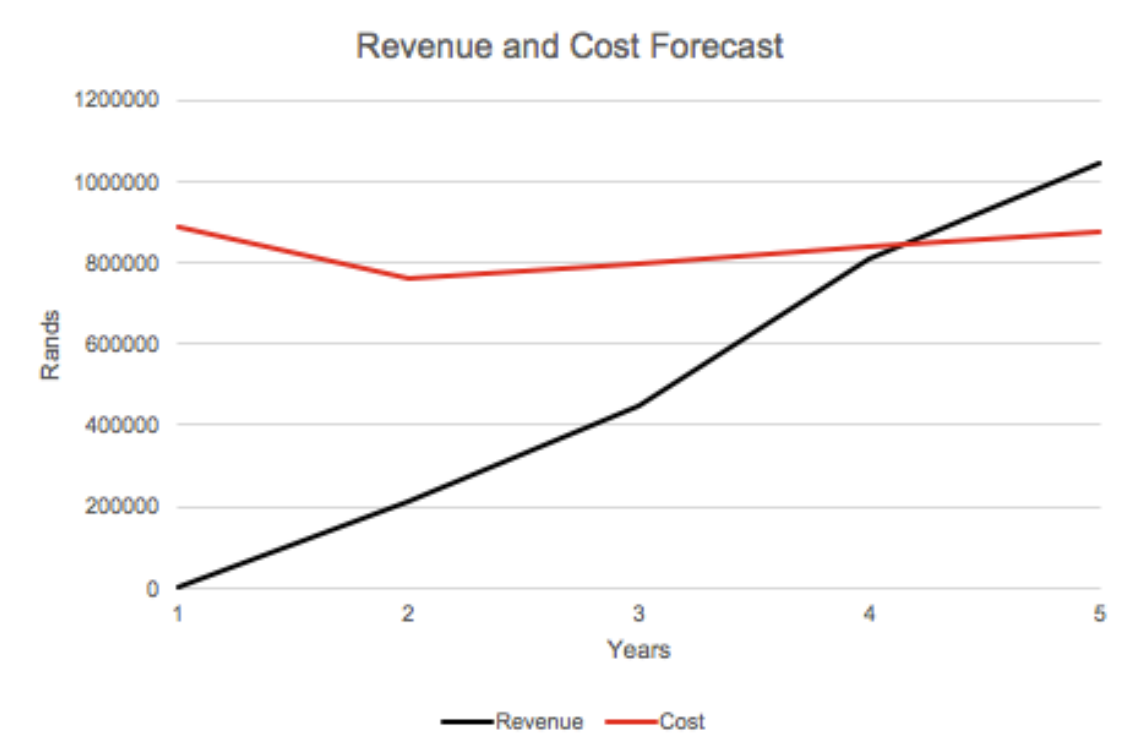


Figure 6: Revenue and Cost Forecast

5.11 Alternatives Considered

5.11.1 *Alternative option 1: Commercially sell indigenous yeast cultures*

The first alternative to the small simple venture was commercially selling indigenous yeast. An indigenous yeast culture could be collected from a vineyard, a yeast strain isolated and tested for viability. If found to be viable, the culture could be grown up, dried and packed to be sold commercially.

While there is potential for growth and a large revenue stream, there are a number of reasons that make it a very niche and challenging opportunity. Very high startup and research and development costs are required before a product can be made commercially available. This is partly due to the expensive equipment utilised in this scientific field, but also to the time the research and development process takes to complete and the specialised skills required to perform the work.

Whether there will be a viable commercial culture can only be determined after the process has been completed, resulting in wasted expenditure if the culture is not a viable product. Due to the high cost of the process, the funding for research and development can most often not come from the wine farm and would have to be borne by the new venture. While this money could be recouped from sales of the product, it would have a large effect on the cash flow of the organisation. Competition could potentially also be an issue, as there is already an organisation called ToBeFirmControl operating in Germany and this type of venture is close to competing with the large multinational yeast companies such as Anchor Yeast and Lallemend Yeast.

This could be a future option for the new venture once it has reached maturity and is looking for more revenue streams, however it is not the preferred option currently due to its complexity and financial challenges.

5.11.2 *Alternative option 2: The new business venture is not feasible*

This alternative suggests that the investment should not be made into this new business venture. The reasons to consider this alternative include the idea that the South African wine industry is not yet mature enough to fully embrace a shift towards spontaneous fermentations. This new venture however, has a long term strategy and will require time to build a brand and a reputation in order to take full advantage of the spontaneous fermentation trend that is currently growing in the industry. The second aspect that needs to be considered when investing is that revenue may be sluggish to begin with and clients may prove difficult to get onboard. These challenges are faced by all new ventures. It is important to build a pipeline of work before the venture begins and to constantly work on strengthening relationships with clients so that it is possible to grow the venture with them but also so that referrals can help to bring in new clients.

CHAPTER 6. CONCLUSIONS

6.1 Introduction

This chapter summarises the essence of the study and the new venture opportunity. Suggestions for future research are also provided to show the extended thinking around the topic.

6.2 Conclusions of the study

Differentiation under competition is key within the South African wine market. The new venture's service offering provides an option allowing winemakers to differentiate their products in a way that supports current wine industry trends such as organic and terroir driven wines, but also helps to mitigate the risks associated with spontaneous fermentation. This concept is not suited for all winemakers in South Africa, but rather is an opportunity for boutique wineries to enhance the quality of their wines at relatively little cost and create some marketing capital for the product.

The new business venture needs to have a long term view with a strong focus on customer relationships to succeed, but once a trustworthy brand has been earned, there is potential for it to become a recognised player in the future of winemaking within South Africa.

6.3 Suggestions for further research

The following areas have been suggested for further research:

- Research into other methods of product differentiation within the South Africa wine industry.
- Improving methods and understanding yeast strain identification in indigenous yeasts populations.
- Understanding the interactions and effects of indigenous yeasts within fermentations.
- Evaluating the economic benefits of wineries that have embraced indigenous yeast fermentations.

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APPENDIX A

Actual Research Instrument

Research questions	Follow-up questions
How would you describe the level of competitiveness in the South African wine industry?	
	Is it necessary to differentiate your products?
Can indigenous yeast be a differentiator?	
	Why would you spontaneously ferment?
	What sort of benefits and risks do you associate with spontaneous fermentation?
	Do you have control over your fruit supply chain?
Is organic wine just a phase or is it here to stay?	Do you have control over your fruit supply chain?
	Is there any organic legislation on the horizon?
Could you elaborate on the links between terroir and indigenous yeasts?	
	Has the trend in terroir driven winemaking changed with the new generations of winemakers?

Do you have any thoughts on the Wine of Origin concept?	
How do you feel about the consumer's level of wine knowledge right now?	
How do you feel about a venture such as this being launched?	

APPENDIX B

New Venture Budget

	Once-off Cost	Per month
Equipment		
Laboratory benches, Furnishings, Finishes	R80 000,00	
Lab Steriliser	R38 000,00	
Media Preparator	R43 000,00	
10L Chemap Fermenter	R430 000,00	
Sampling Equipment	R18 500,00	
TFF Cell Fermenter	R87 000,00	
Minus 80 Deep Freeze	R80 000,00	
20 x Mini Kegs	R34 000,00	
Keg Cleaner	R15 000,00	
Caustic Sanitiser	R12 000,00	
Computer and Printer	R20 000,00	
Software	R2 500,00	
Laboratory Glassware	R5 000,00	
Diesel Generator	R25 000,00	
Monthly costs		
Facility		
Rental Unit in Science park		R10 000,00
Electricity, Refuse, Water		R2 000,00
Telephone and Internet		R750,00
Security		R700,00
Laboratory Gas		R750,00
Microbiological Media		R5 000,00
Personnel		
Manager/Owner		R25 000,00
Yeast Technologist		R15 000,00
Transport		
Delivery Vehicle (Lease)		R4 000,00
Monthly Total		R63 200,00
Start-up Total	R890 000,00	
Total		R953 200,00